

# **INSTALLATION INSTRUCTIONS** *and PERIODIC MAINTENANCE*

## ***J-Series***

### ***Non-Revolution Clamps***

***Includes:***

***Non-Sideshifting Clamps,  
Sideshifting Clamps,  
Fork Positioning Clamps and  
Independent Arm/Fork Control***

***Manual Number 6892490-R1***

**cascade<sup>®</sup>  
corporation**

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This manual provides instructions for installing Cascade J-Series Non-Revolving Clamps.

Follow the suggested installation procedures for best results. If you have any questions or need more information, contact your nearest Cascade Service Department for assistance. Refer to back cover.

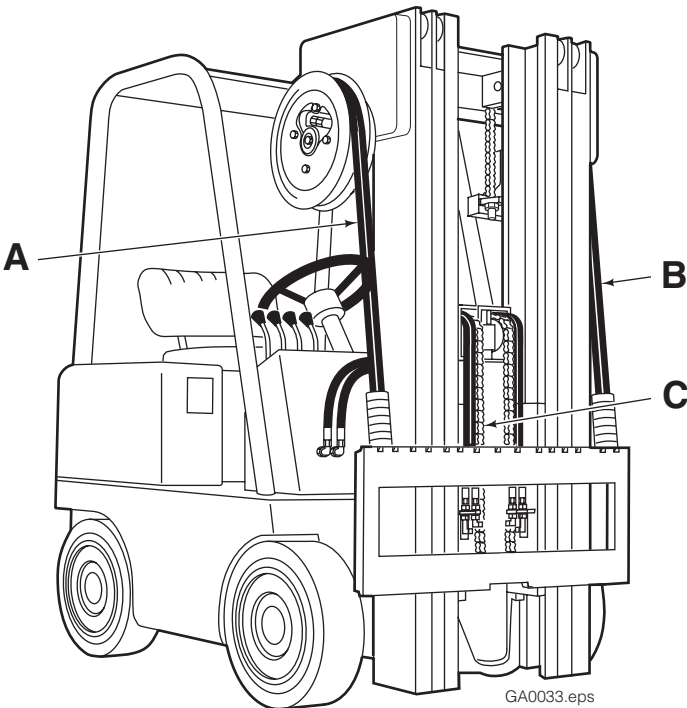
Read the **WARNING** Statements placed throughout this Manual to emphasize safety during attachment installation.

**IMPORTANT:** Field alterations may impair performance or capability and could result in loss of warranty. Consult Cascade for any required modifications.

## RECOMMENDED HYDRAULIC SUPPLY

J-Series Non-Revolving Clamps provide the best performance with one of the hydraulic supply arrangements shown below. Refer to Cascade *Hose & Cable Reel Selection Guide*, Part No. 212199, to select the correct hose reel for the mast and truck. The hose and fitting requirements are:

- All hoses and fittings for CLAMP and SIDESHIFT functions should be at least No. 6 (M8) with a minimum internal diameter of 0.28 in. (7 mm).



### Non-Sideshifting

#### A or B

RH or LH THINLINE™ 2-port Hose Reel Group.

#### OR

C Mast single internal hose reeving group.

### Sideshifting

#### A and B

RH and LH THINLINE™ 2-port Hose Reel Groups.

#### OR

C Mast double internal hose reeving group.

### Sideshifting with Solenoid

A 6-N-1 Cable/Hose Reel group.

#### OR

#### A and C

Cable Reel and single internal hose reeving group.

# TRUCK REQUIREMENTS

## Truck Relief Setting (see attachment nameplate)

| Low Pressure       | High Pressure                           |
|--------------------|---|
| 2250 psi (155 bar) | 2760 psi (190 bar) – <b>Recommended</b> |
| 2740 psi (189 bar) | 3625 psi (250 bar) – <b>Maximum</b>     |

**NOTE:** The attachment valve has separate pressure relief control for CLAMP and SIDESHIFT functions, see Installation Step 11 for adjustment.

## Truck Flow Volume <sup>①</sup>

|                      | Min. <sup>②</sup>    | Recommended           | Max. <sup>③</sup>     |
|----------------------|----------------------|-----------------------|-----------------------|
| <b>10J CLAMP</b>     | 2 GPM<br>(8 L/min.)  | 4 GPM<br>(15 L/min.)  | 6 GPM<br>(23 L/min.)  |
| <b>14J–26J CLAMP</b> | 5 GPM<br>(19 L/min.) | 12 GPM<br>(45 L/min.) | 16 GPM<br>(61 L/min.) |
| <b>SIDESHIFT</b>     | 1 GPM<br>(4 L/min.)  | 5 GPM<br>(19 L/min.)  | 10 GPM<br>(38 L/min.) |

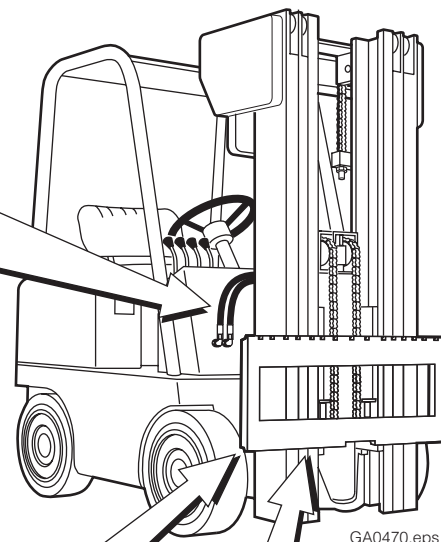
① Cascade J-Series Non-Revolution Clamps are compatible with SAE 10W petroleum base hydraulic fluid meeting Mil. Spec. MIL-0-5606 or MIL-0-2104B. Use of synthetic or aqueous base hydraulic fluid is not recommended. If fire resistant hydraulic fluid is required, special seals must be used. Contact Cascade.

② Flow less than recommended will result in reduced system performance.

③ Flow greater than maximum can result in excessive heating, reduced system performance and short hydraulic system life.



**WARNING:** Rated capacity of the truck/attachment combination is a responsibility of the original truck manufacturer and may be less than that shown on the attachment nameplate. Consult the truck nameplate.



GA0470.eps



## Carriage Mount Dimension (A) ITA (ISO)

|                  | Minimum              | Maximum              |
|------------------|----------------------|----------------------|
| <b>Class II</b>  | 14.94 in. (380.0 mm) | 15.00 in. (381.0 mm) |
| <b>Class III</b> | 18.68 in. (474.5 mm) | 18.74 in. (476.0 mm) |

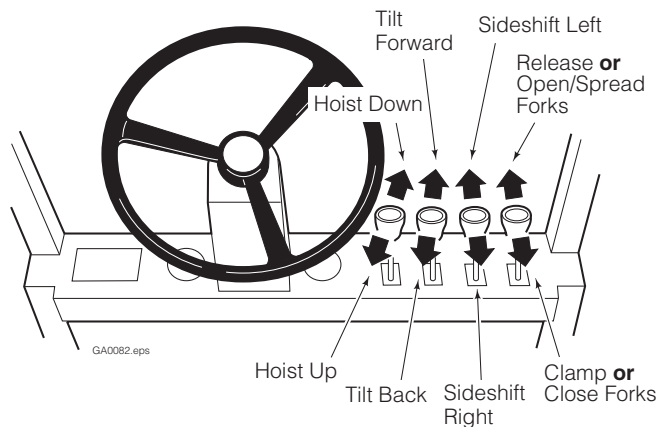
## Carriage

Clean carriage bars and inspect carriage bars. Make sure the bars are parallel and that ends are flush. Repair any damaged notches.

