Long Reach®

INSTALLATION, MAINTENANCE AND SERVICE MANUAL DBQB-V

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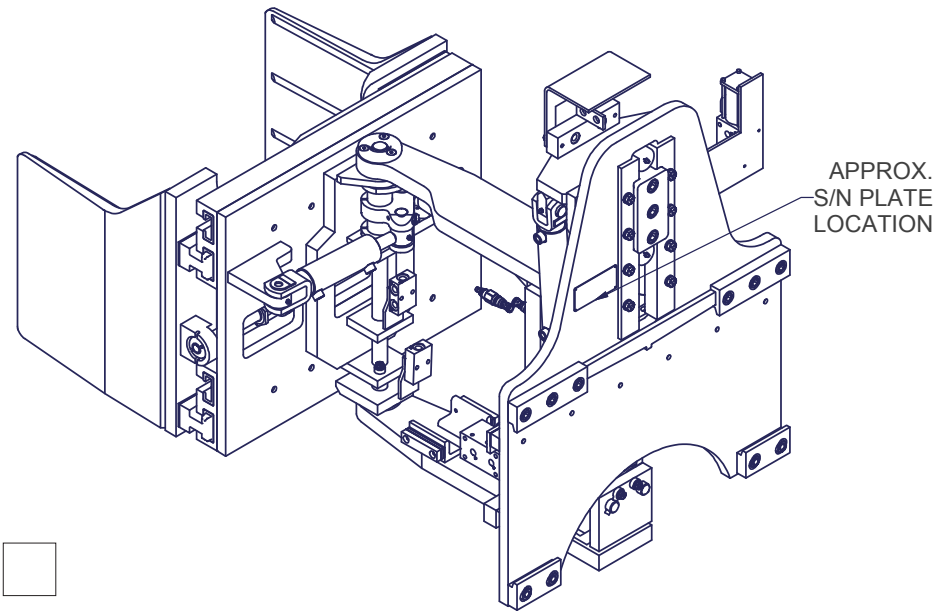
SECTION 1

NAMEPLATE LOCATION

NOTE: WHEN YOU RECEIVE YOUR ATTACHMENT, LOCATE THE LONG REACH NAMEPLATE (UPPER LEFT CORNER ON THE BODY) AND RECORD THE INFORMATION TO THE BLANK NAMEPLATE TAG WITH THE DATE RECEIVED IN THE SPACE PROVIDED ON THE BOTTOM OF THIS PAGE. IF THE NAME PLATE IS MISSING, LOOK FOR THE SERIAL NUMBER STAMPED DIRECTLY INTO THE METAL AT THE ORIGINAL LOCATION AND CONSULT FACTORY.



Date Received:

☐☐-☐☐-☐☐

Long Reach® A Division of Allied Systems Company

MODEL NO.:					
SERIAL NO.:					
MAXIMUM HYD. PRESS.:		PSI	WEIGHT:		LBS
CAPACITY:		LBS @		inch LC	
SEE TRUCK NAMEPLATE FOR COMBINED TRUCK & ATTACHMENT NET CAPACITY					
HOR. CG:	inches	VERT. CG:	inches	LOST LOAD /AET:	inches
CG AND AET SPECIFICATIONS ARE APPROXIMATE					

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www.alliedsystems.com 2500005 RC

SECTION 2

SAFETY SUMMARY

2.1 General Information

Safety is Everyone's Responsibility
Whether you are new on the job or a seasoned veteran, these safety tips may prevent injury to you, to others, or to the materials you are handling. Always be alert, watch out for others, and follow these suggestions:

Attachments Handle Material - Not People.

SAFETY STARTS WITH COMMON SENSE. GOOD JUDGEMENT, PROPERLY MAINTAINED EQUIPMENT, CAREFUL OPERATION, AND PROPERLY TRAINED OPERATORS.

1. ***Check*** your equipment before you operate it.

2. ***Check*** to make sure the attachment on your truck is the same as on the truck capacity plate.

3. ***Check*** for hydraulic leaks and cracked hoses or fittings.

4. ***Check*** the hydraulic oil level in the lift truck hydraulic reservoir.

5. ***Check*** for physical damage to the attachment. If anything looks wrong, unusual or different, report it before using the attachment.

6. ***When*** removing / installing dismountable attachments always keep hands and feet free from dangerous positions or pinch points. Never leave a dismounted attachment in a dangerous position.

7. ***Check*** to make sure that the dismountable attachment is properly secured to the truck carriage before using the lift truck and attachment.

8. ***Never*** stand on top of material being raised, lowered, or transported. (Figure 2-1)

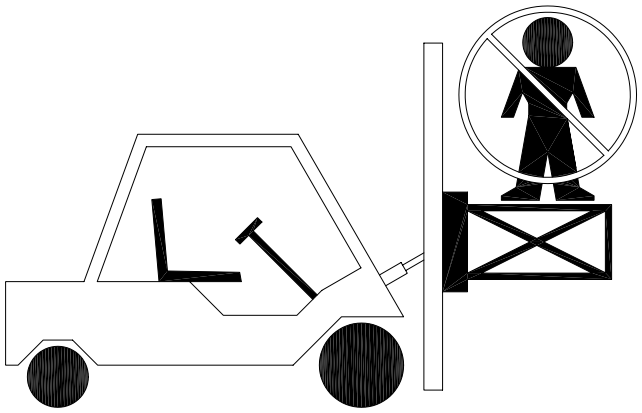

Figure 2-1

9. ***Never*** use the attachment or its load to support a man carrying device.

