

I *INSTALLATION INSTRUCTIONS*

E-Series

Single-Double Pallet Handler

Manual Number 213372 R-1

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C ONTENTS

Recommended Hydraulic Supply	i
Truck Requirements	1
Installation Procedure	2
Periodic Maintenance	9

This Manual provides instructions for installing the Cascade Single-Double Pallet Handler. Follow the suggested installation procedures for best results. If you have any questions or need more information, contact your nearest Cascade Service Department (see back cover).

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

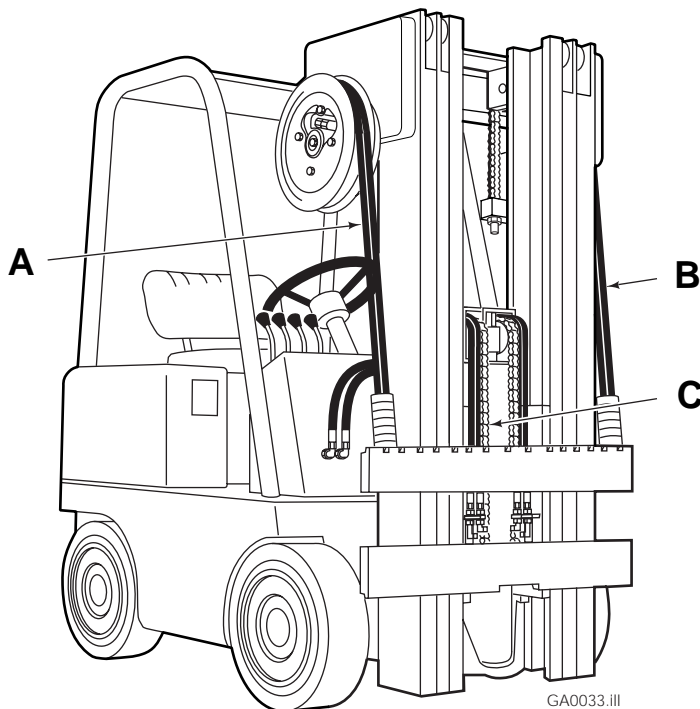
IMPORTANT: Field alterations may impair performance or capability and could result in loss of warranty. Consult Cascade for any required modifications.

R ECOMMENDED HYDRAULIC SUPPLY OPTIONS

The E-Series Single-Double Pallet Handler will operate with any of the hydraulic supply arrangements listed below.

- All hoses and fittings for FORK POSITION and SIDESHIFT functions should be at least No. 6 with a minimum internal diameter of 9/32 in. (7 mm).

Refer to Cascade *Hose & Cable Reel Selection Guide*, Part No. 212199, to select the correct hose reel for the mast and truck.



Sideshifting

A and B

RH and LH THINLINE™ 2-port hose reel groups.

OR

C Mast double internal hose reeving group.

Solenoid Adaption

A 6-N-1 cable/hose reel group.

OR

A and C

Cable reel and single 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.

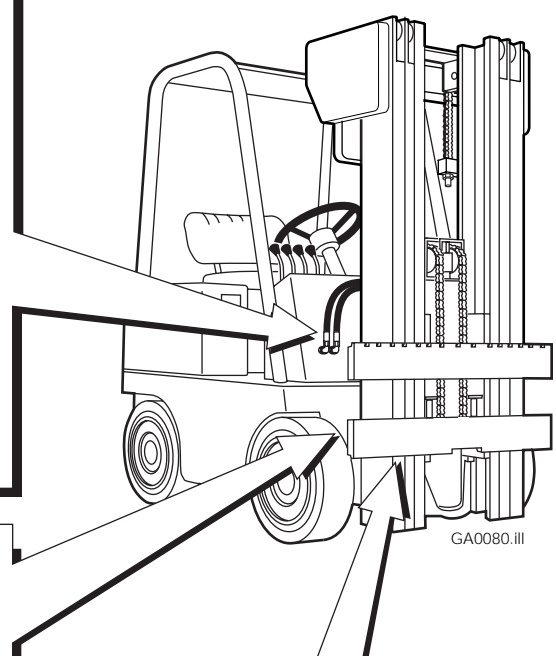
Truck Relief Setting

2300 psi (160 bar) Recommended
2600 psi (180 bar) Maximum

Truck Flow Volume ^①

	Min. ^②	Recommended	Max. ^③
55E	4 GPM (15 L/min.)	7 GPM (26 L/min.)	10 GPM (38 L/min.)

- ① Cascade E-Series Single-Double Pallet Handlers 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 or unequal arm speed.
- ③ Flow greater than maximum can result in excessive heating, reduced system performance and reduced hydraulic system life.