## Auxiliary Valve Functions

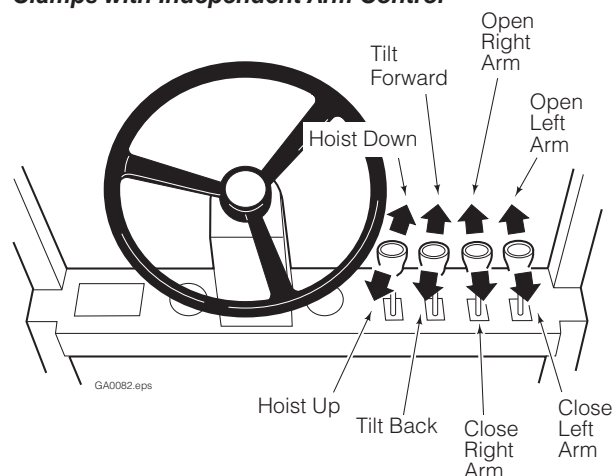
Check for compliance with ANSI (ISO) standards:

### Standard Clamps



GA0082.eps

### Clamps with Independent Arm Control



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# INSTALLATION

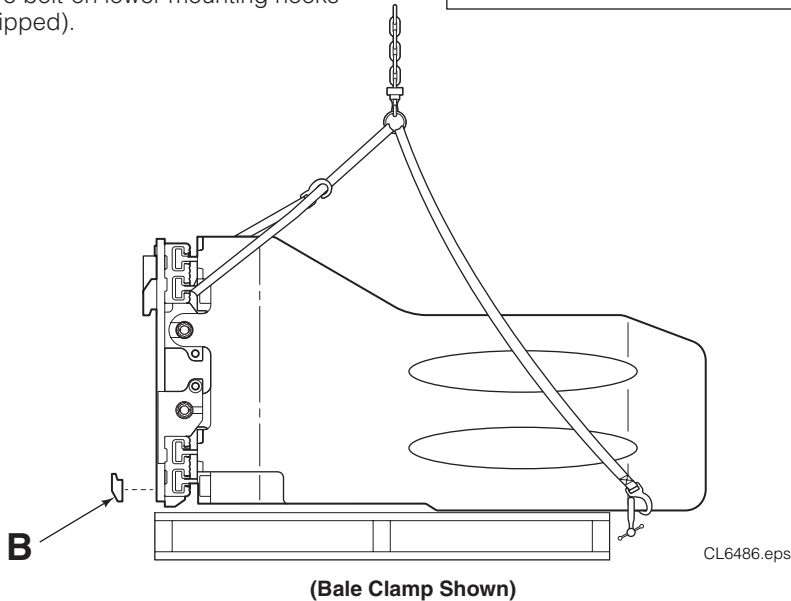
Follow the steps shown to install the attachment on the truck. Read and understand all **WARNING** and **CAUTION** statements. If a procedure is not understood, ask a supervisor, or call the nearest Cascade Service Department for assistance.

## 1 Attach overhead hoist

- A** Remove banding. If required, set the attachment upright on pallet. Use chains or straps as necessary.
- B** Remove bolt-on lower mounting hooks (if equipped).

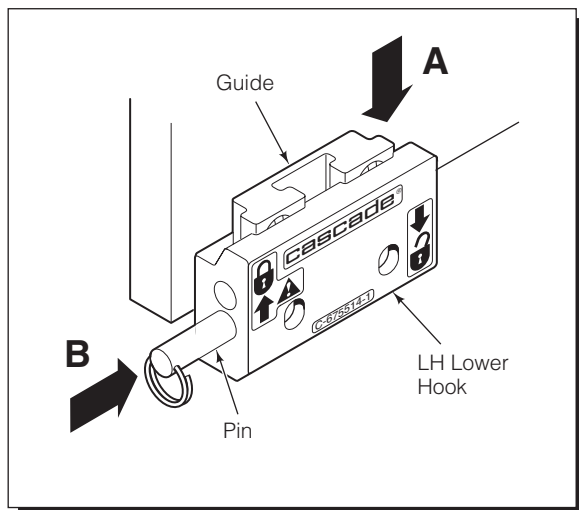


**WARNING:** Verify that the overhead hoist and chains or straps are rated for the weight of the attachment. Refer to nameplate for attachment weight.

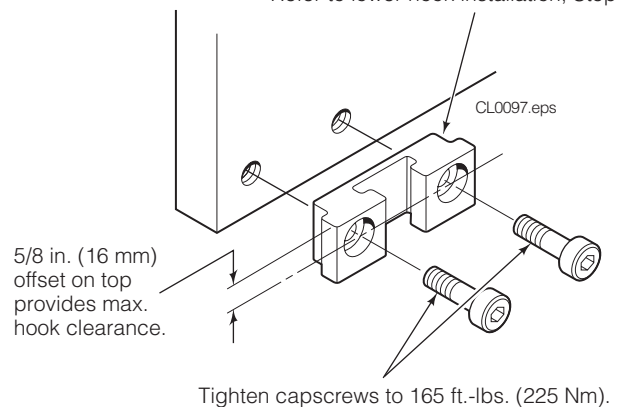


## 2 Unlock quick-change lower mounting hooks

- A** Remove pin and drop hooks into unlocked position.
- B** Reinstall pin in lower hole.



**NOTE:** Guides can be reversed to change hook-to-carriage clearance. Refer to lower hook installation, Step 6.



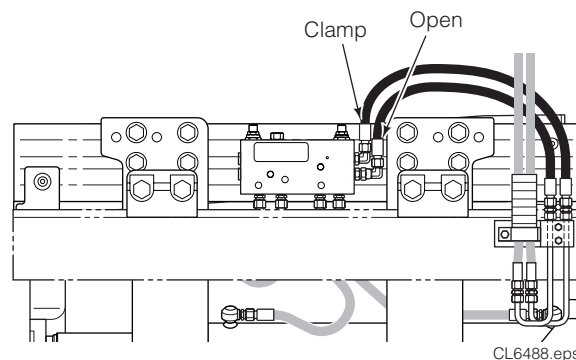
# INSTALLATION

## 3 Prepare Hoses

- A** Determine hose lengths required for hydraulic supply configuration of truck.
- B** Cut hoses to length and install end fittings, or use hose kits supplied.

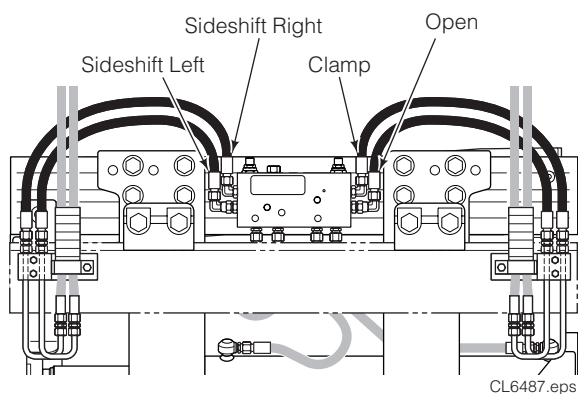
**IMPORTANT:** Valve options include LH or RH supply porting for Clamp/Open and Sideshift Left/Right. External sideshifter has top center location porting suitable for both LH or RH supply connections.