10. ***Never*** position an attachment or load over people. (Figure 2-2)

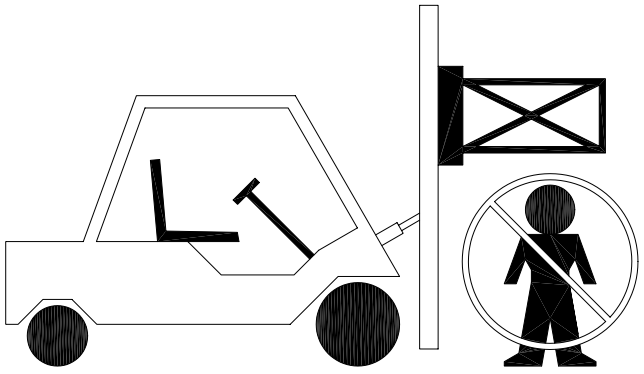

Figure 2-2

11. ***Never*** leave an attachment or load in an elevated position.

12. ***Never*** reach through the mast of the truck. Keep all parts of the body within the driver's compartment.

13. ***Never*** leave a lift truck unattended without lowering the load to the floor, setting the brake, and turning the truck off.

14. ***Always*** operate an attachment from the operator's seat, never while standing next to the lift truck.

15. ***Never*** stand in front of or beside an attachment that is being operated. Never allow another person to approach an attachment that is being operated. (Figure 2-3)

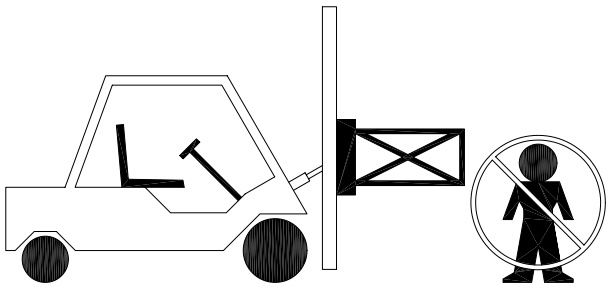

Figure 2-3

16. ***Do not*** allow riders on the truck at any time.

17. ***Always*** use reverse when carrying a load that impedes full vision.

18. ***Watch*** for pedestrians when transporting. Sudden stops can dislodge all or part of a load.

2.2 Load Handling

1. ***All*** operators must be trained and qualified.

2. ***Never*** overload the attachment. Refer to the attachment nameplate for the rated capacity of the attachment. Refer to the nameplate of the truck for the net working capacity of the truck and attachment. Observe the lower of the two capacities. The attachment capacity is the structural rating of the attachment and should not be exceeded. Net working capacity is the truck manufacturer's rating of the truck/attachment combination.

3. ***Never*** use a load to support or move another object. Doing so can easily exceed the holding capacity of the attachment, causing loss of the load.

4. ***Never*** lift, lower, side shift, pivot, rotate, or tilt loads while traveling. Repositioning loads while traveling affects the stability of the truck and may impede vision or clearances.

5. ***Never*** speed or race a lift truck. High speed adversely affects the stability and steering of the lift truck.

6. ***Do not*** use an attachment to open or close boxcar doors. Doing so can severely damage the attachment and cause loss of warranty. Damage to clamp arms may result in product damage.

7. ***Do not*** carry loose items or unsupported loads on top of a clamped load.

8. ***Never*** allow anyone under a load or under the carriage.

9. ***Never*** use chains, cables, or other devices in conjunction with an attachment for load handling.

10. ***Never*** clamp loads other than what the attachment was designed to handle.

11. ***Travel*** slowly around corners. Sound horn on blind corners. Be careful of tail swing and overhead clearances. Watch in all directions. Avoid sudden stops.

12. ***Do not*** exceed the specified maximum operating pressure or flow for the attachment. To do so can severely damage the attachment and cause loss of warranty.

2.3 Load Positioning

1. **Always** operate an attachment from the driver's seat.

2. **Always** lower the attachment if you need to leave the lift truck. Remember a lift truck supporting a load requires your full attention.

3. **Never** use the attachment or its load to support or move other loads or equipment.

4. ***Always*** carry loads as close to the floor as possible, consistent with the surface being traversed. Scraping or bumping the floor surface with the load or the attachment can severely damage the attachment and cause product damage. The mast should be tilted back.

5. ***Always*** keep the load positioned as close as possible to the horizontal center of the lift truck.

6. ***Always*** back down ramps or inclines. Driving forward down a ramp or incline with a clamped load will lessen the stability of the truck. (Figure 3-4)

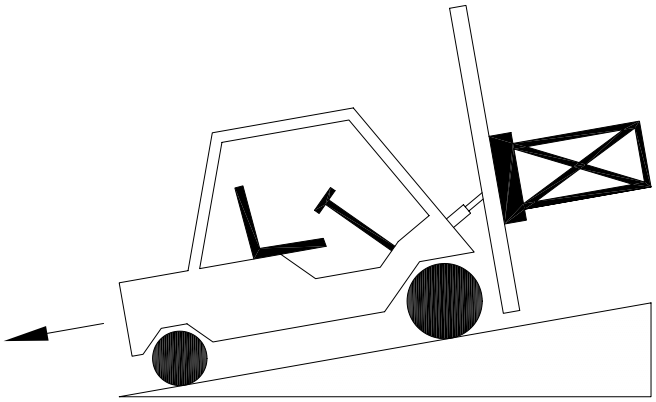

Figure 2-4

7. ***Do not*** cross dock boards or dock levelers with the attachment or carriage fully lowered. Ramming the front or rear of the attachment against a dock board can cause severe damage.