GA0080.III

Carriage

Clean carriage bars and inspect for damaged notches



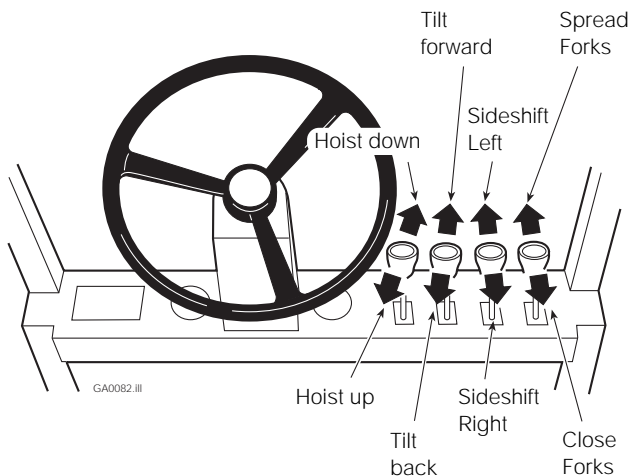
Carriage Mount Dimension (A) ITA (ISO)

	Minimum	Maximum
Class II	14.96 in. (380.0 mm)	15.00 in. (381.0 mm)
Class III	18.68 in. (474.5 mm)	18.74 in. (476.0 mm)

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Auxiliary Valve Functions

Check for compliance with ITA (ISO) standards:



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INSTALLATION

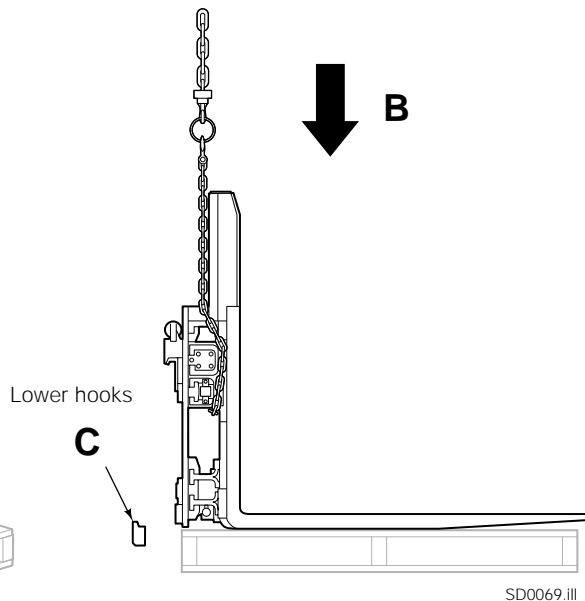
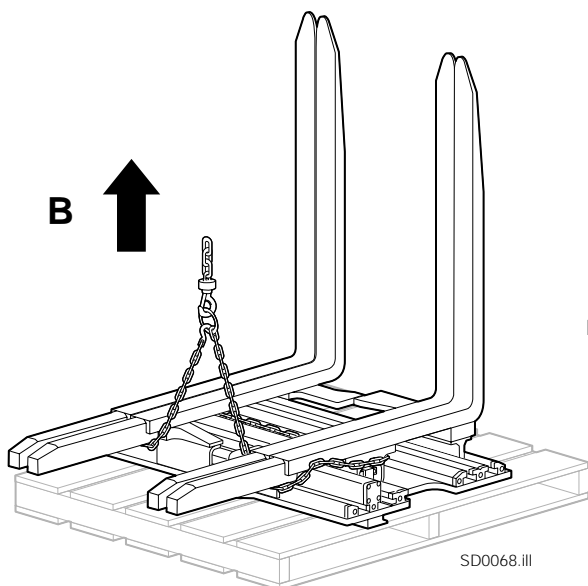
Follow the steps shown to install the Single-Double Pallet Handler on the truck. Read all **WARNINGS** and **CAUTIONS** carefully. If you don't understand a procedure, ask your supervisor, or call the nearest Cascade Service Department for assistance.

1 Attach overhead hoist

- A Remove banding.
- B Set Attachment upright on pallet.
- C Remove bolt-on lower hooks (if equipped).

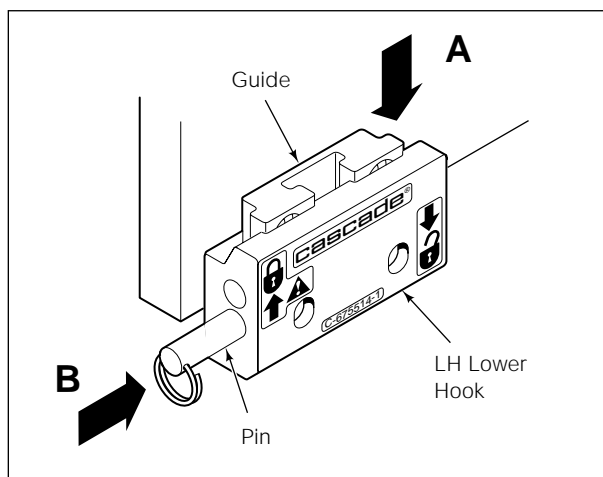


WARNING: Make sure overhead hoist has rated capacity of at least 2000 lbs. (900 kg).