### RH CLAMP Ports



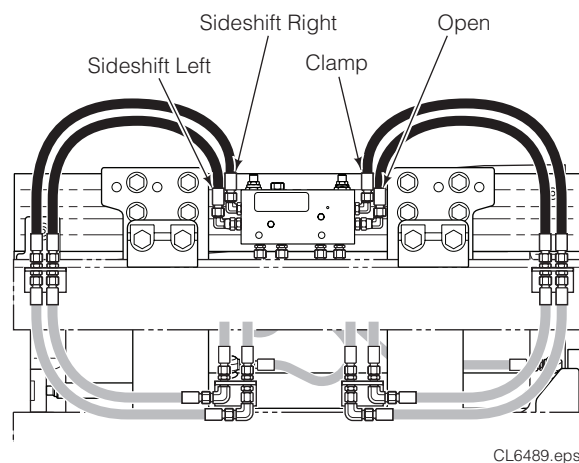
Non-Sideshifting Clamp – Single Hose Reels

### RH CLAMP, LH SIDESHIFT Ports



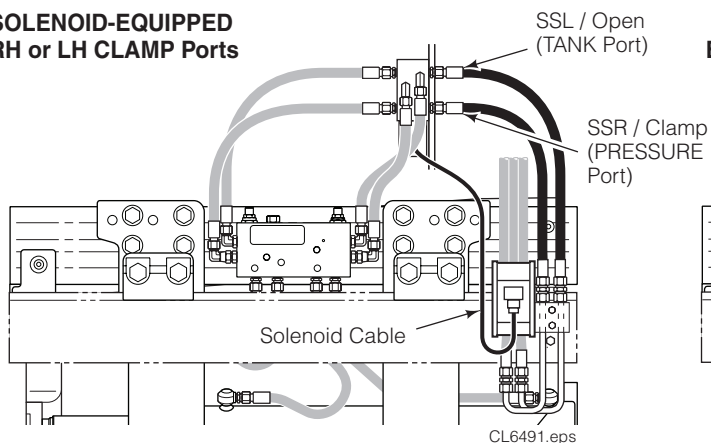
Sideshifting Clamp – Double Hose Reels

### LH CLAMP, RH SIDESHIFT Ports



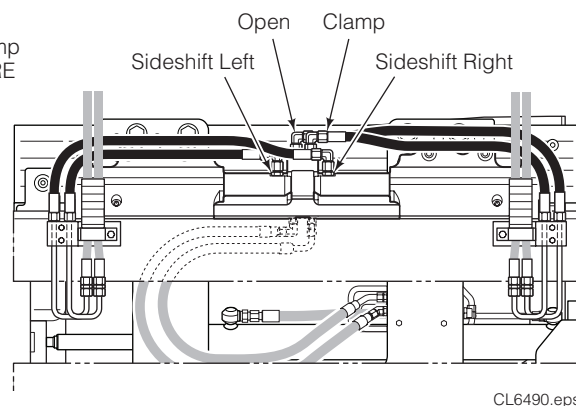
Sideshifting Clamp – Double Hose Reels

### SOLENOID-EQUIPPED RH or LH CLAMP Ports



Sideshifting with Solenoid – 6-N-1 Cable/Hose Reel

### EXTERNAL SIDESHIFTER-EQUIPPED

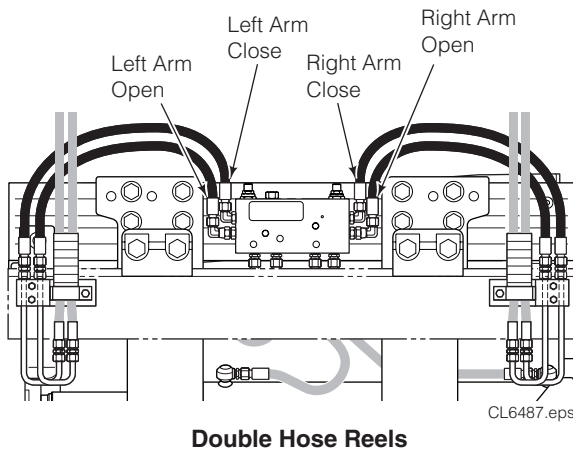


External Sideshifting Clamp – Double Hose Reels

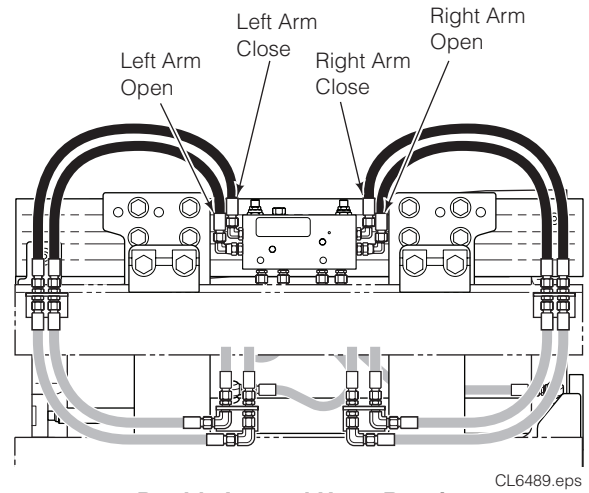
Back (Driver's) Views

## Prepare Hoses (Continued)

### INDEPENDENT ARM CONTROL



Double Hose Reels

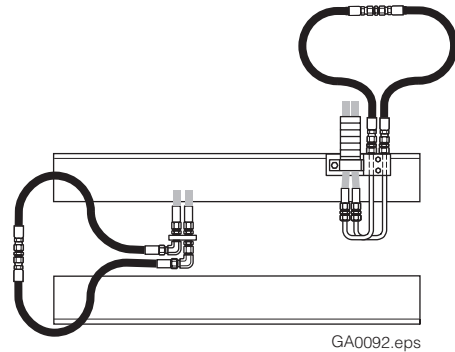


Double Internal Hose Reaving

Back (Driver's) Views

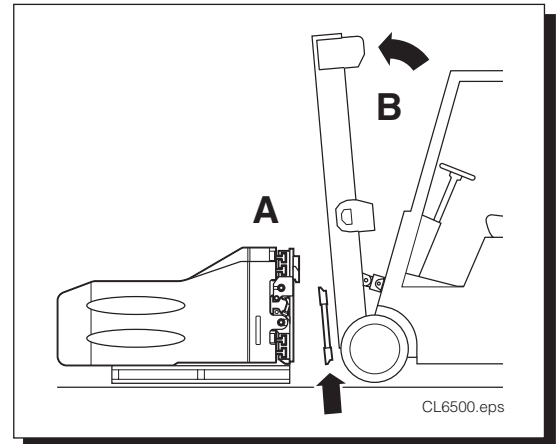
## 4 Flush hydraulic supply hoses

- A** Install hoses using union fittings.
- B** Operate auxiliary valves for 30 seconds.
- C** Remove union fittings.

