

# **I** **INSTALLATION INSTRUCTIONS**

*and PERIODIC MAINTENANCE*

## ***120G, 140G, 170G***

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

*Number 6526543-R1 EN*

**cascade<sup>®</sup>**  
**corporation**

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This manual provides instructions for installing Cascade 120G, 140G and 170G Non-Revolution 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.

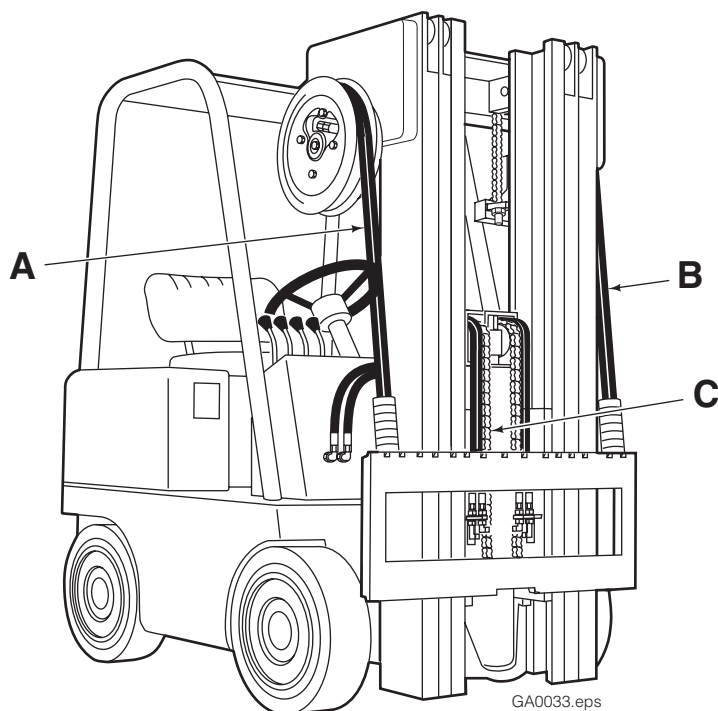
Read the **WARNING** Statements placed throughout this manual to emphasize safety during attachment installation.

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

## R ECOMMENDED HYDRAULIC SUPPLY OPTIONS

120G, 140G and 170G Non-Revolution 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 M8 (No. 6) with a minimum internal diameter of 7 mm (9/32.)



### Non-Sideshifting

#### A or B

RH or LH THINLINE™ 2-port hose reel group.

#### OR

C Mast single internal hose reeving group.

### Sideshifting

#### A or B

RH or LH THINLINE™ 2-port hose reel group.

#### OR

C Mast double internal hose reeving group.

# T RUCK REQUIREMENTS



**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.

## Truck Relief Setting

<b>120G/140G</b>	<b>170G</b>
155 bar (2245 psi) – Min.	155 bar (2245 psi) – Min.
190 bar (2760 psi) – Max.	170 bar (2465 psi) – Max.

**NOTE:** The attachment valve has separate pressure relief control, see Installation Step 8 for adjustment.

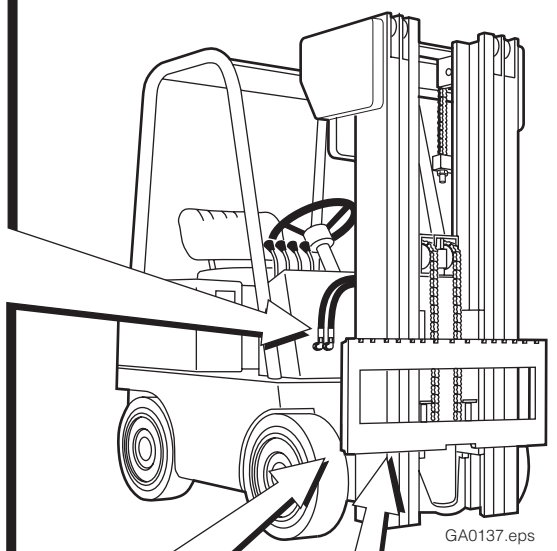
## Truck Flow Volume <sup>①</sup>

	Min. <sup>②</sup>	Recommended	Max. <sup>③</sup>
<b>120G, 140G, 170G</b>	38 L/Min. (10 GPM)	57 L/Min. (15 GPM)	90 L/Min. (23 GPM)

① Cascade 120G, 140G and 170G 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.