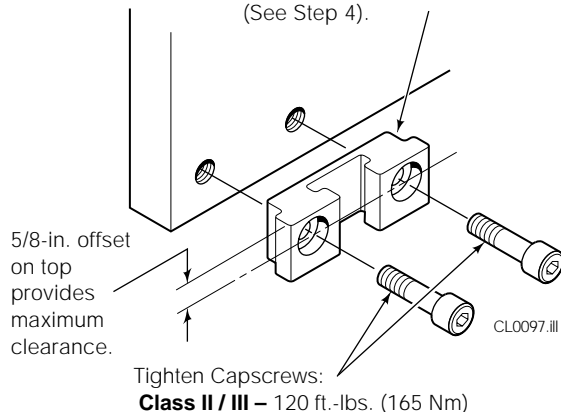


2 Unlock Quick-Change lower mounting hooks

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

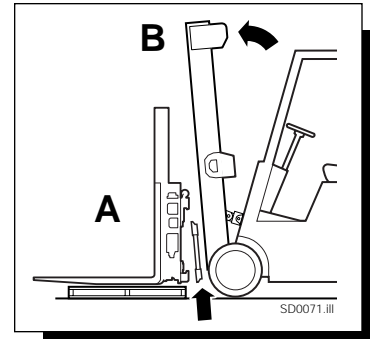


NOTE: Guides can be reversed to reduce hook-to-carriage clearance (See Step 4).

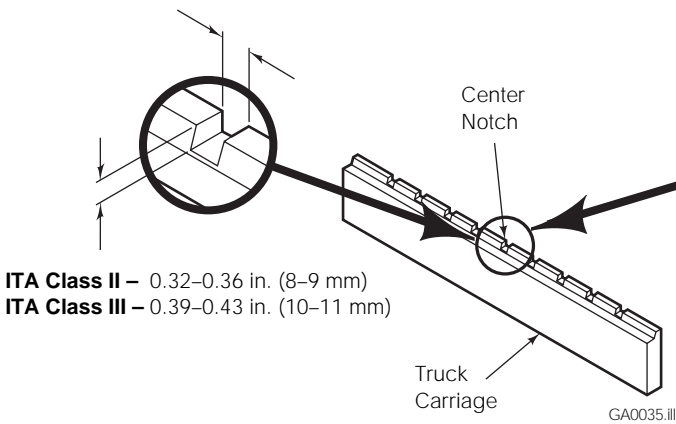


3 Mount Attachment on truck carriage

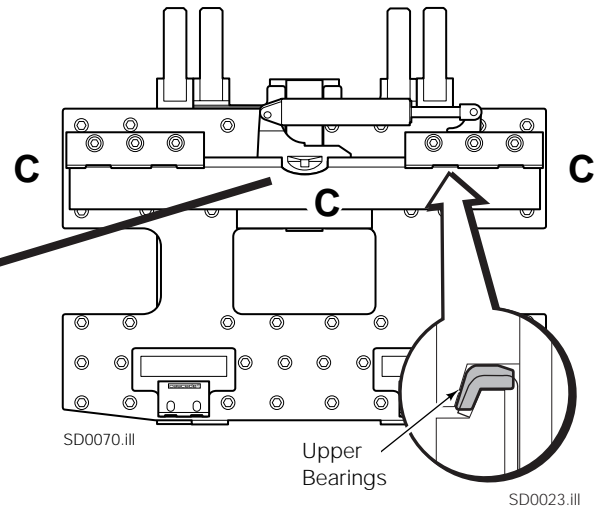
- A** Center truck behind attachment.
- B** Tilt forward and raise carriage into position.
- C** Engage top mounting hooks with carriage. Make sure center locator tab engages center notch on top carriage bar.
- D** Lift Attachment 2 in. (5 cm) off pallet.



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



ITA Class II – 0.32–0.36 in. (8–9 mm)
 ITA Class III – 0.39–0.43 in. (10–11 mm)

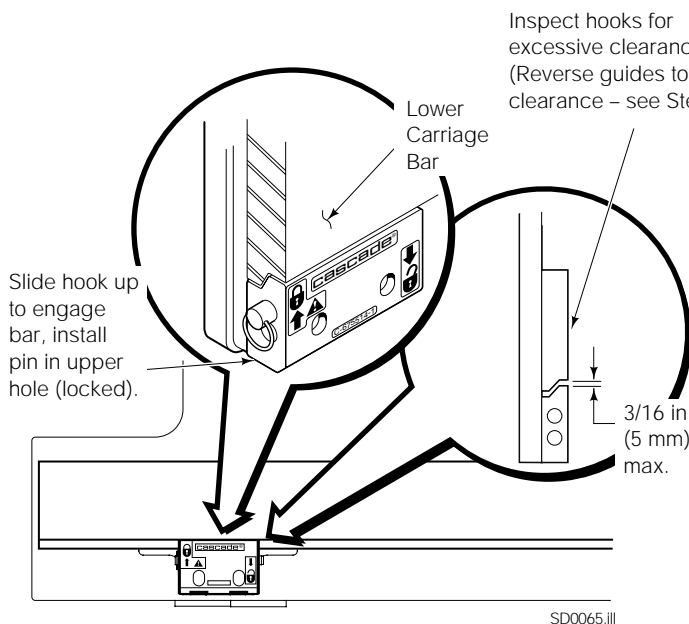


Upper Bearings

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4 Install and engage lower hooks