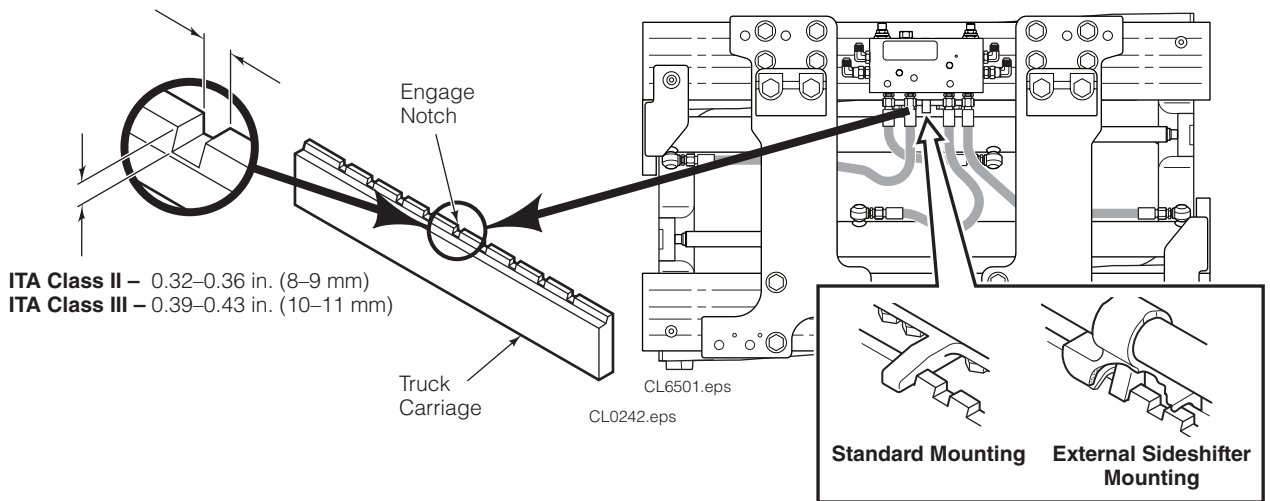


## 5 Mount attachment on truck carriage

- A** Center truck behind the attachment.
- B** Tilt forward and raise carriage into position.
- C** Engage upper mounting hooks with upper carriage bar. Make sure a centering tab or hook tab engages a notch on the carriage bar. Refer to the illustration below.
- D** Lift the attachment 2 in. (5 cm) above pallet.

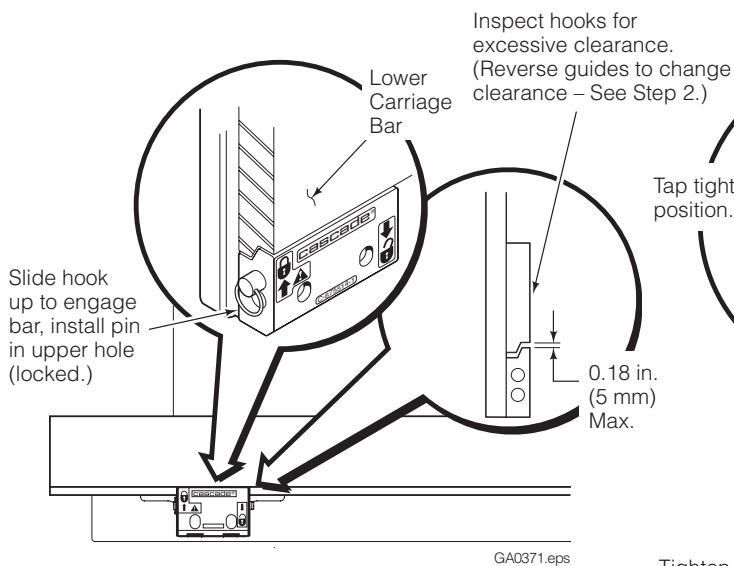


ITA Class II – 0.60–0.66 in. (15–17 mm)  
ITA Class III – 0.72–0.78 in. (18–20 mm)

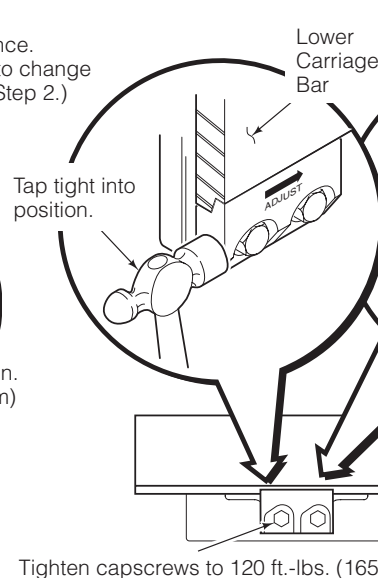


## 6 Install and engage lower hooks

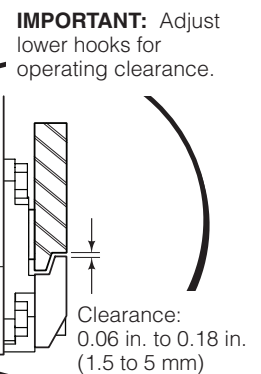
### QUICK-CHANGE TYPE



### BOLT-ON TYPE w/ INTERNAL SIDESHIFTING

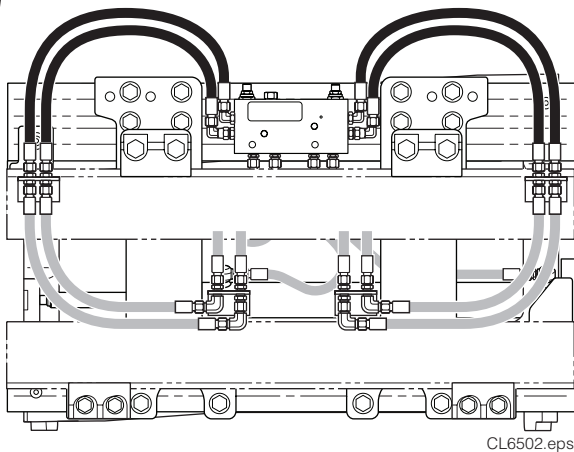


### BOLT-ON TYPE w/ EXTERNAL SIDESHIFTING

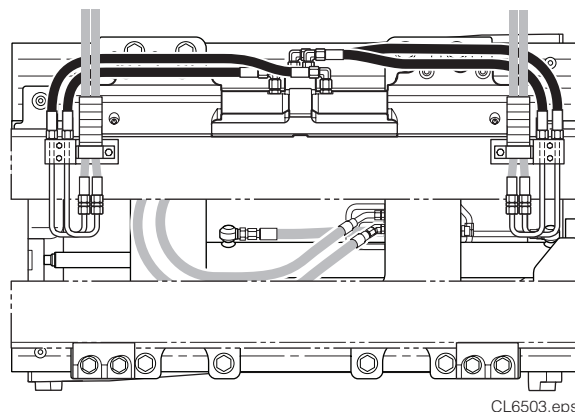


Tighten capscrews to 120 ft.-lbs. (165 Nm).

