Installation Instructions

140D

Non-Revolving and Revolving Clamps

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

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

Manual Number 678260

A. Truck Requirements

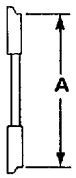
- Truck Relief Valve Setting: 2300 psi (160 bar), maximum.
- Hydraulic Flow:

	Min.*	Recommended	Max.†
Non-Revolving Clamps	10 GPM (37L/min.)	15 GPM (56L/min.)	20 GPM (75L/min.)
Revolving Clamps	10 GPM (37L/min.)	20 GPM (75L/min.)	24 GPM (90L/min.)

* Flow less than minimum could result in unequal arm movement. Flow less than minimum will result in a rotate speed less than 2 rpm.

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

- Recommended hose and fitting size:
  No. 8 with minimum fitting orifices of 13/32 in. (10mm)
- Truck carriage must conform to the Industrial Truck Association (ITA) dimensional standards as shown.
- Make sure the truck carriage is clean and the notches are undamaged.
- In order to conform to industry standard practice, the hoses should be connected to the truck auxiliary valve as indicated by the chart.



Mounting	Dimension A–ITA (ISO)	
	Minimum	Maximum
Class IV	23.44 in. (595.5mm)	23.50 in. (597.0 mm)

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Function, in sequence of location to the operator.	Attachment Movement	Motion of the operator's hand when actuating the truck auxiliary control handle while facing the load.
Sideshift	Sideshift Right	Rearward or Up
	Sideshift Left	Forward or Down
Rotate	Clockwise	Rearward or Up
	Counterclockwise	Forward or Down
Arm Position	Clamp Left	Rearward or Up
	Clamp Right	Rearward or Up
	Open Left	Forward or Down
	Open Right	Forward or Down
Clamp	Clamp	Rearward or Up
	Open	Forward or Down

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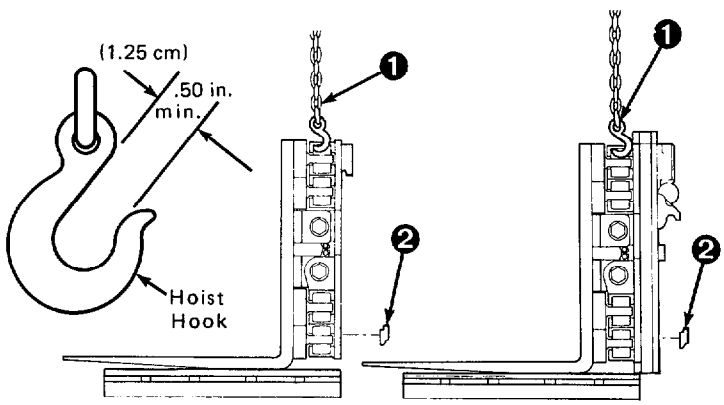
B. Installation

❶ Install a suitable overhead chain hoist. Set the clamp vertical.

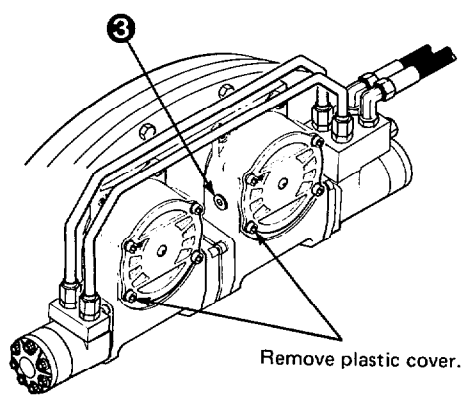
WARNING: Make sure your overhead hoist has a rated capacity of at least 3500 lbs. (1600 kg).

❷ Remove the lower mounting hooks.



Revolving Clamps **Non-Revolving Clamps**

❸ **Revolving Clamps–** Remove the plastic cover from the drive assembly relief fittings. Check the oil level in each drive assembly. Oil level must be visible in the fill hole. Fill if necessary with Cascade Gear Lube 656300 or equivalent SAE 90 wt. lube (AGMA "mild" 6EP Gear Oil).