QUICK-CHANGE TYPE



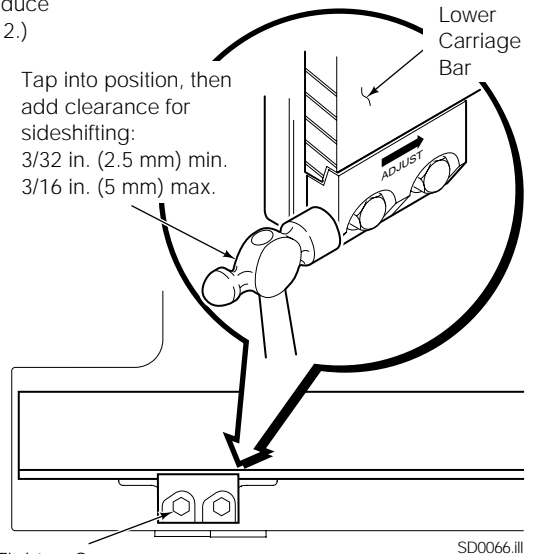
Slide hook up to engage bar, install pin in upper hole (locked).

Lower Carriage Bar

Inspect hooks for excessive clearance. (Reverse guides to reduce clearance – see Step 2.)

3/16 in. (5 mm) max.

BOLT-ON TYPE (if fitted)



Tap into position, then add clearance for sideshifting:
 3/32 in. (2.5 mm) min.
 3/16 in. (5 mm) max.

Lower Carriage Bar

ADJUST

Tighten Capscrews:
Class II / III – 120 ft.-lbs. (165 Nm)

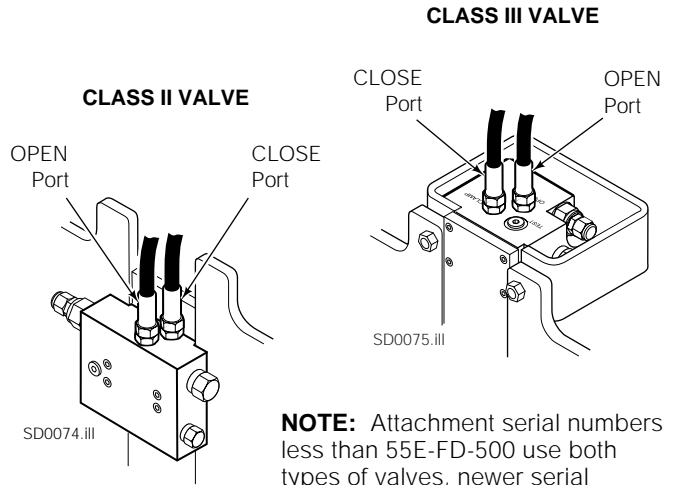
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INSTALLATION

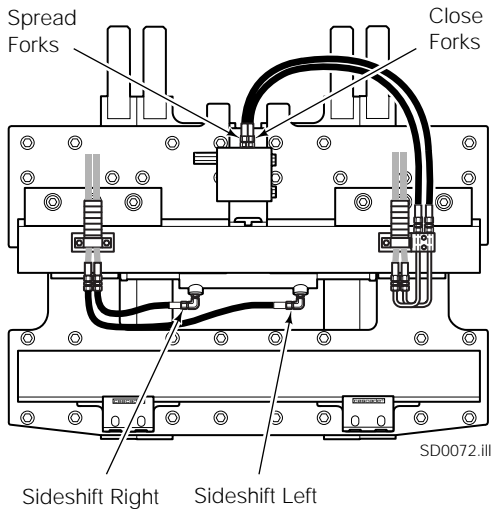
5 Prepare hoses

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

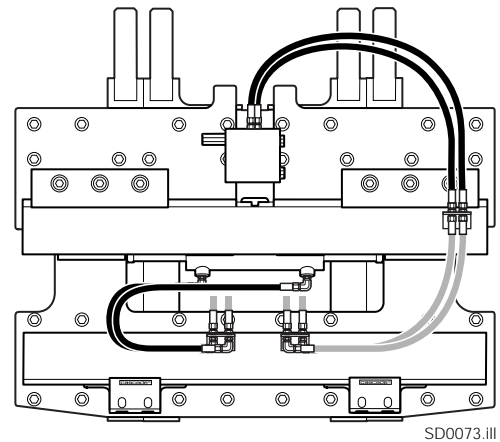
CAUTION: Allow 4 in. (10 cm) extra hose length in each direction for sideshifting movement between Attachment valve and truck carriage.