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

	Minimum	Maximum
<b>Class IV</b>	595.5 mm (23.44 in.)	597.0 mm (23.50 in.)

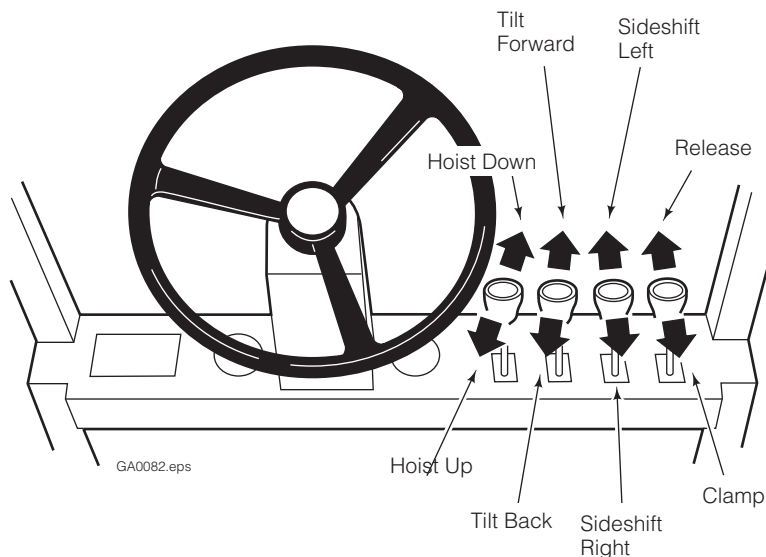
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## Carriage

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 ISO standards



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# INSTALLATION

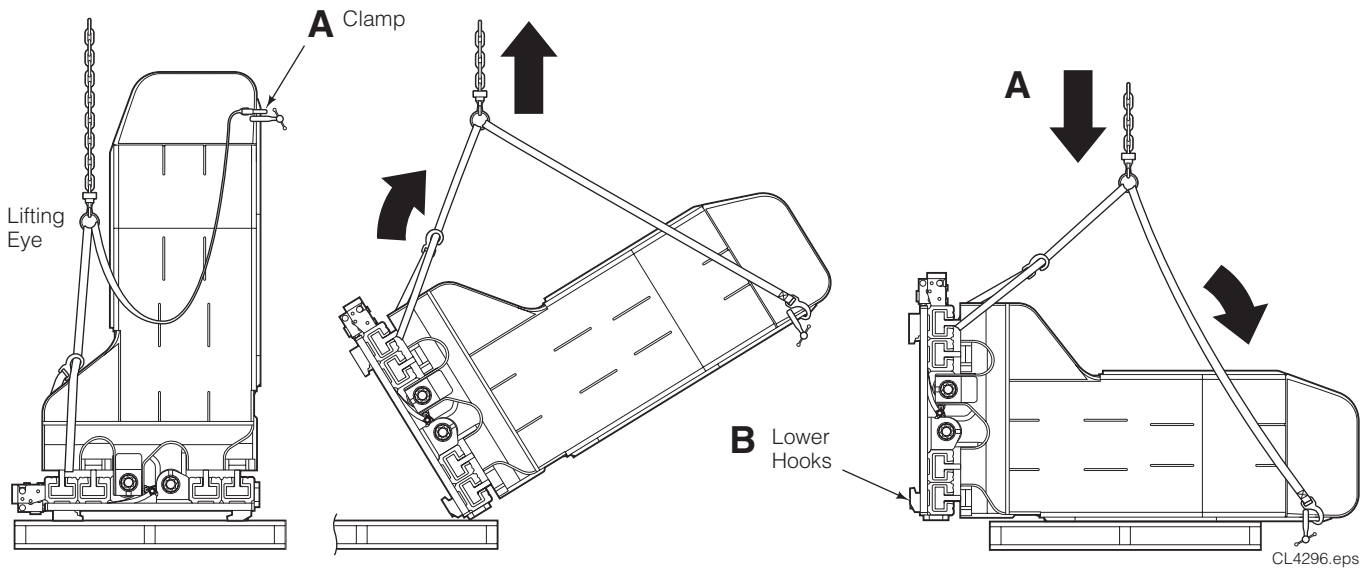
Follow the steps shown to install the attachment on the truck. Read and understand all **WARNING** and **CAUTION** statements. If you don't understand a procedure, ask your supervisor or call the nearest Cascade Service Department for assistance.