## 7 Connect hoses prepared in Step 3 to attachment



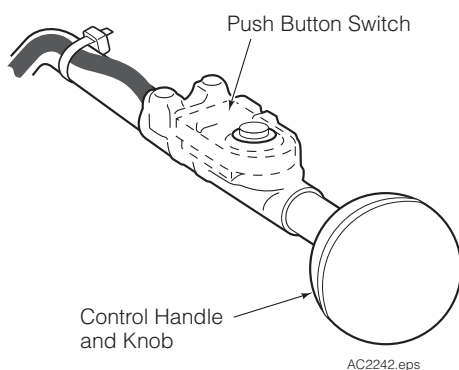
Internal Hose Reeving Hydraulic Supply



Hose Reels Hydraulic Supply (External Sideshifter)

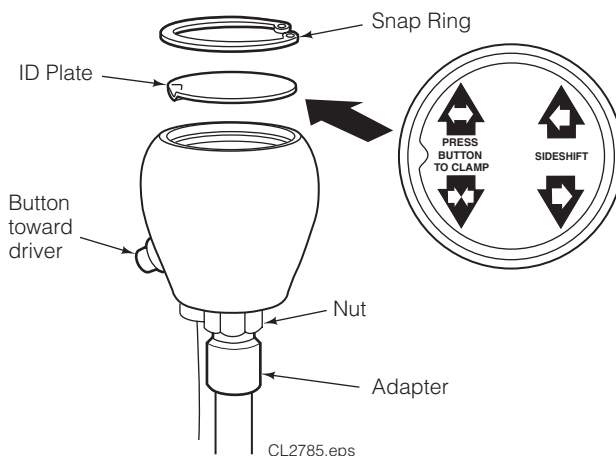
## 8 Install solenoid control knob or push button switch (solenoid-equipped)

**IMPORTANT:** Avoid interference with other control levers and control surfaces.



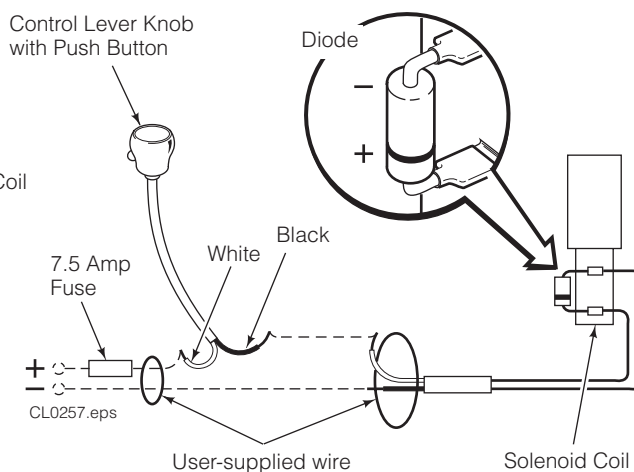
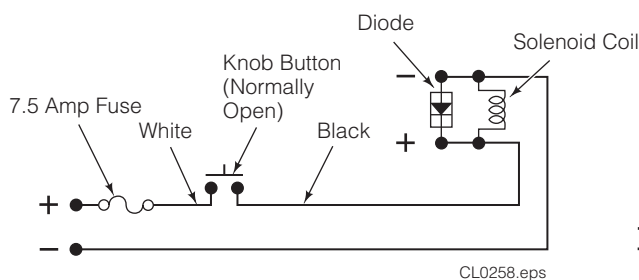
Install the push button switch to the control lever. Refer to Installation Instructions 6822725, included with switch, for complete installation procedure.

**NOTE:** Secure the cable so it will not be pinched when the handle is actuated.



Remove existing knob from auxiliary valve handle. Install the new knob using the adapter provided.

## 9 Install wiring – (solenoid-equipped units)





## 10 Cycle attachment functions

- With no load, cycle CLAMP function and SIDESHIFT function several times. Check for equal arm movement and adequate arm speed.
  - Clamp and lift a maximum load. Sideshift left and right.
  - Check for operation in accordance with ANSI (ISO) standards.
- IMPORTANT:** If necessary, adjust relief valve cartridges. Refer to Installation Step 11.
- Check for leaks at fittings, valve, manifold and cylinders.



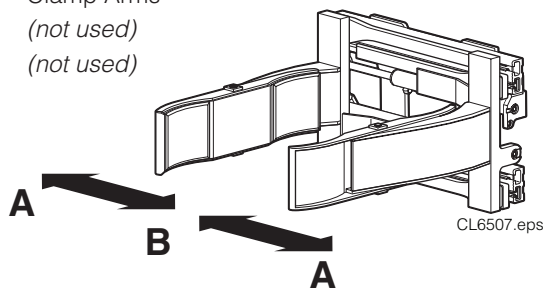
**WARNING:** Truck control handle and attachment function activation shown here conforms to ANSI B56.1 (ISO 3691) recommended practices. Failure to follow these practices may lead to serious bodily injury or property damage. End user, dealer and OEMs should review any deviation from the practices for safe operation.



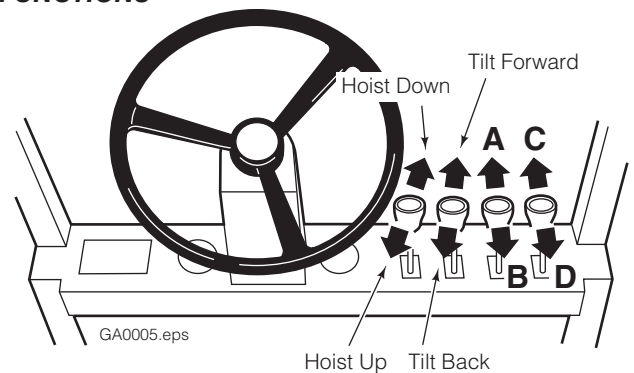
**WARNING:** Make sure all personnel are clear of the clamp during testing.

### NON-SIDESHIFTING CLAMPS

- A** Release Arms
- B** Clamp Arms
- C** (not used)
- D** (not used)