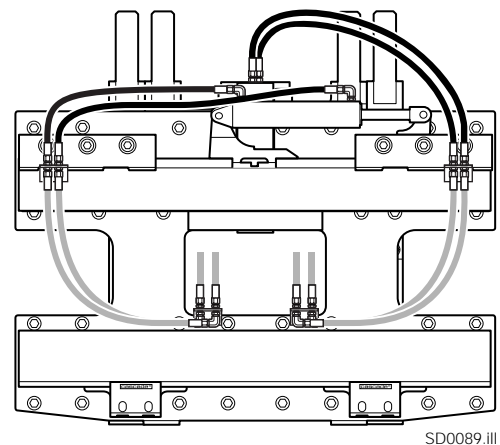
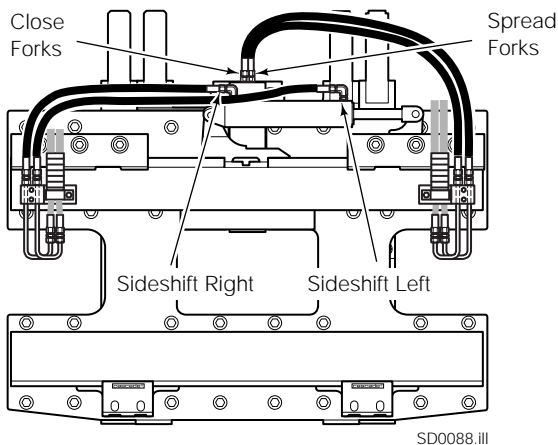
RH & LH 2-PORT THINLINE™ HOSE REELS



DOUBLE INTERNAL HOSE REEVING



Class II Back

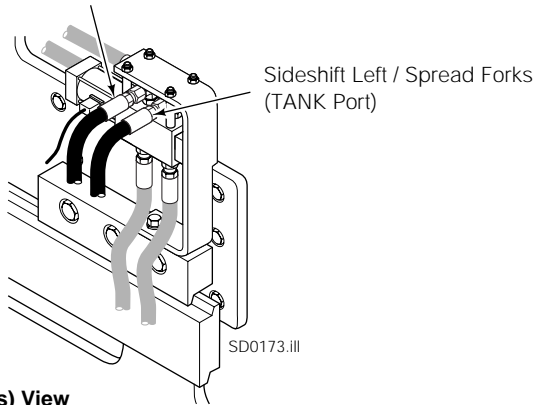


Class III Back

INSTALLATION

SOLENOID VALVE – CLASS II OR III

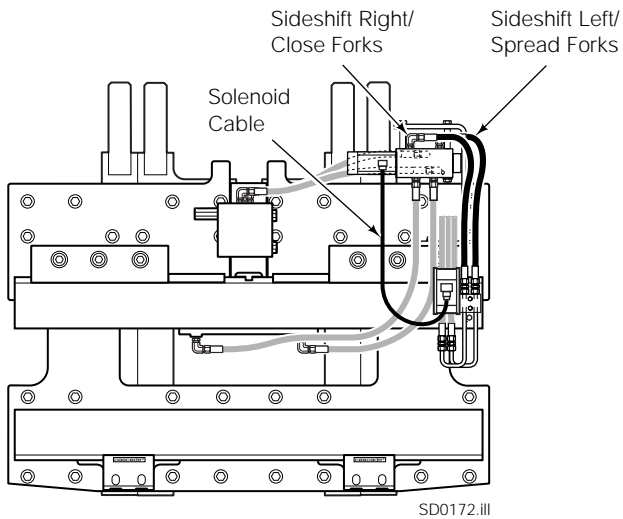
Sideshift Right / Close Forks
(PRESSURE Port)



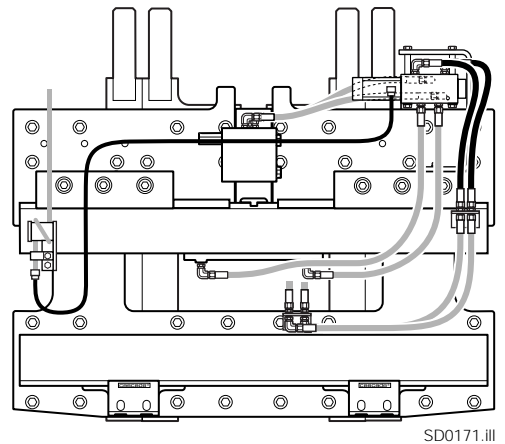
Back (Driver's) View

CAUTION: Allow 4 in. (10 cm) extra hose length in each direction for sideshifting movement between solenoid valve and truck carriage.