Revolving Clamps Only

B. Installation (Continued)

4. Connect hydraulic hoses to the attachment fittings using one of the installation kits listed **OR** use No. 8 hoses (2300 psi/160 bar work pressure rating) and fittings as shown. Position the truck carriage behind the attachment to determine hose lengths required to connect hoses to the hose terminal kits. Remove the hoses and cut to length.

Installation Kits	
Non-Sideshifting	659245
Sideshifting	672442
Independent Arm Control	672442
Revolving	672442

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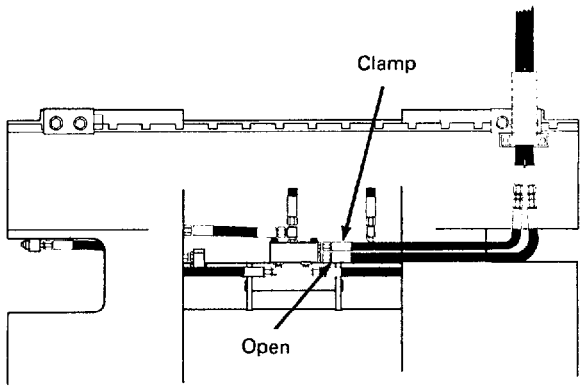
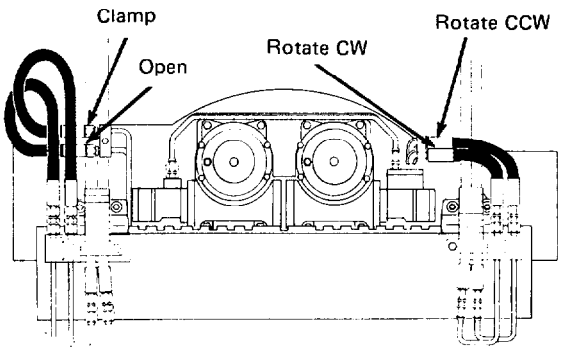
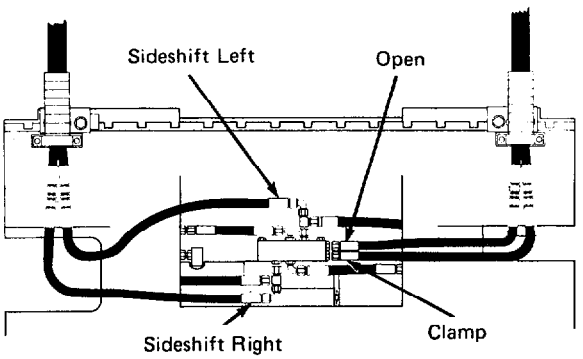


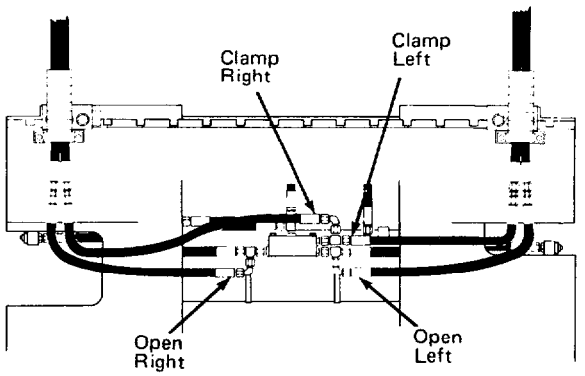
Non-Sideshifting



Revolving



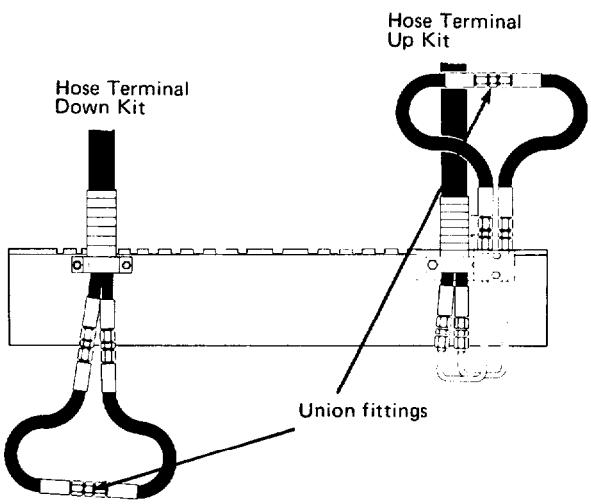
Sideshifting



Independent Arm Control

CAUTION: Flush the hoses as follows to prevent damage to the attachment hydraulic components.