8. ***Always*** check loads to be handled. If they are broken, unbalanced, loose, or too heavy, advise a supervisor or properly correct the situation prior to handling.

9. ***Limit*** lift truck movement to a minimum when high stacking. Limit sideshift movement to a minimum when high stacking.

10. ***Always*** be observant when high stacking. Look for poorly stacked loads, overhead obstacles, broken cartons, or damaged products in the stack.

11. ***Always*** carry cylindrically shaped loads in the vertical position, not the horizontal.

12. ***Always*** clamp loads with the contact pads, if applicable, not the arm or arm base.

13. ***Never*** rotate a load that is off center to the centerline of rotation. Severe damage to the rotator could result.

14. ***Always*** check the attachment for proper fit and engagement of the truck carriage.

2.4 Operator's Controls

1. For clarity, the direction of arm movement is shown on the control handle. To move the arms in the direction shown, pull the handle towards the operator. To move the arms in the opposite direction, the push the handle away from the operator.

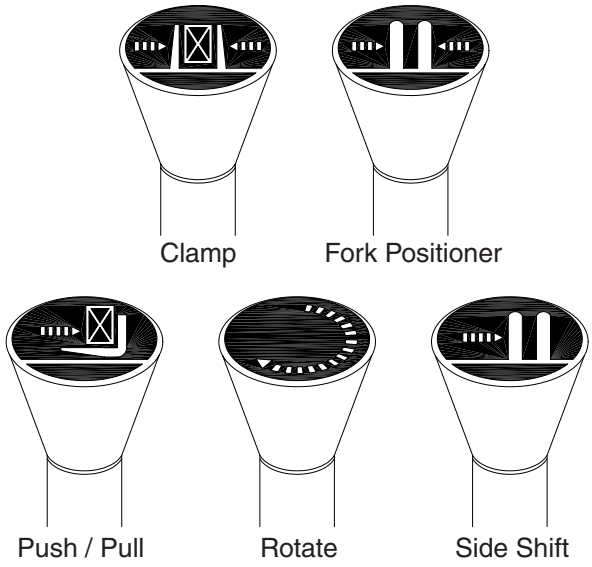

Figure 2-5

NOTE: OSHA OR STATE REGULATIONS MAY REQUIRE THE INSTALLATION OF BACKRESTS. WE SUGGEST THAT YOU CHECK YOUR APPLICATION AGAINST THOSE REQUIREMENTS.

SECTION 3

INSTALLATION PROCEDURE

3.1 Truck Requirements

Long Reach attachments have been designed to operate within specific limits. Operating pressures above the stipulated maximum may cause structural damage to the attachment and may result in loss of warranty. Hydraulic flow less than the recommended rates, or the use of small I.D. hoses may reduce operating speed. Higher flow can result in excessive heat buildup, erratic operation and damage to the truck / attachment hydraulic system.

NOTE: IT IS THE RESPONSIBILITY OF THE DEALER AND / OR THE USER EITHER TO FURNISH AND INSTALL THE REQUIRED VALVING TO MEET THE RECOMMENDED HYDRAULIC PRESSURES AND FLOW OR TO ARRANGE INSTALLATION OF THE REQUIRED VALVING AT THE TRUCK FACTORY OR AT LONG REACH.

3.2 Carriage

1. The truck carriage must conform to the American Society of Mechanical Engineers (ASME) dimensions shown in ASME B56.11.4-1992, reaffirmed 2000

2. Make sure the truck carriage is clean, conforms to ASME recommendations, and the notches are not damaged.

NOTE: THE MODEL DESCRIPTION, FOUND ON YOUR SHIPPED INVOICE, WILL STATE THE FOLLOWING TRUCK REQUIREMENTS: FLOW (GPM), PSI, AND MIN. TRUCK CARRIAGE WIDTH.

3.3 Hydraulics

1. The truck hydraulic system must supply to the attachment hydraulic oil that meets the specifications required to operate the attachment properly.

2. When the truck hydraulic system pressures exceed this maximum, a relief valve is recommended in the attachment auxiliary system of the truck or on the attachment.

3. Consult the truck factory and / or Long Reach for guidance.

3.4 Attachment Installation

1. Prior to connecting the truck hydraulic system to the attachment, the system **must** be purged through the filtration system. This will eliminate any contamination that might exist in the auxiliary hydraulic system of the truck.

⚠ WARNING

THE CAPACITY OF THE TRUCK AND ATTACHMENT COMBINATION MAY BE LESS THAN THE CAPACITY SHOWN ON THE ATTACHMENT ALONE. CONSULT TRUCK NAMEPLATE!