## 1 Attach overhead hoist

- A** Remove banding, use multiple chains to stabilize the attachment while lifting. Set the attachment upright on pallet.
- B** Remove bolt-on lower mounting hooks (if equipped).

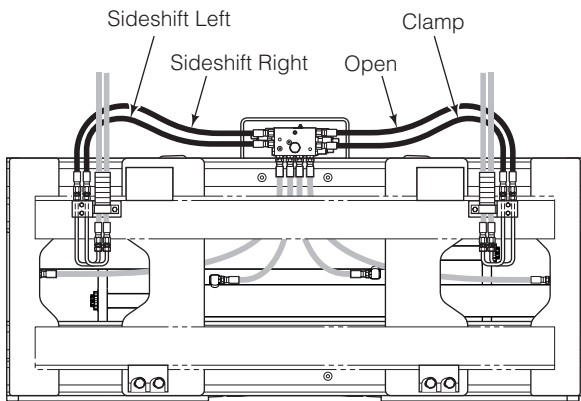


**WARNING:** Check the attachment weight (located on the nameplate) to make sure the overhead hoist and chains or straps are at least the rated capacity of the attachment.

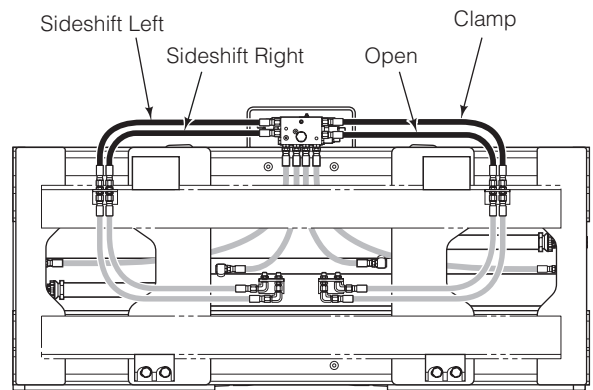


## 2 Prepare Hoses

- 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.



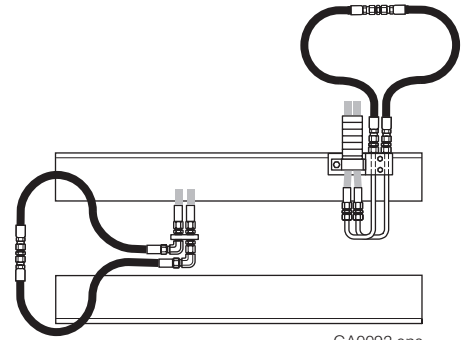
Sideshifting Clamp – Double Hose Reels



Sideshifting Clamp – Double Internal Hose Reeving

## 3 Flush hydraulic supply hoses

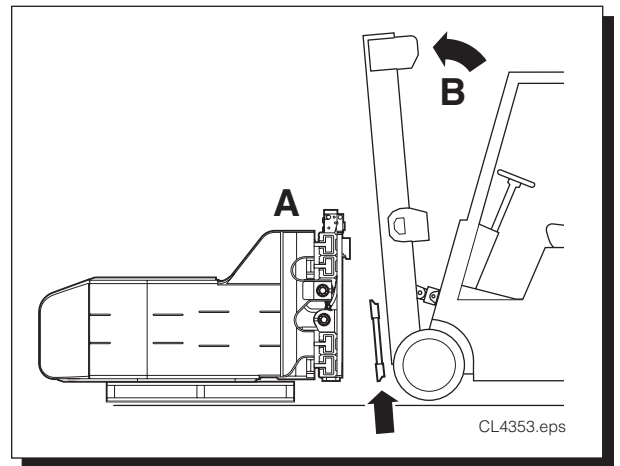
- A** Install hoses using union fittings.
- B** Operate auxiliary valves for 30 sec.
- C** Remove union fittings



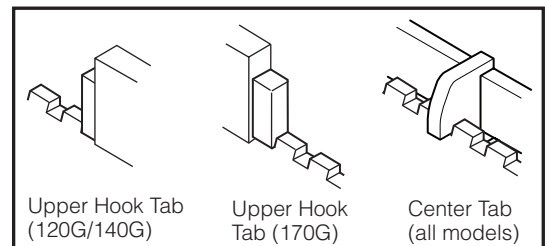
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## 4 Mount attachment on truck carriage

- A** Center truck behind attachment.
- B** Tilt forward and raise carriage into position.
- C** Engage upper mounting hooks with upper carriage bar. Make sure a centering tab engages a notch on the carriage bar, as shown.
- D** Lift the clamp 5 cm (2 in.) off the pallet.