6-N-1 CABLE / HOSE REEL

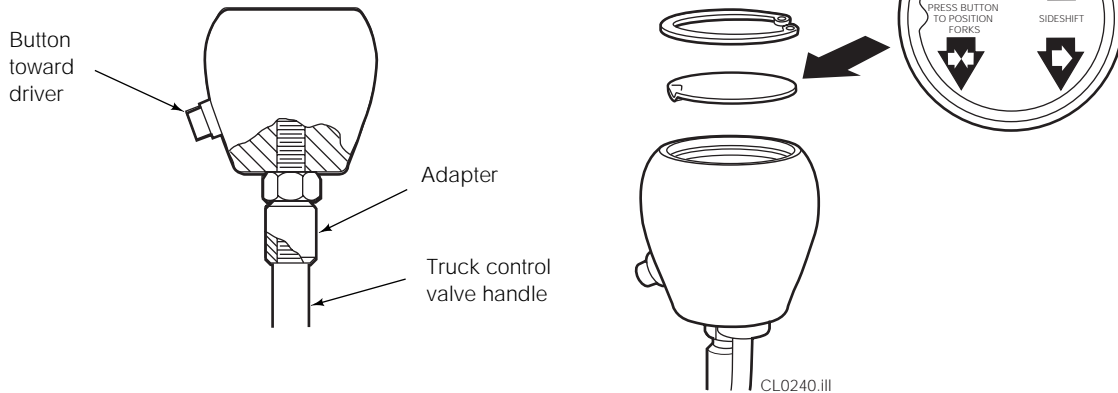


SINGLE INTERNAL HOSE REEVIING with CABLE REEL

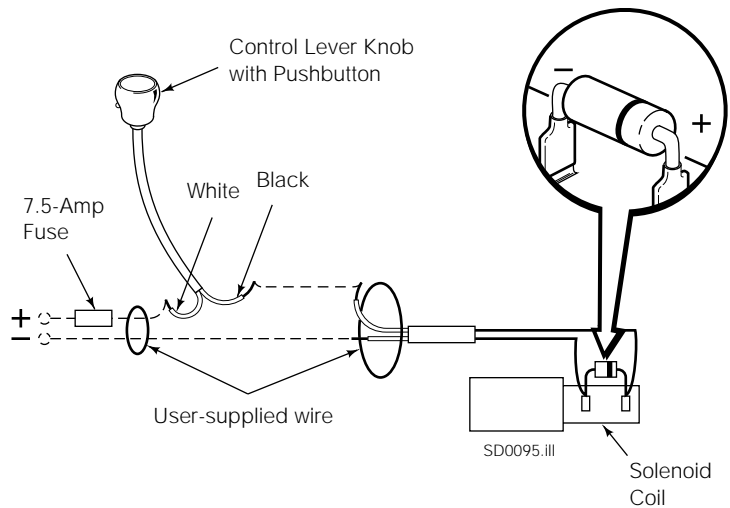
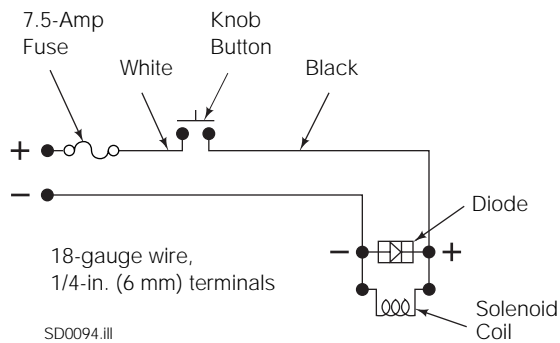


Class II Back

6 Install solenoid control knob – (Solenoid-equipped units)

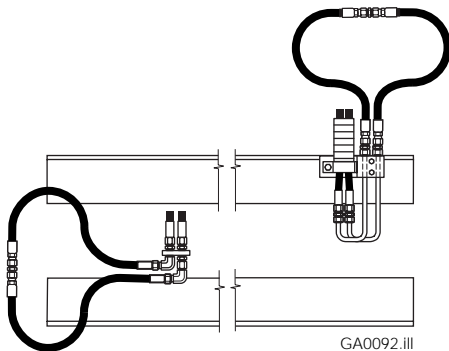


7 Install wiring – (Solenoid-equipped units)

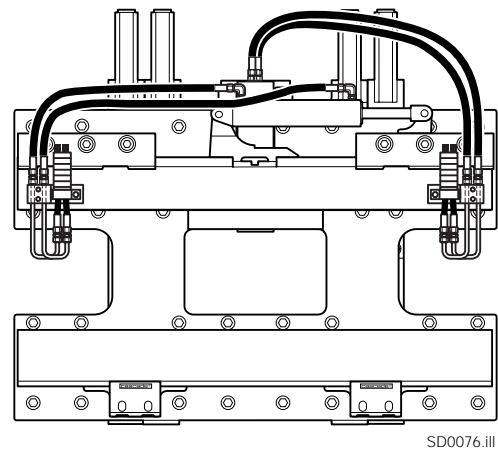


8 Flush hydraulic supply hoses

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



9 Connect hoses prepared in Step 5 to Attachment fittings



10 Check Attachment functions

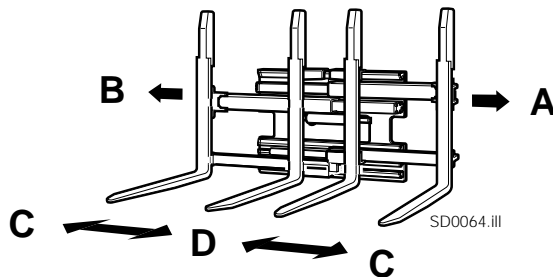
- With no load, cycle all Attachment functions several times.
- Check for operation in accordance with ITA (ISO) standards.
- Lift a maximum load and sideshift left and right. Check for smoothness and adequate speed.
- Check for leaks at fittings, valve, manifold and cylinders.