2. Purging can be accomplished by installing a jumper line and operating each hydraulic function (clamp, rotate and side shift if equipped) in each direction for a minimum of 30 seconds. (Figure 3-1)

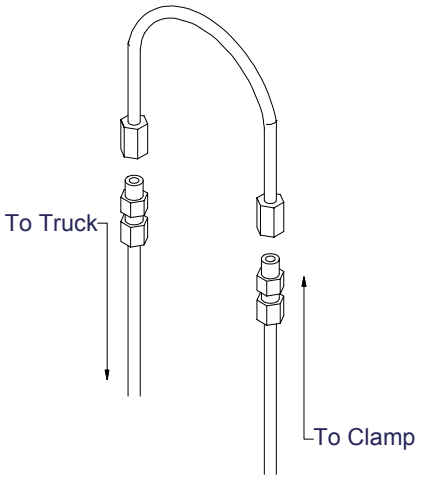

Figure 3-1, Jumper Line

3. Remove the lower bolt-on hooks and, if applicable, make a note of any factory installed shims. Shims are used to create clearance between the hook and carriage. If the attachment is equipped with Quick Change Hooks, simply depress the button on the back of the hooks, allowing the slide plate to drop. Removal of the Quick Change Hooks is NOT recommended. (Figure 3-2)

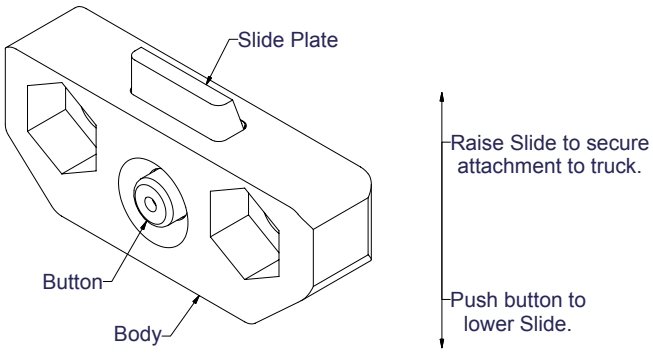

Figure 3-2, Quick Change Hook

4. Center the truck behind the attachment and drive toward the attachment with the mast tilted forward approximately 4 degrees.

5. Line up the locking lug (under the hanger plate, if applicable) with the appropriate notch on the truck's carriage. Check that the bronze side shifting wear strips are in the proper place, if applicable.

6. Slowly raise the truck carriage completely to engage the top hooks with the truck carriage. Tilt carriage back until the unit is against the carriage bottom fork bar (0 degrees).

7. Inspect for proper engagement of the locking lug in the corresponding notch of the truck's carriage. Inspect any wear strips, if applicable, to insure they are properly aligned in the top hooks.

8. Weld on the supplemental locking lug that is supplied with the attachment, (two pieces of 1/2 x 1/2 x 2.00 steel included with the attachment) with either E-6011 or E-6013 Welding Rod, or equivalent, on each side of the truck carriage. (Figure 3-3)

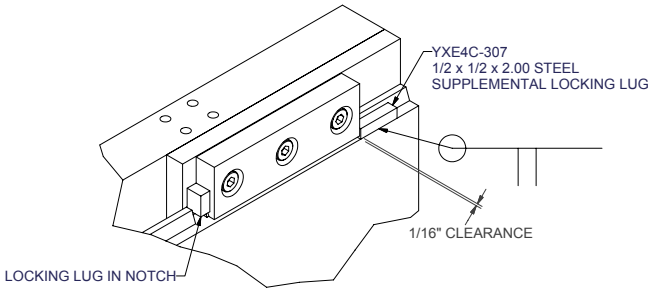

Figure 3-3, Locking Lug

9. Install the bolt-on lower hooks. Inspect clearance to the carriage on lower hooks. Adjust the lower hooks for a maximum clearance of **3/32"** (see Figure 3-4). Tighten the bolts to **40-50 ft-lbs**.

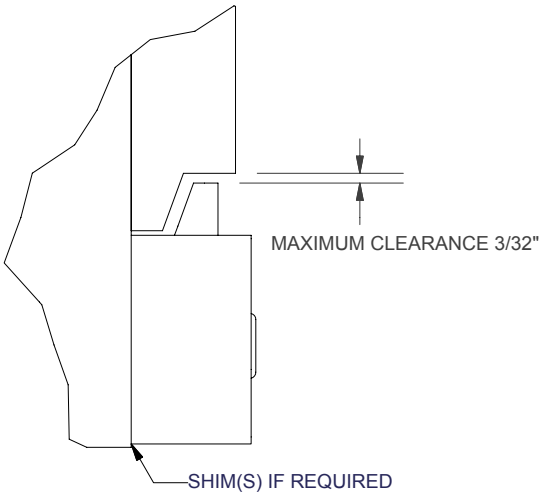

Figure 3-4, Lower Hook Clearance

10. If Quick Hooks are installed, simply raise the slide plate until the button clicks into place.

⚠ WARNING

THIS SLIDE PLATE MUST "CLICK" INTO PLACE TO ENSURE THE ATTACHMENT IS SECURED TO THE CARRIAGE. IF THE SLIDE PLATE DOES NOT CLICK INTO PLACE, (BECAUSE THE TRUCK CARRIAGE PREVENTS THE SLIDE PLATE FROM BEING RAISED UP HIGH ENOUGH), SHIMS MUST BE INSTALLED BETWEEN THE ATTACHMENT AND THE BODY OF THE QUICK CHANGE HOOKS.