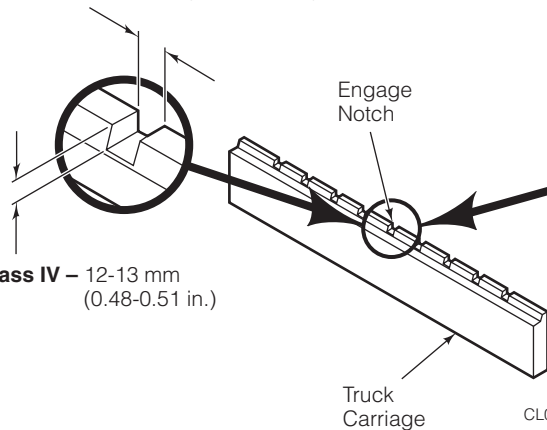
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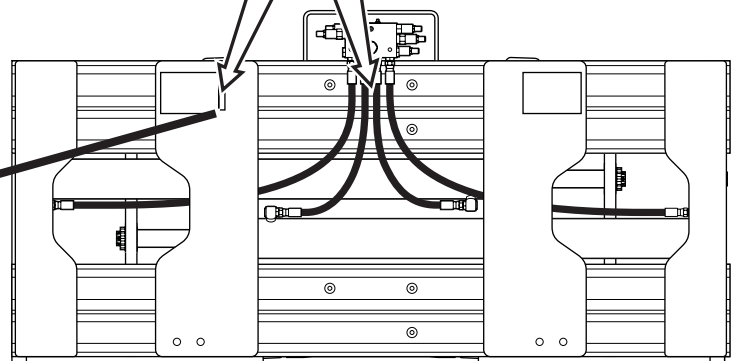
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ITA Class IV – 18-20 mm (0.72-0.78 in.)

ITA Class IV – 12-13 mm (0.48-0.51 in.)



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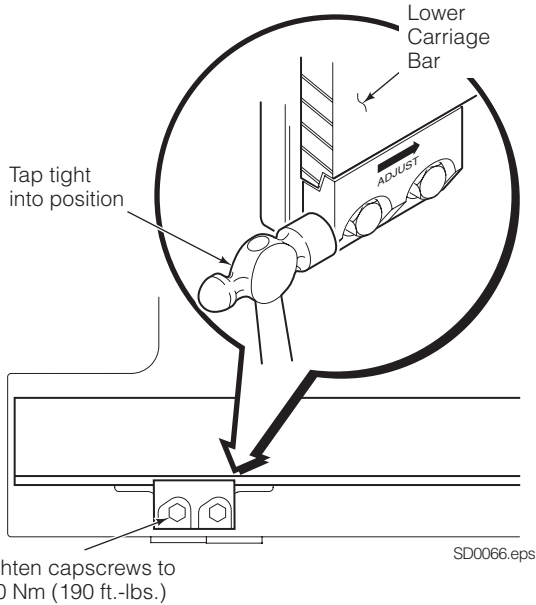


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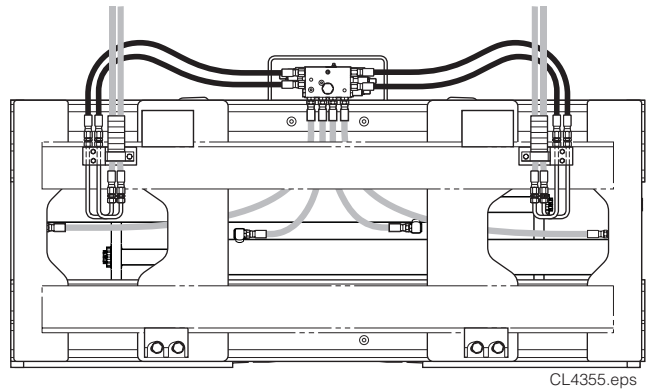
170G shown