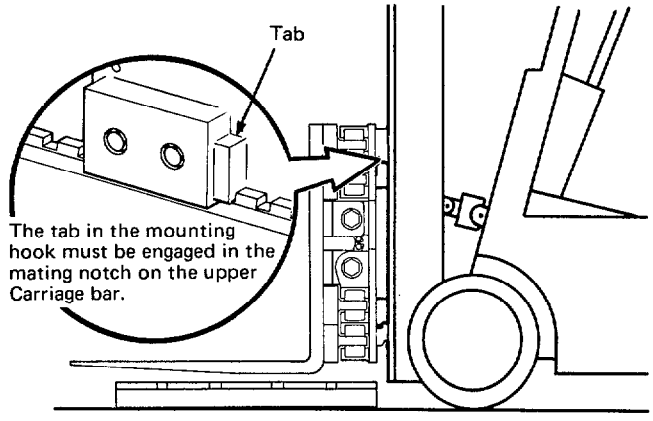
5. Connect the hoses to the truck hose terminal kits. Connect the hoses together using union fittings. Start the truck and actuate the truck control valves in both directions for about 30 seconds, to carry any debris left in the hoses to the truck hydraulic tank and filter.
6. Remove the union fittings and disconnect hoses from the hose terminal kits. Connect hoses to the attachment fittings as shown above in step 4.



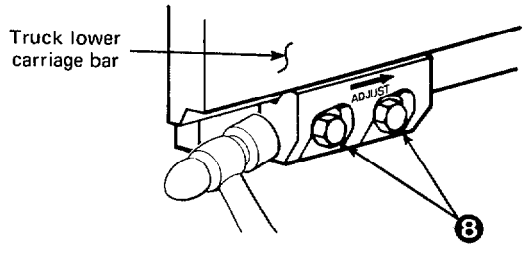
B. Installation (Continued)

⑦ Engage the upper mounting hook tab with the closest upper carriage bar notch and raise the truck carriage into position behind the attachment. Lift the attachment 2 in. (5cm) off the pallet.

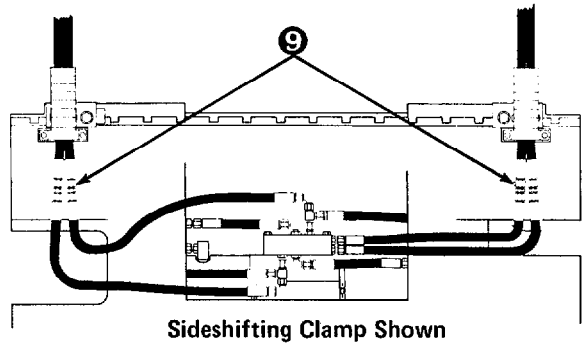
> **WARNING:** The mounting hooks must be properly engaged with upper carriage bar. The tab on the left mounting hook must be engaged in the mating notch on the upper carriage bar.



⑧ Install the lower mounting hooks. Tighten the capscrews finger tight. Tap the end of the mounting hooks with a hammer in the direction of the adjustment arrow for maximum engagement with the lower carriage bar. Tighten the capscrews to a torque of 180–200 ft.-lbs. (244–271 N·m)



⑨ Connect the hydraulic hoses to the hose terminal fittings as shown in step 4. Sideshifting clamp shown at right. See the chart in the Truck Requirements Section for correct auxiliary valve and attachment function operation.