11. To ensure proper locking of the slide plate, use a screwdriver to try to pry down the slide plate. If the slide plate is not locked in place, inspect and correct any cause that might restrict the slide plate from going up enough to allow the button to become fully engaged.

3.5 Hydraulic Connections

1. Install the lines from the truck's hydraulics to the hydraulics of the attachment.

4.1 Attachment Removal

1. Position the attachment arms to the width of the unit's body.
2. Disconnect and cap/plug connecting hydraulic lines. Reverse installation procedure.

SECTION 4

SERVICE PROCEDURE

⚠ WARNING

BEFORE DISCONNECTING ANY HYDRAULIC CONNECTIONS BE SURE TO TURN OFF THE TRUCKS POWER AND ACTIVATE THE TRUCKS HYDRAULIC FUNCTIONS IN BOTH DIRECTIONS TO BLEED OFF THE HYDRAULIC PRESSURE.

Figure 4-1, Hydraulic Connection

4. Slightly raise the truck carriage to allow the removal of the bottom mounting hooks. If the attachment is equipped with Quick Change Hooks, simply press the slide plate release button and drop the slide plate down. (Figure 4-2)

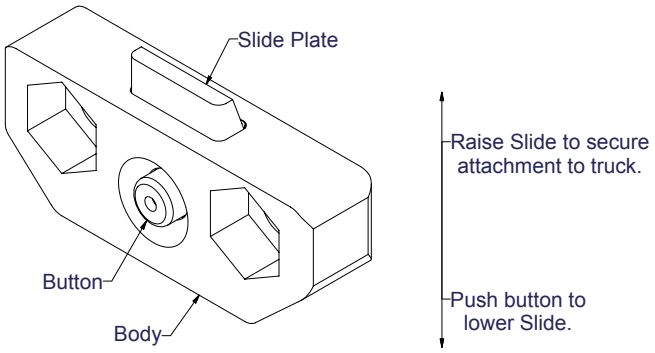

Figure 4-2, Quick Change Hook

5. Position the attachment on the edge of a pallet. Lower the attachment so that the lower carriage bar misses the pallet when lowered. Tilt the mast forward to allow the carriage to disengage from the upper mounting hooks and back away. If lowering onto a floor, blocks of wood can be place under the body of the attachment to raise the rear.

6. To reinstall, follow the installation procedure in this manual.

⚠ WARNING

WHEN HYDRAULIC SERVICING HAS BEEN PERFORMED, BEFORE RETURNING ATTACHMENT TO SERVICE BE SURE TO ACTIVATE THE HYDRAULIC FUNCTIONS SEVERAL TIMES TO BLEED OUT TRAPPED AIR IN THE SYSTEM.

4.2 Arm Removal

1. Extend the arms outside of the body. Remove the cotter pin retaining the flush nut. Remove the flush nut. (Figure 4-3)

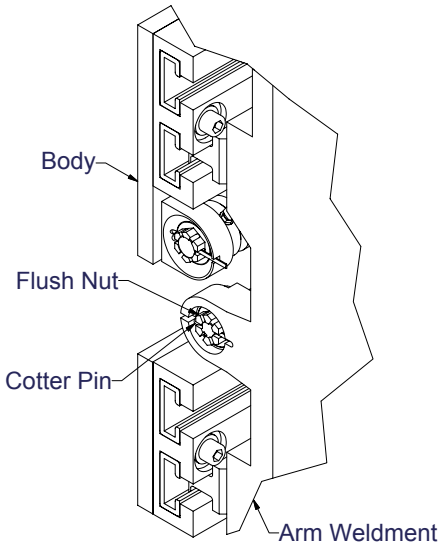

Figure 4-3, Arm

2. Tie the cylinder up to support the weight when removed from the arm lug. Activate the hydraulics and retract the cylinder from the arm lug.

3. Attach a suitable overhead hoist to the arm weldment. Pull the arm assembly out of the body.

NOTE: IT IS NOT NECESSARY TO REMOVE THE ARM ASSEMBLY TO REPLACE WEAR STRIPS. SEE THE SECTION ON REPAIR-IN-PLACE WEAR STRIP REPLACEMENT.

4.3 Arm Installation

1. Attach a suitable overhead hoist to the arm weldment. Line up the slide bar with the proper channel and slide into body.

2. Activate the hydraulics and extend the cylinder rod out until it is at the arm lug. Insert the spacer washer on the cylinder rod and extend the cylinder through the arm lug until the arm moves.

3. Apply a thin coat of bearing grease to the spherical portion of the nut and concave section of the arm lug. Screw on the flush nut until it stops. Back off the flush nut while lining up the cotter pin hole in the rod with the slot in the flush nut. Clearance between the spacer washer and the arm lug should be 1/16 to 1/8 of an inch or less. **Do not tighten the flush nut tight to eliminate all clearance between spacer washer and arm lug.** (Figure 4-4)