## 5 Install and engage lower hooks

**BOLT-ON TYPE**



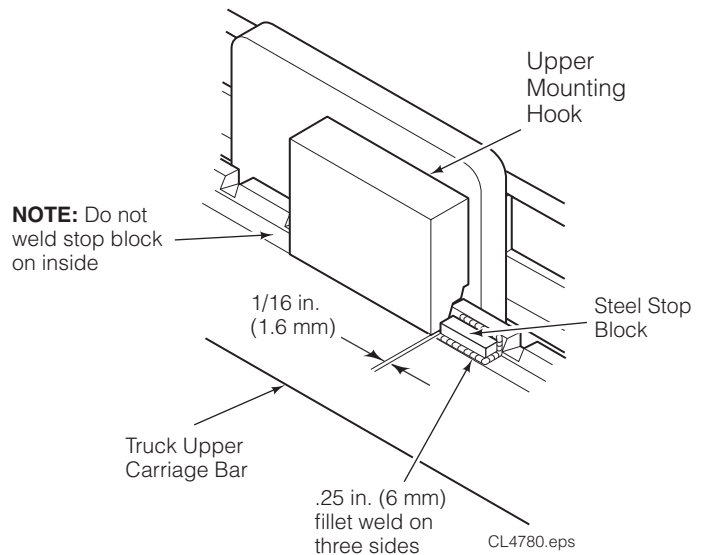
## 6 Connect hoses prepared in Step 2 to attachment



**Hose Reels Hydraulic Supply Shown**

## 7 Install Stop Block Kit (for attachments with centering tab)

- Locate a stop block on the outside of each upper hook. Preheat stop block and carriage bar weld area to 325° F (180° C).
- Use AWS E7018 lower hydrogen rod and weld a .25 in. (6 mm) fillet fill length on three sides of each stop block.



## 8 Cycle attachment functions

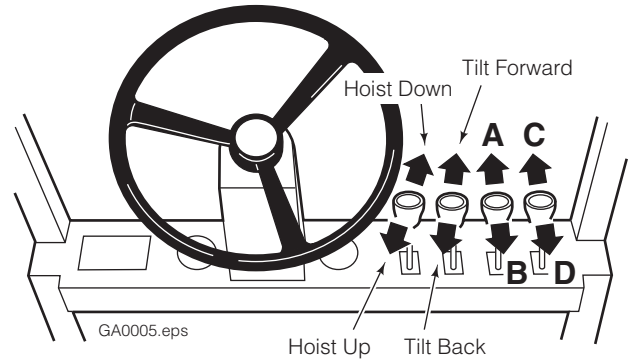
- With no load, cycle attachment function and sideshift function several times.
- Clamp and lift a maximum load. Sideshift left and right.
- Check fir operation in accordance with ITA (ISO) standards.

**IMPORTANT:** If necessary, adjust relief valve cartridges and/or open internal CL line equalization orifice. Refer to step 8.

- Check for leaks at fittings, valve, manifold and cylinders.

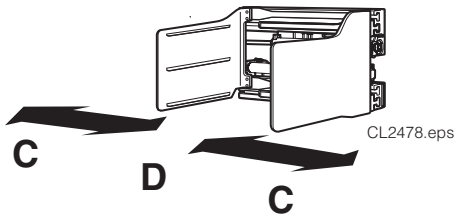


**WARNING:** Make sure all personnel are clear of the clamp during testing.



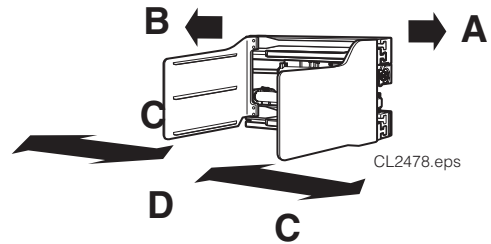
### NON-SIDESHIFTING CLAMPS

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



### SIDESHIFTING CLAMPS

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



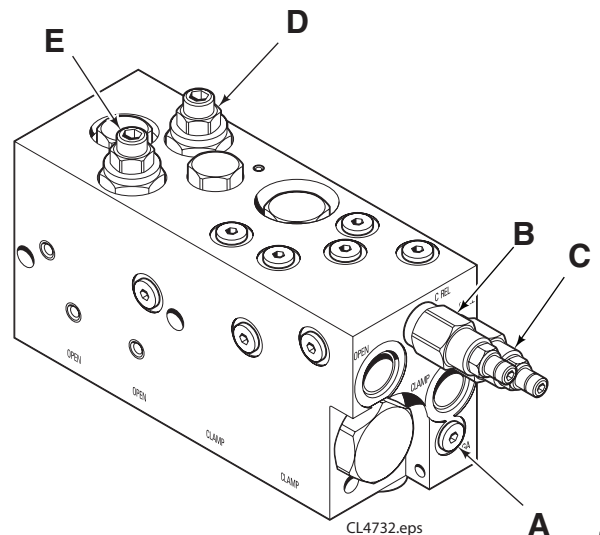
## 9 Adjust Relief Cartridges - 120G/140G Valve

To avoid overclamping or slow sideshifting speed, relief cartridges should be adjusted. Check nameplate and decal on the valve for correct CLAMP hydraulic pressure settings.