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

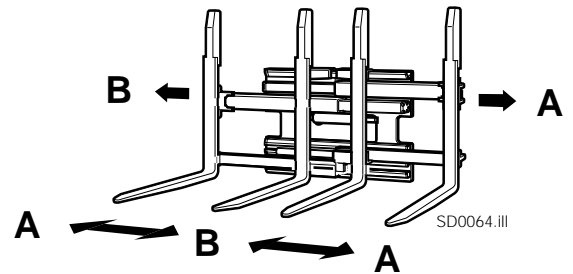
SIDESHIFTING

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

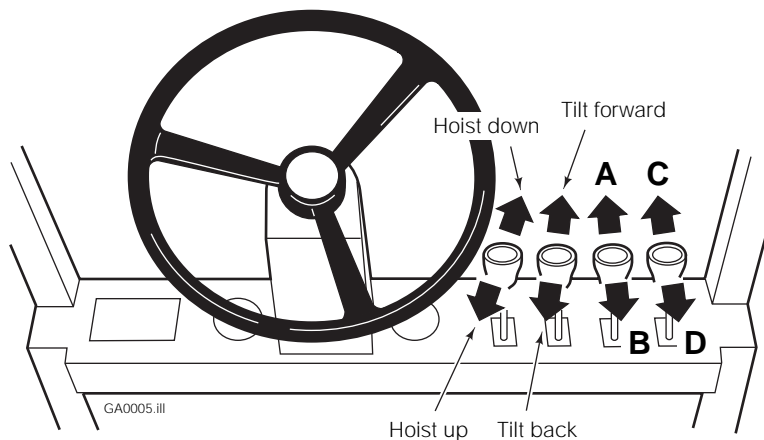


SIDESHIFTING WITH SOLENOID VALVE

- A** Sideshift Left
- A** Spread Forks (*press knob button*)
- B** Sideshift Right
- B** Close Forks (*press knob button*)



AUXILIARY VALVE FUNCTIONS



11 Adjust relief cartridge

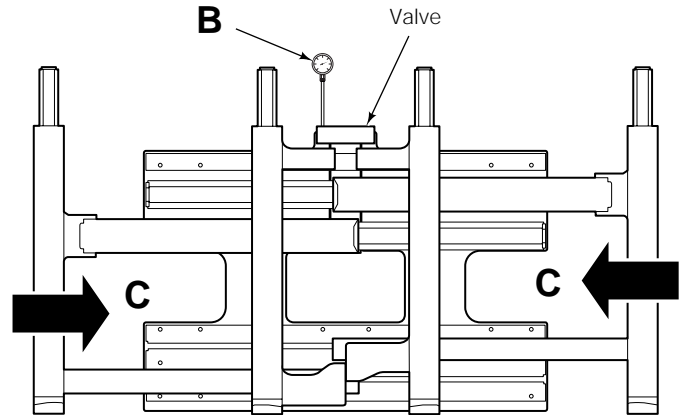
For over-pressure protection, the relief valve cartridge for the FORK POSITION function should be adjusted to match the truck hydraulic flow rate. **MAXIMUM RELIEF VALVE SETTING = 2600 psi (180 bar).**

Fork positioning relief adjustment:

- A** Confirm that the truck pressure is between 2300–2600 psi (160–180 bar).
- B** Install a 3000-psi (200 bar) pressure gauge on the TEST port of the main hydraulic valve (No. 4 O-ring fitting required).
- C** Cycle forks to full open, then slowly close forks fully. Hold lever in the CLOSE position and accelerate engine to develop full system pressure.
- D** Adjust the relief cartridge for an indicated 2300 psi (160 bar). Turn clockwise (CW) to increase pressure, counterclockwise (CCW) to decrease pressure. Tighten jam nut and replace cap.



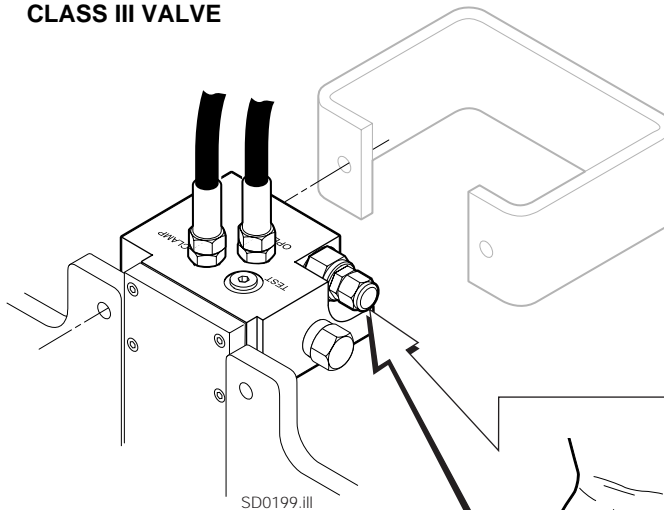
WARNING: Before removing hydraulic lines or components, relieve pressure in the hydraulic system. Turn the truck off and open the truck auxiliary control valves several times in both directions.