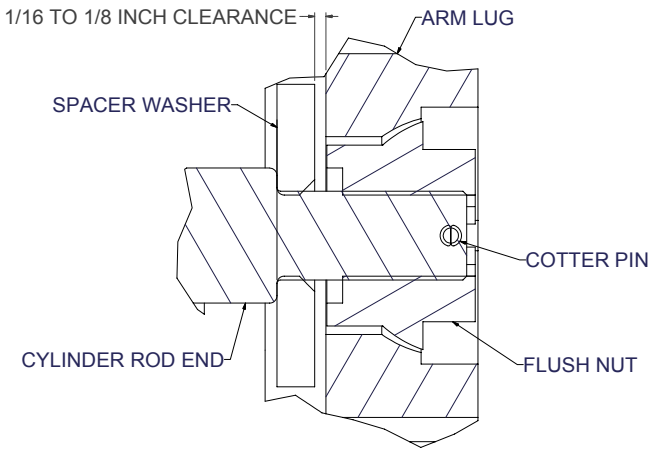

Figure 4-4, Arm Lug

4. Insert the cotter pin and bend to lock into place.

4.4 Cylinder Removal

1. Extend the arms outside of the body. Remove the cylinder rod end cotter pin and flush nut.

2. Tie the cylinder up to support the weight when removed from the arm lug. Activate the hydraulics and retract the cylinder to the fully closed position.

⚠ WARNING

BEFORE DISCONNECTING ANY HYDRAULIC CONNECTIONS BE SURE TO TURN OFF THE TRUCKS POWER AND ACTIVATE THE TRUCKS HYDRAULIC FUNCTIONS IN BOTH DIRECTION TO BLEED OFF THE HYDRAULIC PRESSURE.

3. Turn off the truck's power and activate the hydraulic functions in both directions several times to relief built up hydraulic pressure.

4. Disconnect the hydraulic connections.

5. Remove the cylinder base end flush nut and cotter pin.

6. The cylinder now can be removed through the front of the attachment.

4.5 Cylinder Installation

1. Apply a thin coat of bearing grease to the spherical portion of the flush nut and concave section of the body lug. Screw on the flush nuts until they stop. Back the flush nut off lining up the cotter pin hole in the rod or base end stud with the slot in the flush nut. **Do not tighten the flush nut tight to eliminate all clearance between washer and body lug.** Adjust to allow 1/16 to 1/8 of an inch clearance between the base end of the cylinder and the body lug. (Figure 4-5)

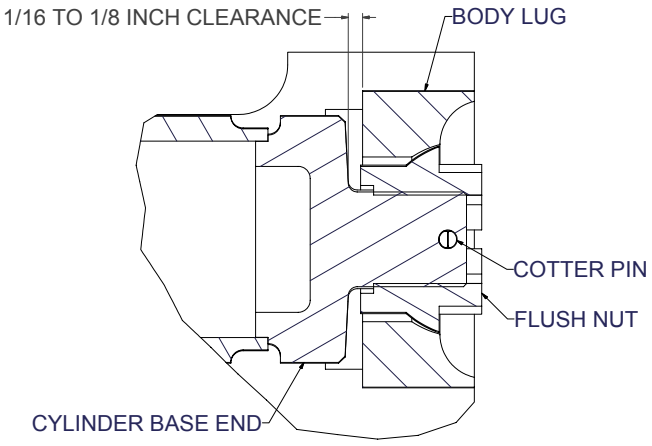

Figure 4-5, Body Lug

2. Turn on the trucks power and activate the positioning cylinders several times to bleed out trapped air.

⚠ WARNING

WHEN HYDRAULIC SERVICE HAS BEEN PERFORMED, BEFORE RETURNING ATTACHMENT TO SERVICE BE SURE TO ACTIVATE THE HYDRAULIC FUNCTIONS SEVERAL TIMES TO BLEED OUT TRAPPED AIR IN THE SYSTEM.

4.6 Cylinder Disassembly

1. Remove the cylinder from the attachment. See removal instructions.

2. Clamp the cylinder lightly at the base end in a soft jawed vise. Use a block or other support under the rod end of the cylinder. (Figure 4-6)

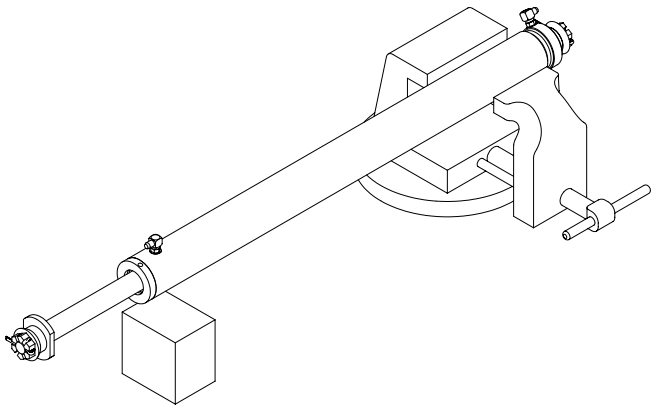

Figure 4-6, Cylinder Vise

3. Use a spanner wrench or similar tool to unscrew the gland cap from the cylinder tube. (Figure 4-7)

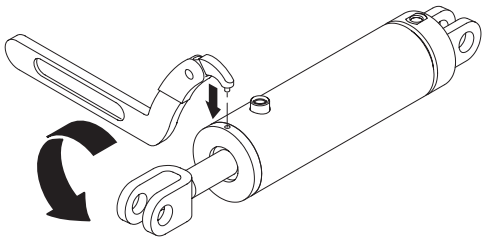

Figure 4-7, Cylinder Rebuild

4. Remove the rod assembly from the cylinder tube.

5. Clamp the rod assembly in a soft jawed vise on the wrench flats, **not on the rod surface**. If the rod does not have wrench flats use two pieces of wood on both sides of the rod to prevent scaring. (Figure 4-8)