- A** Install pressure gauge into GA test port.
- B** Loosen jam nut on the clamp relief cartridge (C REL). Adjust the relief cartridge to 155 bar recommended. Clamp a load and check gauge pressure. Readjust as required. Tighten jam nut. Remove pressure gauge and plug port.
- C** Loosen jam nut on the open relief cartridge (O REL). Adjust the relief cartridge to no higher than 100 bar recommended. Clamp and release a load. If the arms do not open, increase the pressure. Tighten jam nut.
- D** Clamp the heaviest load. Raise the load and sideshift. If the load does not sideshift, loosen the jam nut and turn the cartridge screw out until the load will sideshift. Tighten jam nut.
- E** If the arm movement is unequal or stalled during clamping, loosen the jam nut on the compensation relief valve. Adjust relief cartridge. Clamp the heaviest load. Raise the load and sideshift. Increase (CW) for inaccurate arm movement or decrease (CCW) for a stalled arm. Tighten jam nut.

### Relief Cartridge Adjustment:

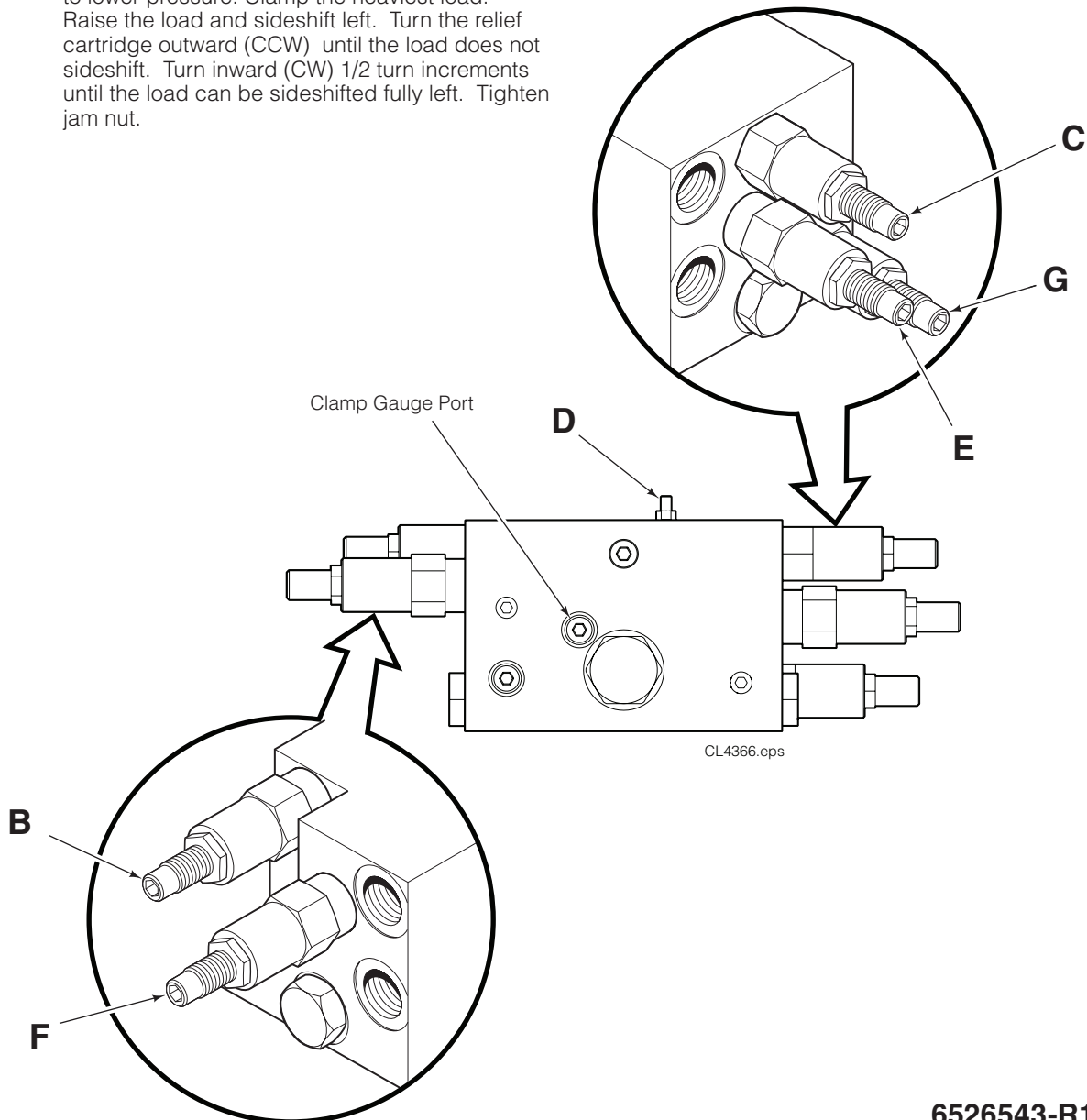
Inward (CW) = increase pressure  
Outward (CCW) = lower pressure