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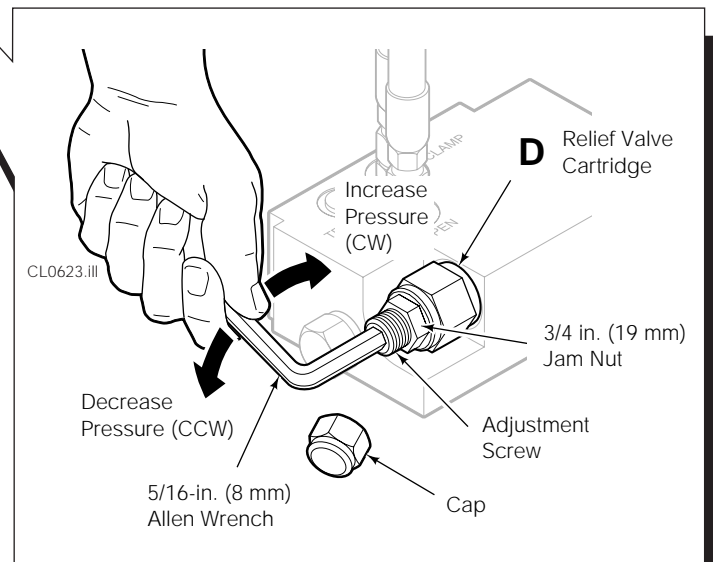
Front View

CLASS III VALVE



SD0199.III

Back (Driver's) View



CL0623.III



WARNING: After completing maintenance procedures, always test the Attachment through five complete cycles. First test the Attachment empty, then test with a load to make sure the Attachment operates correctly before returning it to the job.

IMPORTANT: The Single-Double Pallet Handler is prelubed at the Factory. Lubrication is not necessary for installation.

100-Hour Maintenance

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

- Check for loose or missing bolts, worn or damaged hoses and hydraulic leaks.
- Inspect the cylinder rod anchors for damage. Anchors operate with a loose clearance and require no lubrication.
- Check for equal movement of the inner and outer forks.

500-Hour Maintenance

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

- Inspect the inner and outer fork bearing surfaces for wear or damage. Lubricate with silicone spray or light grease as required.
- Apply chassis grease to the sideshifter upper bearing grease fittings and lower bearing surfaces.
- Check the clearance between the lower mounting hooks and the truck carriage bar:

Quick-Change Hooks – 3/16 in. (5 mm) max.

Bolt-on Hooks – 3/32 in. (2.5 mm) min., 3/16 in. (5 mm) max. for sideshifting.

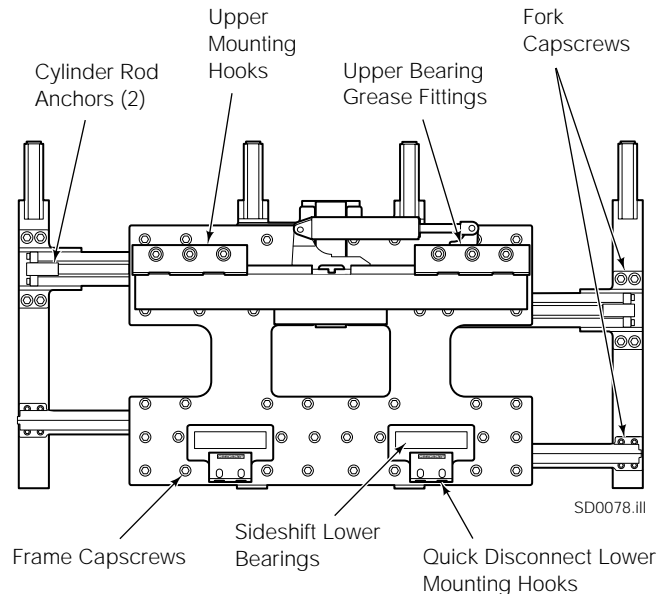
If adjustment is necessary, refer to Installation Step 4. Tighten the lower hook capscrews to 120 ft.-lbs. (165 Nm).

- Inspect the inner fork gas springs for damage or looseness. Replace if necessary (see Service Manual).

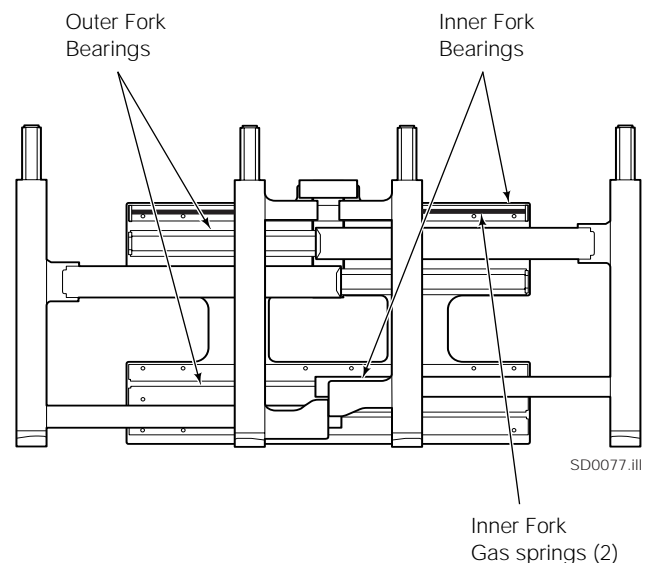
1000-Hour Maintenance

After each 1000 hours of truck operation, in addition to the 100 and 500-hour maintenance, perform the following procedures:

- Tighten the inner and outer fork capscrews to 220 ft.-lbs. (300 Nm).
- Tighten the frame capscrews to 75 ft.-lbs. (100 Nm).



Back view



Front view

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

AMERICAS

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