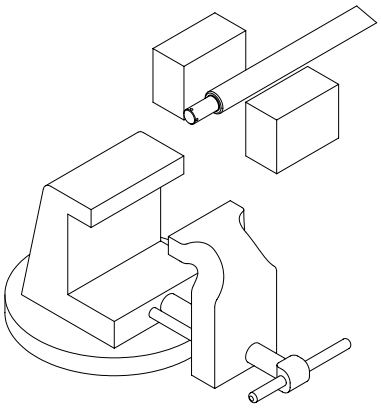

Figure 4-8, Cylinder Shaft

6. Remove the piston retaining nut and remove the piston. (Figure 4-9)

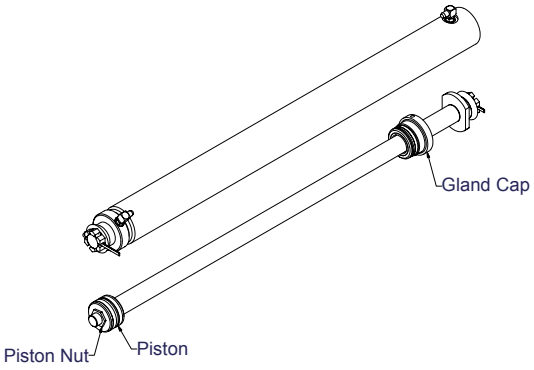

Figure 4-9, Piston Seal

7. Carefully pry up on the piston seals using a blunt tip screw driver being careful not to scratch the seal grooves. Cut the seals to remove from the piston. (Figure 4-10)

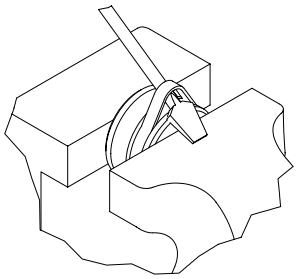

Figure 4-10, Piston Seal

8. Use the same procedure as above to remove the seals from the gland cap.

4.7 Cylinder Inspection

Inspect the cylinder tube bore for:
1. Deep scratches or nicks.
2. Signs of galling or excessive wear.
3. Out-of-roundness or deformities of the barrel.

Inspect the Piston for:
1. Scratches or nicks on seal grooves.
2. Wear on O.D.

Inspect the Cylinder Rod for:
1. Scratches or nicks on the rod surface.
2. Straightness of the rod.
3. Damaged threads.

Inspect the Gland Cap for:
1. Scratches or nicks in seal grooves.
2. Damaged threads or spanner wrench holes.
3. Excessive wear in bore.

Replace any component found to be bad.

4.8 Cylinder Assembly

1. Spray the Piston, Gland Cap, and Seals with WD40 or other similar product to ease slipping of the seals in place.

2. Note the direction of the seal on the piston. Improper installation will result in poor performance. The cupped side or O-Ring side of the seal should be facing the gland cap. (Figure 4-11)

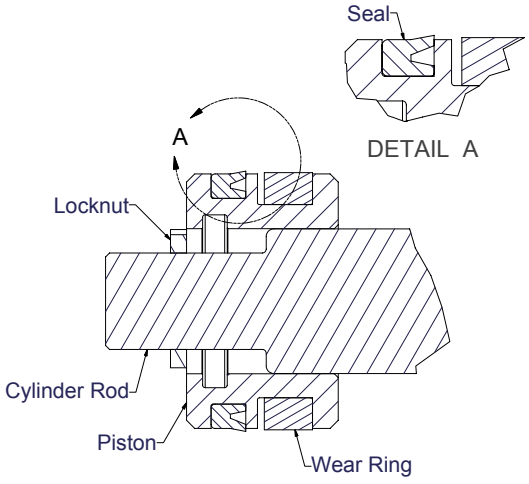

Figure 4-11, Piston Seal

3. Install the seals and wipers in the gland cap. Note the direction of the seals. The cupped side or O-Ring side of the seal should be facing the piston. (Figure 4-12)

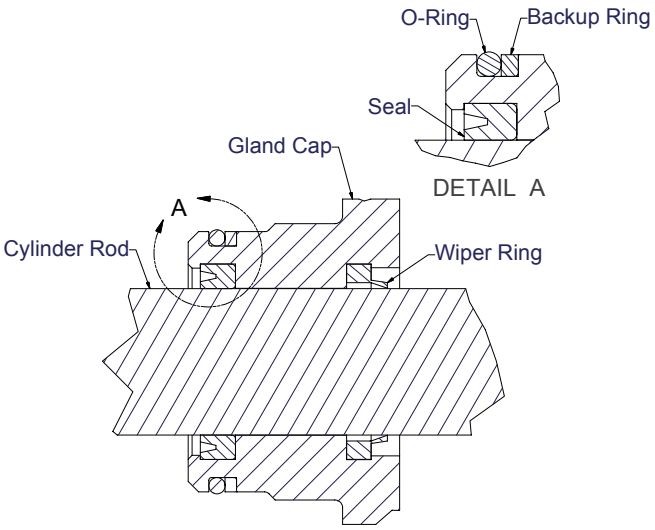

Figure 4-12, Gland Cap Seal

4. Install the piston on the rod and tighten the locknut to 70-75 ft-lbs.

5. Spray the inside of the cylinder tube with lubricant to ease inserting the rod and piston. Insert the rod and piston into the cylinder tube. Tap the rod in with a rubber mallet if resistance is encountered.