## 10 Adjust Relief Cartridges - 170G Valve

To avoid overclamping or slow sideshifting speed, relief cartridges should be adjusted. Check nameplate and decal on the valve for correct CLAMP hydraulic pressure settings.

- A** Install pressure gauge into CL (clamp) test port.
- B** Loosen jam nut on clamp relief cartridge (OP→CL). Adjust the relief cartridge inward (CW) to increase pressure or outward (CCW) to lower pressure. Clamp a load and check gauge pressure. Readjust as required. Tighten jam nut. Remove pressure gauge and plug port.
- C** Loosen jam nut on open relief cartridge (CL→OP). Adjust the relief cartridge inward (CW) to increase pressure or outward (CCW) to lower pressure. Clamp and release a load. If the arms do not open, increase the pressure. Tighten jam nut.
- D** Clamp the heaviest load. Raise the load and sideshift. If the load does not sideshift, loosen the jam nut and turn the equalization cartridge screw out until the load will sideshift. Tighten jam nut.
- E** Loosen jam nut on sideshift left relief cartridge (SSR→SSL). Adjust the relief cartridge inward (CW) to increase pressure or outward (CCW) to lower pressure. Clamp the heaviest load. Raise the load and sideshift left. Turn the relief cartridge outward (CCW) until the load does not sideshift. Turn inward (CW) 1/2 turn increments until the load can be sideshifted fully left. Tighten jam nut.
- F** Loosen jam nut on sideshift right relief cartridge (SSL→SSR). Adjust the relief cartridge inward (CW) to increase pressure or outward (CCW) to lower pressure. Clamp the heaviest load. Raise the load and sideshift right. Turn the relief cartridge outward (CCW) until the load does not sideshift. Turn inward (CW) 1/2 turn increments until the load can be sideshifted fully right. Tighten jam nut.
- G** If the arm movement is unequal or stalled during clamping, loosen the jam nut on the adjust compensation relief valve. Adjust relief cartridge inward (CW) to increase pressure or outward (CCW) to lower pressure. Clamp the heaviest load. Raise the load and sideshift. Increase (CW) for inaccurate arm movement or decrease (CCW) for a stalled arm. Tighten jam nut.





**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.

**IMPORTANT:** Attachment is prelubed at the factory. Lubrication is not necessary for initial installation. If required lubricate arm bearing with dry lube graphite, Teflon or silicone.

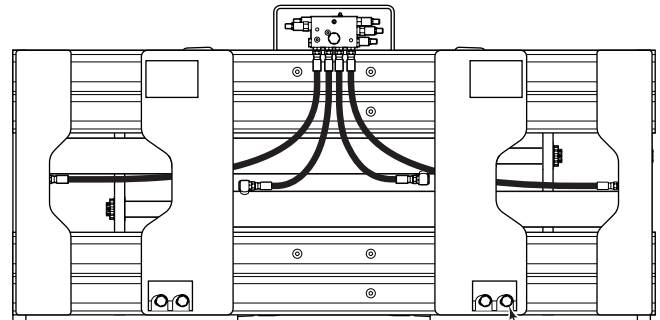
## 100-Hour Maintenance

Every time the lift truck is serviced or every 100 hours of truck operation, whichever comes first, complete the following maintenance procedures.