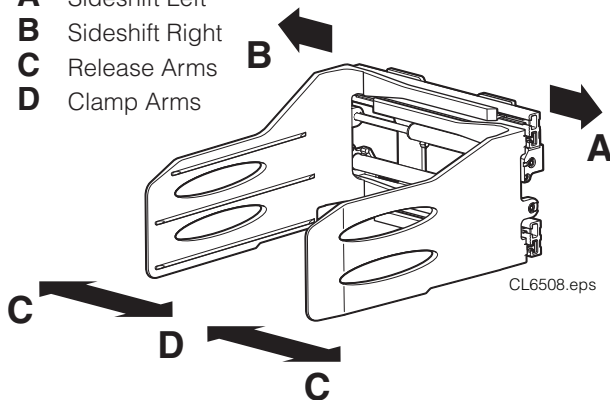


### AUXILIARY VALVE FUNCTIONS



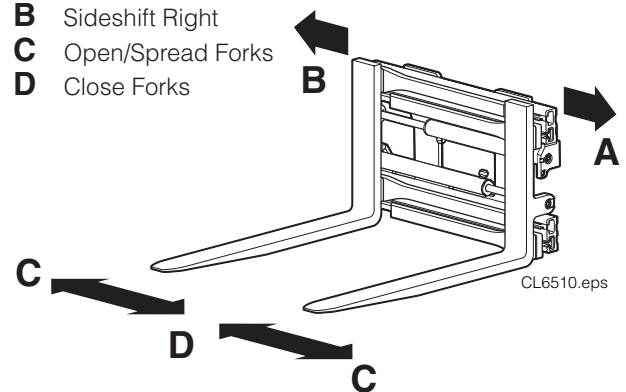
### SIDESHIFTING CLAMPS

- A** Sideshift Left
- B** Sideshift Right
- C** Release Arms
- D** Clamp Arms



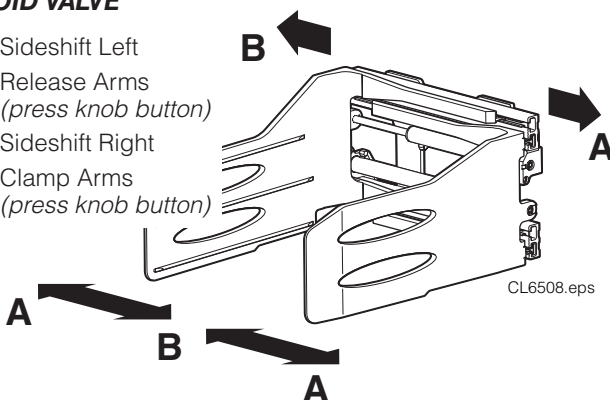
### SIDESHIFTING FORK POSITIONER

- A** Sideshift Left
- B** Sideshift Right
- C** Open/Spread Forks
- D** Close Forks



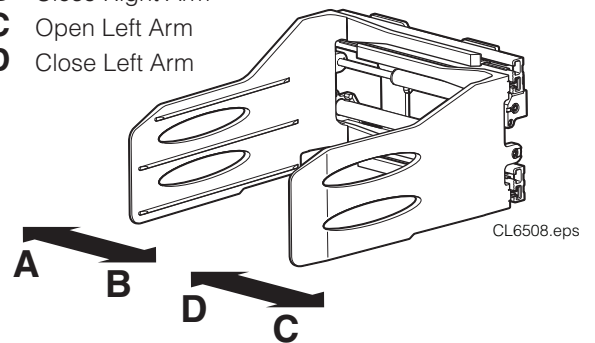
### SIDESHIFTING CLAMPS WITH SOLENOID VALVE

- A** Sideshift Left
- A** Release Arms (press knob button)
- B** Sideshift Right
- B** Clamp Arms (press knob button)



### INDEPENDENT ARM CONTROL

- A** Open Right Arm
- B** Close Right Arm
- C** Open Left Arm
- D** Close Left Arm



## 11 Adjust Relief Cartridges

The valve is equipped with relief valve cartridges in both the sideshift and clamp circuits. Adjustment of these reliefs is recommended to optimize clamp performance.

**NOTE:** External Sideshift function has no relief adjustment.

### Clamp Relief Adjustment – Pressure Gauge Method

The clamp relief cartridge is set at the factory per the pressure specified on the label on the back of the valve.

The CLAMP relief cartridge is set at the factory with a system back pressure of 350 psi (24 bar). Actual back pressure with the attachment connected to the truck will vary. It is recommended to verify the CLAMP pressure as an initial starting point.

- A** Confirm that **TRUCK** pressure delivered to the attachment valve is within the range shown on the attachment nameplate.
- B** Install a 5000 psi (345 bar) pressure gauge (with a No. 4 O-ring fitting) to the valve gauge 'G' port.
- C** From fully open, close the arms at normal speed to clamp a rigid load, clamp force indicator or fully bottom cylinders. Release truck handle and read pressure gauge. Compare gauge pressure with valve label pressure.
- D** Adjust the **CLAMP** relief cartridge to correct pressure. Open arms to release clamp pressure. Turn clockwise (CW) to increase pressure, counterclockwise (CCW) to decrease pressure.

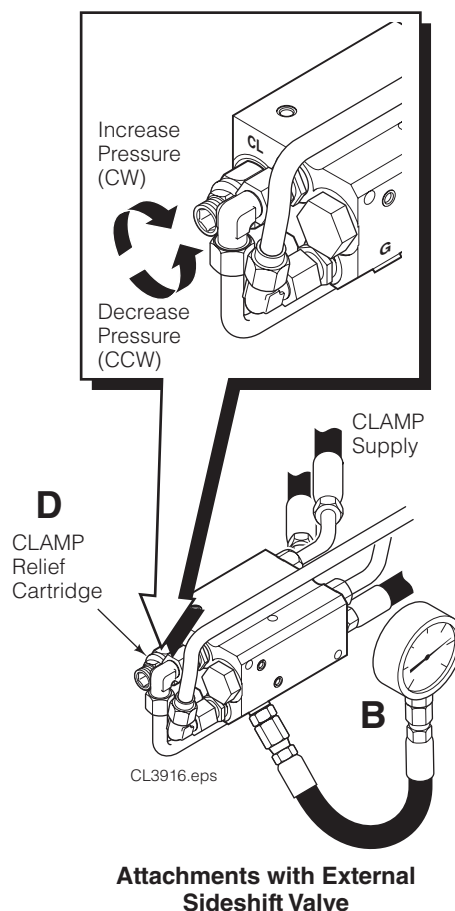
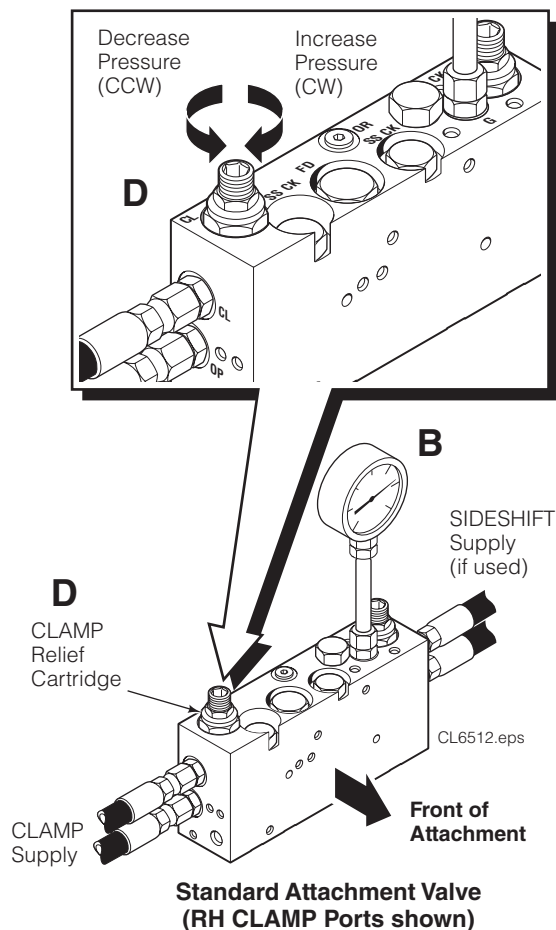


**WARNING:** Before removing hydraulic lines or components, relieve pressure in the hydraulic system. Turn the truck off and open the truck auxiliary control valves several times in both directions.

- E** Repeat steps **C** and **D** to confirm setting. Tighten jam nut.

**NOTE:** When adjusting a clamp equipped with a three position regulator valve, Volumetric Force Control (VFC) or Hydraulic Force Control (HFC), the clamp relief must be adjusted to maximum pressure. Refer to step D to increase pressure. Adjust the cartridge to the maximum position.

**NOTE:** Adjustment of clamp relief pressure according to load requirements for secure handling and damage reduction is recommended. Adjust the relief cartridge per step **A–E** to obtain a desired pressure setting. Pressure is not to exceed the maximum pressure setting on the clamp nameplate. If multiple pressure settings are desired, contact Cascade for options.