6. Install the gland cap on the cylinder rod being extremely careful not to cut the rod seal on the threads of the rod or rod shoulder. If available use a sleeve to cover the rod threads or plastic electrical tape.

7. Tighten the gland cap using a spanner wrench.

4.9 Hydraulic Valve Removal

1. Turn off the truck's power and activate the hydraulic functions in both directions several times to relieve the built up hydraulic pressure. (Figure 4-13)

2. Disconnect the hydraulic hoses from the truck at the attachments valve ports.

3. Disconnect the hydraulic hoses at the valve ports.

4. Remove the valve mounting bolts and remove valve.

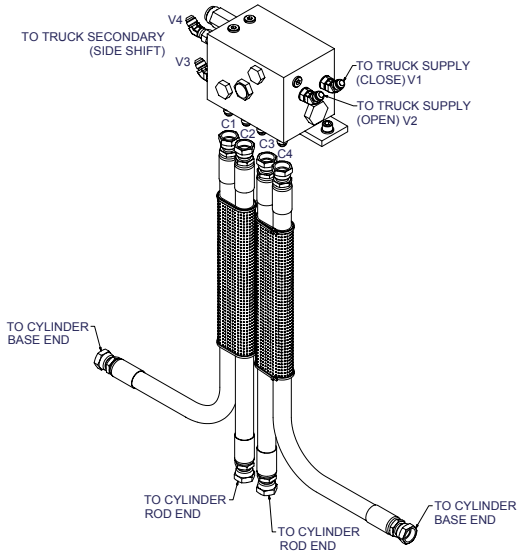

Figure 4-13, Hydraulic Valve

4.10 Hydraulic Valve Installation

1. Reassembly in the reverse order above.

2. Turn on the truck's power and activate the hydraulic functions serveral times to bleed out trapped air.

SECTION 5

MAINTENANCE SCHEDULE

5.1 Schedule

Daily Maintenance:

1. Check level of hydraulic oil in the truck reservoir and add oil if necessary.

2. Visually inspect all hoses and fittings for wear or damage. Inspect for signs of hydraulic leaks.

3. Visually inspect for external damage or cracks.

4. Inspect lower hooks for proper clearance. Maximum clearance is 3/32 of an inch.

5. If the attachment is equipped with Quick Change Hooks check the slide plate latch for engagement.

Weekly 40 Hour Maintenance:

1. Check for loose or missing bolts.

100 Hour Maintenance:

1. Inspect the cylinder Mounting Nuts (Flush Nuts). Apply wheel bearing grease to spherical portion of the nut and the concave section of the arm and body lug on both ends of the cylinders.

500 Hour Maintenance:

1. Inspect base and lower retainer for hairline cracks or signs of structural failure, particularly at the welds.

⚠ WARNING

IF WELDING IS REQUIRED TO MAKE A STRUCTURAL REPAIR, CONSULT LONGREACH BEFORE PROCEEDING.

5.3 Torque Specifications

SAE Grade 5 Capscrews

Nominal Size	Thread Series	Inches	Torque (Ft-Lbs)	
			Dry K=0.20	Lubed K=0.15
1/4	20 UNC	0.2500	8	6
	28 UNF		10	7
5/16	18 UNC	0.3125	17	13
	24 UNF		19	14
3/8	16 UNC	0.3750	31	23
	24 UNF		35	26
7/16	14 UNC	0.4375	49	37
	20 UNF		55	41
1/2	13 UNC	0.5000	75	57
	20 UNF		85	64
9/16	12 UNC	0.5625	110	82
	18 UNF		120	91
5/8	11 UNC	0.6250	150	115
	18 UNF		170	130
3/4	10 UNC	0.7500	265	200
	16 UNF		295	225
7/8	9 UNC	0.8750	430	320
	14 UNF		475	355
1	8 UNC	1.0000	645	485
	14 UNF		720	640
1-1/8	7 UNC	1.1250	795	595
	12 UNF		890	670
1-1/4	7 UNC	1.2500	1120	840
	12 UNF		1240	930

SAE Grade 8 Capscrews

Nominal Size	Thread Series	Inches	Torque (Ft-Lbs)	
			Dry K=0.20	Lubed K=0.15
1/4	20 UNC	0.2500	12	9
	28 UNF		14	10
5/16	18 UNC	0.3125	25	18
	24 UNF		27	20
3/8	16 UNC	0.3750	44	33
	24 UNF		49	37
7/16	14 UNC	0.4375	70	52
	20 UNF		78	58
1/2	13 UNC	0.5000	105	77
	20 UNF		120	90
9/16	12 UNC	0.5625	155	112
	18 UNF		170	130
5/8	11 UNC	0.6250	210	155
	18 UNF		240	180
3/4	10 UNC	0.7500	375	280
	16 UNF		420	315
7/8	9 UNC	0.8750	605	455
	14 UNF		670	500
1	8 UNC	1.0000	910	680
	14 UNF		1020	765
1-1/8	7 UNC	1.1250	1290	965
	12 UNF		1440	1080
1-1/4	7 UNC	1.2500	1820	1360
	12 UNF		2010	1500