- Check for loose or missing bolts, worn or damaged supply hoses and hydraulic leaks.
- Inspect cylinder anchor joint for lubrication and correct hold.

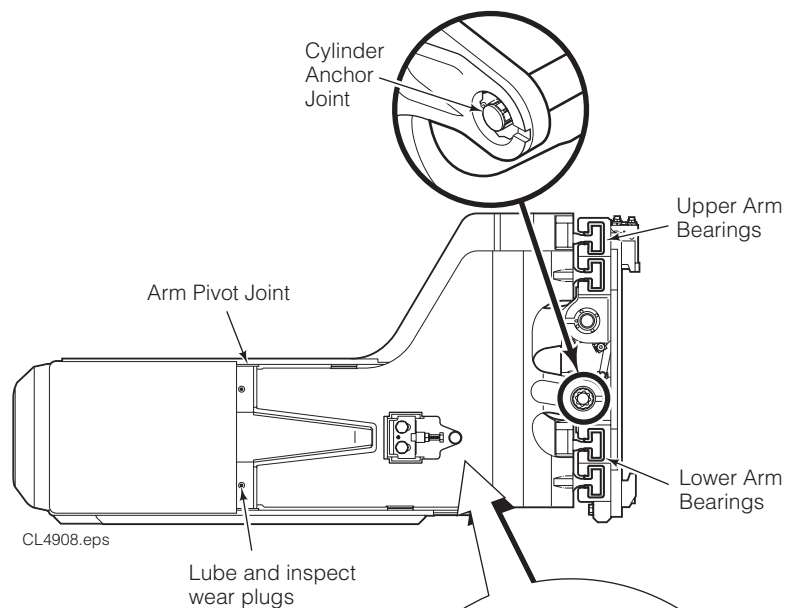
**NOTE:** Anchor joint operates with a loose clearance. Lubricate with wheel bearing grease.

- Check for equal movement of arms.
- Check decals and nameplate legibility.



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Bolt-On Lower Hook



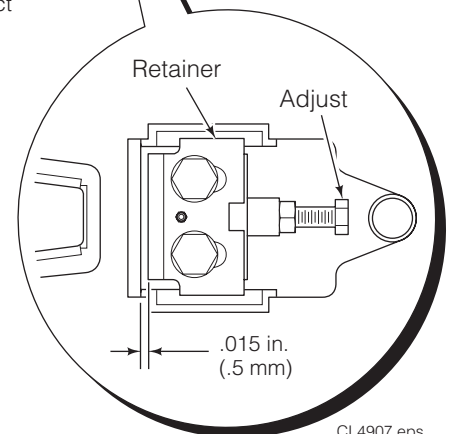
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Lube and inspect wear plugs

## 500-Hour Maintenance

After each 500 hours of truck operation, in addition to the 100-hour maintenance, perform the following procedures.

- Inspect arm bearings for wear and damage. If bearings are worn in any area to less than 1.5 mm (.050 in.) thickness, replace bearings. If lubricant is required use dry lube graphite, Teflon or silicone.
- Check lower mounting hooks for engagement clearance. Hook should be tight against lower carriage. If adjustment is necessary, refer to installation step 6.
- Tighten lower hook capscrews to 260 Nm (190 ft.-lbs.).
- Lubricate arm pivot joint zerk fittings with chassis grease.
- Inspect the arm pivot wear plugs. If either plug is worn to less than .12 in. (3 mm), replace both wear plugs.
- Loosen retainer capscrews, adjust retainer to wear pad clearance to .015 in. (.5 mm). Tighten retainer capscrews to 320 ft.-lbs. (435 Nm).



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**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)

**Zijn er vragen waarop u direct een antwoord nodig hebt?** Neem dan contact op met uw dichtstbijzijnde serviceafdeling van Cascade. Of ga naar [www.cascorp.com](http://www.cascorp.com)

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**En cas de questions urgentes,** contactez le service d'entretien Cascade le plus proche. Visitez le site Web [www.cascorp.com](http://www.cascorp.com).

**Per domande urgenti contattare** l'Ufficio Assistenza Cascade più vicino. Visitate il nostro sito all'indirizzo [www.cascorp.com](http://www.cascorp.com)

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