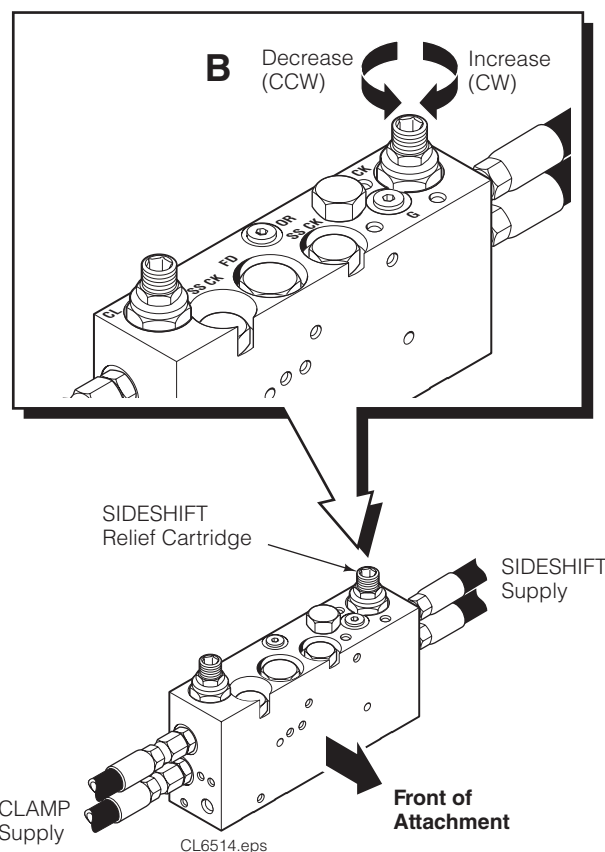


## Adjust Relief Cartridges (continued)

### Sideshift Relief Adjustment (Internal SS only)

**A** Clamp a maximum load and sideshift LEFT and RIGHT observing sideshifting movement.

**B** If the attachment will not sideshift or sideshifts slowly, adjust sideshift relief clockwise (CW) until the attachment sideshifts. Then adjust the relief cartridge counterclockwise (CCW) 1/4 turn increments until sideshift speed slows (relief opening). Finish by adjusting cartridge clockwise (CW) 1/4 turn. Tighten jam nut.



**Standard Attachment Valve  
(RH CLAMP, LH SIDESHIFT Ports shown)**

## General

### Daily

- Check for loose or missing bolts, worn or damaged supply hoses and hydraulic leaks.
- Inspect cylinder rod ends and anchor bars for damage. The rod end anchors operate with a loose clearance and require no lubrication.
- Check for equal movement of arms.
- Check decals and nameplate for legibility.

### 1000-Hour Maintenance

Every time the lift truck is serviced or every 1000 hours of truck operation, whichever comes first, complete the following maintenance procedures:

- Inspect arm bearings for wear or damage. If bearings are worn in any area to less than 0.06 in. (1.5 mm) thickness, replace bearings.
- Check lower mounting hooks for engagement clearance:

**Quick-Change Hooks** – 0.18 in. (5 mm) Max.

**Bolt-on Hooks** – Tight against lower carriage bar.

**Bolt-on Hooks (External SS)** – 0.06 to 0.18 in. (1.5 to 5 mm)

If adjustment is necessary, refer to Installation Step 6.

- Tighten lower hook capscrews:
  - Bolt-on Hooks, CL II, CL III** – 120 ft.-lbs. (165 Nm)
  - Quick-Change Hooks, CL II, CL III** – 165 ft.-lbs. (225 Nm)
- Tighten accessible mounting plate capscrews and lower spacer capscrews (if equipped). Double-torque capscrews by tightening to final torque value of 200 ft.-lbs. (270 Nm), loosen 1/2 turn, then retighten.
 

**IMPORTANT:** If any mounting plate capscrews are found loose, remove attachment from truck and check all mounting capscrews and lower spacer capscrews for proper torque values.
- Tighten spherical nut to the following torque:
  - 8J–22J** – 85 ft.-lbs. (115 Nm)
  - 26J** – 230 ft.-lbs. (315 Nm)

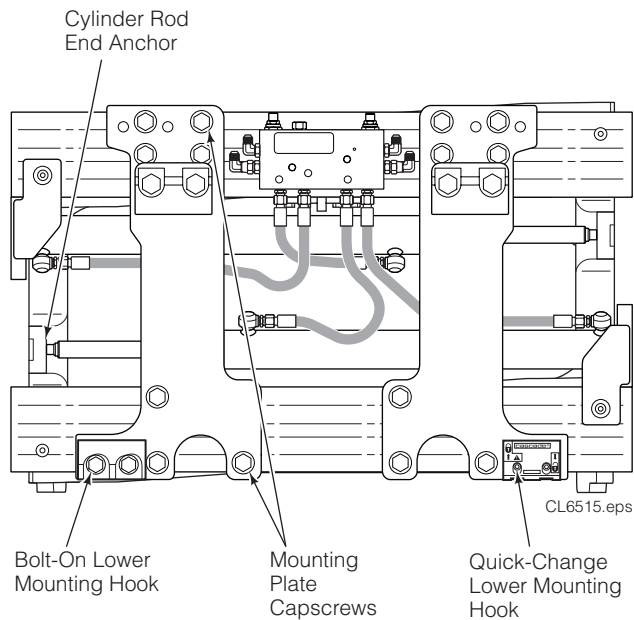
### 4000-Hour Maintenance

After each 4000 hours of truck operation, in addition to the 1000-hour maintenance, perform the following procedure:

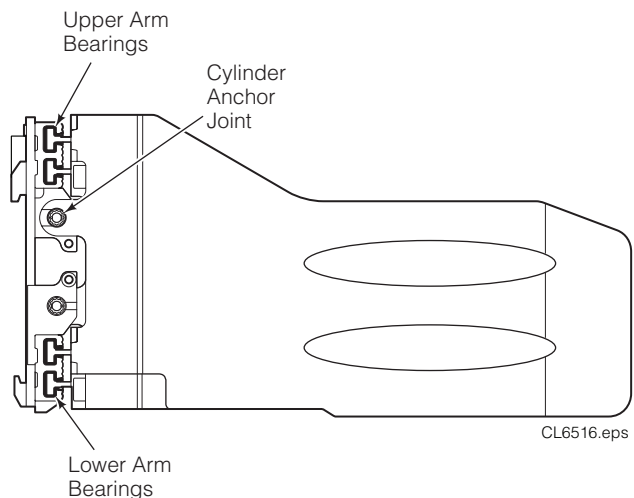
- Due to normal mechanical wear and component service life, cylinder seals should be replaced to maintain performance and safe operation.



**WARNING:** After completing any service procedure, always test the attachment through five complete cycles. First test empty, then test with load to make sure attachment operates correctly before returning it to the job.