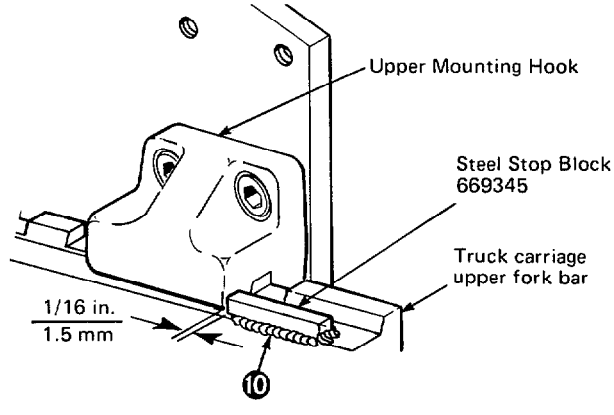
Sideshifting Clamp Shown

⑩ **Revolving Clamps –** Install stop block kit 669345 to prevent the attachment from shifting or sliding on the truck carriage. Position each stop block on the truck carriage upper crossbar approximately 1/16 in. (1.5mm) from the outward side of each upper mounting hook. If the carriage bar is not wide enough, place the stop blocks on the inward side of the hooks.

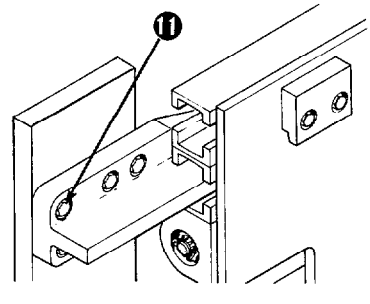
Preheat the carriage upper crossbar weld area and stop block to 400° F. (204°C).

CAUTION: Protect all hydraulic hoses and components from excess heat and weld splatter.

Use AWS E7018 low hydrogen rod and weld a 1/4 in. (6mm) fillet as shown. Let the weld slow cool.



⑪ Tighten the arm capscrews to a torque of 650–680 ft.-lbs. (881–922 N·m).



C. Customer Fabricated Arm Installation

(Clamps without Arms)

Clamps without arms are supplied with two arm bases. Special forks can be welded directly to them or they can be used as a base to fabricate custom built arms.

WARNING: Use a certified welder and proper welding procedures when welding arms to the arm bases.

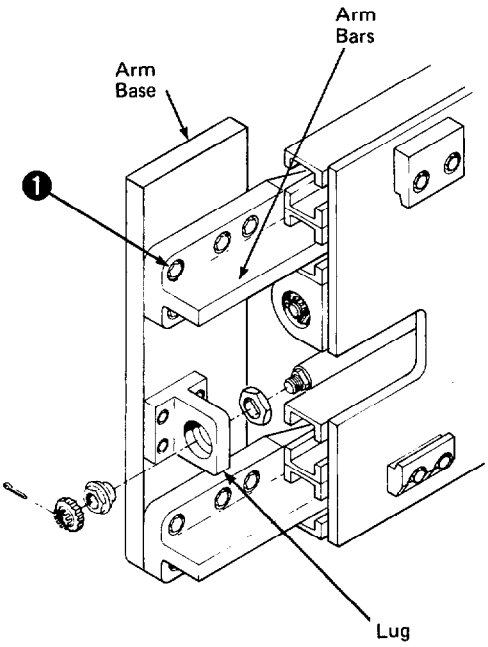
CAUTION: Weld fabricated arms to the **arm bases** only. Do not weld or bolt special built arms or forks directly to the **arm bars.**

The arm base material is ASTM–A572 with the following specificaitons:

TENSILE STRENGTH – 60,000 PSI min. (413mPa)
YIELD STRENGTH – 45,000 PSI min. (310 mPa)
CARBON CONTENT – 32% max.

CAUTION: The surface flatness of the arm base must remain within .010 in. (.25mm) in bolt area and arm bars must slide free manually.