**Back (Driver's) View**



**Side View**

## Attachments with External Sideshift

In addition to (or in place of, where necessary) the periodic maintenance found in the "General" periodic maintenance schedule, perform the following for attachments with external sideshift equipped:

### 1000-Hour Maintenance

- Inspect external sideshifter bearings for wear or damage. If upper bearings are worn to less than 0.06 in. (1.5 mm) thickness, replace bearings. If lower bearings are worn to less than 0.06 in. (1.5 mm) exposed thickness, replace bearings.
- Apply general-purpose chassis grease to external sideshifter upper bearing grease fittings and lower bearing areas.
- Check lower mounting hooks for engagement clearance of 0.06 to 0.20 in. (1.5 to 5 mm).
- Tighten lower bolt-on hook capscrews:

**CL II, CL III – 122 ft.-lbs. (165 Nm)**

- Tighten external sideshift cylinder mounting capscrews:

#### Socket Capscrew (Upper):

**CL II – 210 ft.-lbs. (285 Nm)**

**CL III – 384 ft.-lbs. (520 Nm)**

#### Hex Capscrew (Lower):

**CL II – 173 ft.-lbs. (235 Nm)**

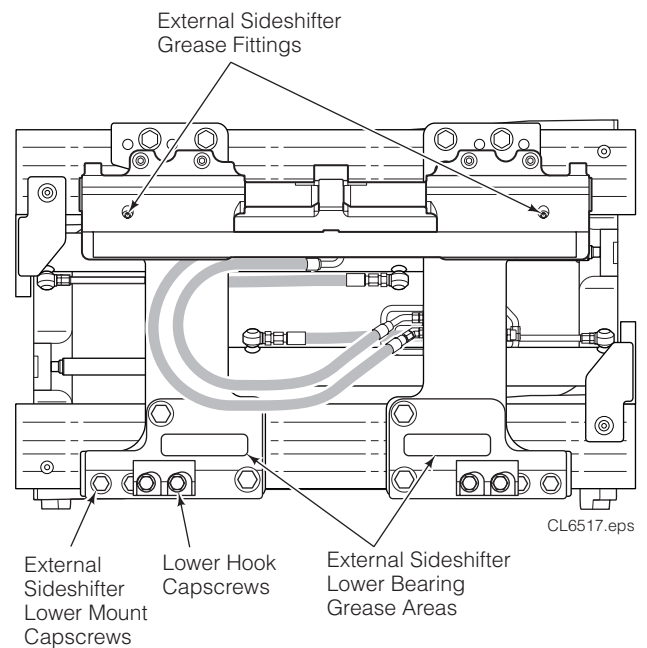
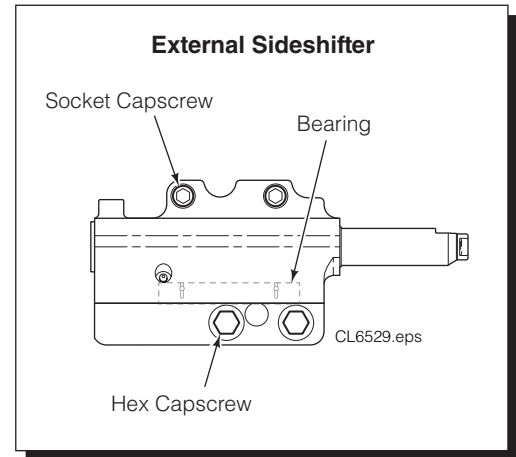
**CL III – 384 ft.-lbs. (520 Nm)**

**IMPORTANT:** If any capscrews are found loose, remove attachment from truck and check all sideshifter mount capscrews for proper torque values.

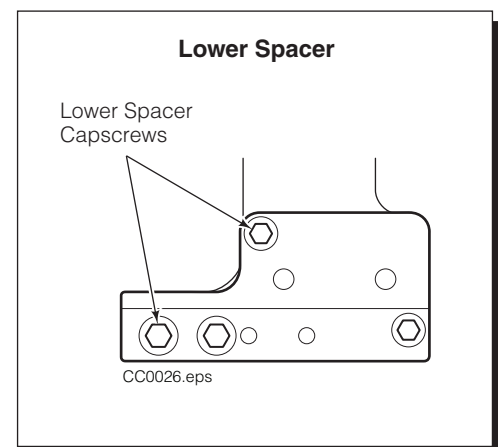
- Tighten the following accessible mounting plate and lower spacer capscrews. Double-torque capscrews by tightening to final torque value, loosen 1/2 turn, then retighten to 200 ft.-lbs. (270 Nm).

**IMPORTANT:** If any capscrews are found loose, remove attachment from truck and check all mounting plate and lower spacer capscrews for proper torque values.

- Tighten cylinder rod end anchor bar capscrews to 166 ft.-lbs. (225 Nm).



**Attachments with External Sideshift  
Back (Driver's View)**



**Do you have questions you need**

**answered right now?** Call your nearest Cascade Service Department.

Visit us online at [www.cascorp.com](http://www.cascorp.com)

**AMERICAS**

**Cascade Corporation**

**U.S. Headquarters**

2201 NE 201st  
Fairview, OR 97024-9718  
Tel: 800-CASCADE (227-2233)  
Fax: 888-329-8207

**Cascade Canada Inc.**

5570 Timberlea Blvd.  
Mississauga, Ontario  
Canada L4W-4M6  
Tel: 905-629-7777  
Fax: 905-629-7785

**Cascade do Brasil**

Praça Salvador Rosa,  
131/141-Jordanópolis,  
São Bernardo do Campo - SP  
CEP 09891-430  
Tel: 55-13-2105-8800  
Fax: 55-13-2105-8899

**EUROPE-AFRICA**

**Cascade Italia S.R.L.**

**European Headquarters**

Via Dell'Artigianato 1  
37030 Vago di Lavagno (VR)  
Italy  
Tel: 39-045-8989111  
Fax: 39-045-8989160

**Cascade (Africa) Pty. Ltd.**

PO Box 625, Isando 1600  
60A Steel Road  
Sparton, Kempton Park  
South Africa  
Tel: 27-11-975-9240  
Fax: 27-11-394-1147

**ASIA-PACIFIC**

**Cascade Japan Ltd.**

2-23, 2-Chome,  
Kukuchi Nishimachi  
Amagasaki, Hyogo  
Japan, 661-0978  
Tel: 81-6-6420-9771  
Fax: 81-6-6420-9777

**Cascade Korea**

121B 9L Namdong Ind.  
Complex, 691-8 Gojan-Dong  
Namdong-Ku  
Inchon, Korea  
Tel: +82-32-821-2051  
Fax: +82-32-821-2055

**Cascade-Xiamen**

No. 668 Yangguang Rd.  
Xinyang Industrial Zone  
Haicang, Xiamen City  
Fujian Province  
P.R. China 361026  
Tel: 86-592-651-2500  
Fax: 86-592-651-2571

**Cascade India Material  
Handling P Ltd**

Sy no 271/8, Ingawale Patil  
Estate,  
Godown No.9,10 & 11, Bhugaon,  
Off Paud Road, Tal Mulshi, Dist  
Pune 411 042

**Cascade Australia Pty. Ltd.**

1445 Ipswich Road  
Rocklea, QLD 4107  
Australia  
Tel: 1-800-227-223  
Fax: +61 7 3373-7333

**Cascade New Zealand**

15 Ra Ora Drive  
East Tamaki, Auckland  
New Zealand  
Tel: +64-9-273-9136  
Fax: +64-9-273-9137

**Sunstream Industries  
Pte. Ltd.**

18 Tuas South Street 5  
Singapore 637796  
Tel: +65-6795-7555  
Fax: +65-6863-1368