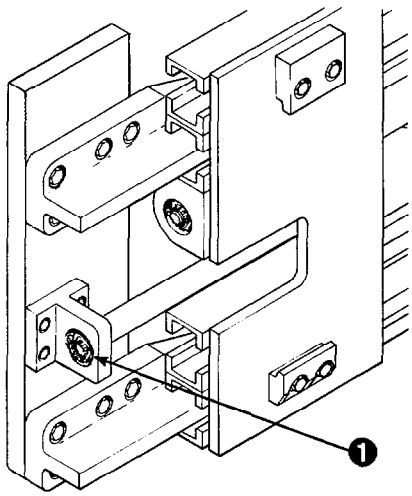
Prior to welding, preheat (oven heat) the parts for two hours to 400° F. (204°C). Make the welds per CWS-39 specifications, ref. FCAW E-70T1.



1. Fasten the arm bases to the arm bars. Tighten the capscrews to a torque of 650–680 ft.-lbs. (881–922 N·m).
2. Lubricate the cylinder rod threads, nut threads and spherical portion of the nuts with STP.
3. Install the washer on the rod end with the beveled side facing the lug.
4. Engage the rod end into the lug.
5. Tighten the rod end nuts to a torque of 375–400 ft.-lbs. (508–542 N·m).

   NOTE: The rod end nut is being tightened against the hex washer. The nut will not be tight against the arm base lug. This looseness allows for cylinder alignment during clamping.
6. Install the locking caps and cotter pins.

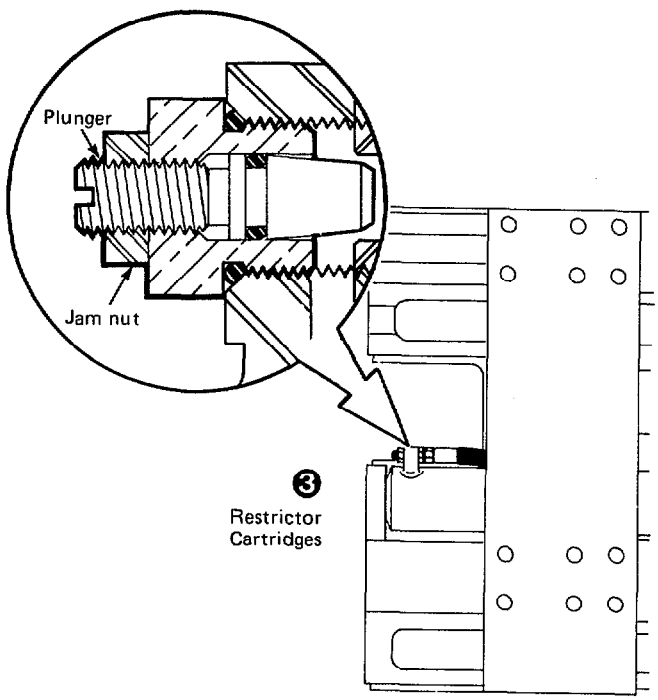
D. Prior to Operation



1. Check the cylinder anchor nuts for properly installed locking caps and cotter pins.
2. Check for external leaks at the fittings and rod ends.
3. Check for equal arm travel. If the travel is unequal, the restrictor cartridges can be adjusted as follows:
   - **a.** Loosen the jam nuts on the restrictor cartridges. Screw in the plungers until they bottom. Screw each plunger out three full turns.
   - **b.** Activate the arms to the fully open positon.
   - **c.** Activate the arms to close until one arm bottoms out. Measure the amount of stroke remaining in the opposite arm.
   - **d.** If the unequal closing movement exceeds 2 in. (5cm), screw the plunger in 1/2 turn on the cylinder that bottomed first.
   - **e.** Repeat steps **b** through **d** until unequal closing movement is less than 2 in. (5cm).
4. Before picking up a load, operate the clamp through several full cycles to force any air from the system to the hydraulic tank.

> **WARNING:** Make sure there are no people in the vicinity of the attachment when picking up a load.

5. Clamp and rotate (if equipped) a maximum load. If the attachment is sluggish or does not rotate smoothly, recheck the plumbing.



Do you have questions you need answered right now? Call your nearest Cascade Service Department.

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