

INSTALLATION INSTRUCTIONS

and PERIODIC MAINTENANCE

F-Series

Fork Positioners

Manual Number 207363-R5

**cascade[®]
corporation**

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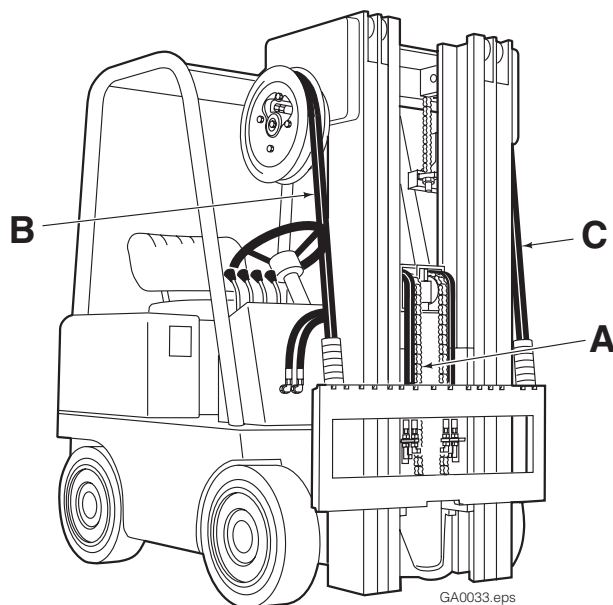
CONTENTS

<u>Recommended Hydraulic Supply</u>	<u>1</u>	This manual provides instruction for installing Cascade F-Series Fork Positioners.
<u>Truck Requirements</u>	<u>2</u>	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.
<u>Installation</u>	<u>3</u>	Read the WARNING Statements placed throughout this manual to emphasize safety during attachment installation.
<u>Periodic Maintenance</u>	<u>10</u>	IMPORTANT: Field alterations may impair performance or capability and could result in loss of warranty. Consult Cascade for any required modifications. IMPORTANT: Supply input fittings are JIC. NOTE: All specifications are shown in US and (Metric) units where applicable. All fasteners have a torque value range of ±10% of stated value.

RECOMMENDED HYDRAULIC SUPPLY

The Cascade F-Series Fork Positioner can be operated with any 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. Hose and fitting requirements are as follows:

- Hoses and fittings for the Sideshift and Fork Position functions should be at least No. 6 with .28 in. (7 mm) minimum ID.



Non-Sideshifting

A Mast Single Internal Reeving

OR

B RH THINLINE™ 2-Port Hose Reel Group

Sideshifting

A Mast Double Internal Reeving

OR

A and B

Mast Single Internal Reeving and RH THINLINE™ 2-Port Hose Reel Group

OR

B and C

RH and LH THINLINE™ 2-Port Hose Reel Groups

Sequence Valve Equipped

A Mast Single Internal Reeving

OR

B RH THINLINE™ 2-Port Hose Reel Group

Solenoid Valve Equipped

A and B

Mast Single Internal Reeving and RH Cable Reel Group

OR

B RH 6-N-1 Cable/Hose Reel Group

TRUCK REQUIREMENTS

Truck Relief Setting

2300 psi (160 bar, 15.8 MPa) Recommended
2600 psi (180 bar, 17.9 MPa) Maximum

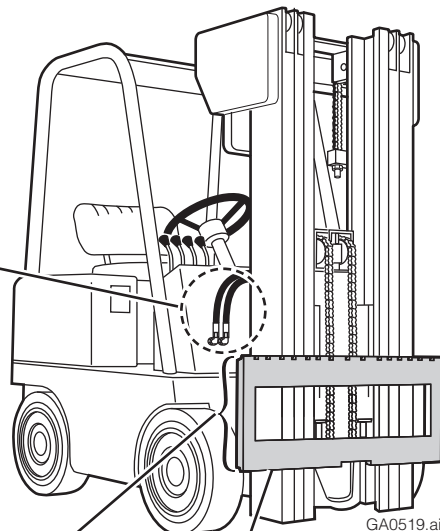
Truck Flow Volume ^①

	Min. ^②	Recommended	Max. ^③
55F	3 GPM (19 L/min.)	4 GPM (15 L/min.)	5 GPM (19 L/min.)
100F, 120F	4 GPM (15 L/min.)	5 GPM (19 L/min.)	6 GPM (23 L/min.)

- ① Cascade F-Series Fork Positioners 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 slow fork positioning speed.
- 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.



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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.

Carriage Mount Dimension (A) ITA (ISO)

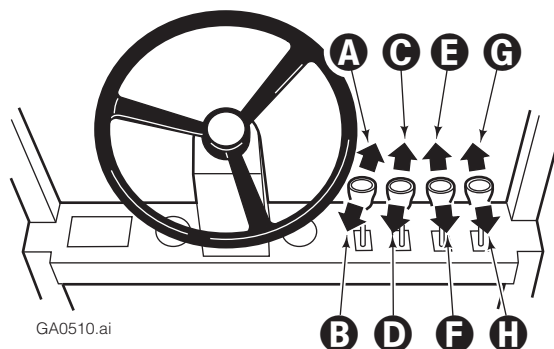


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	Minimum	Maximum
Class II	14.94 in. (380.0 mm)	15.00 in. (381.0 mm)
Class III	18.68 in. (474.5 mm)	18.74 in. (476.0 mm)
Class IV	23.44 in. (595.5 mm)	23.50 in. (597.0 mm)

Auxiliary Valve Functions

Check for compliance with ANSI (ISO) standards:



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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.

Main Functions

- A** Hoist Down
- B** Hoist Up

- C** Tilt Forward
- D** Back

Auxiliary Functions

Fork Positioner with Standard Valve

- E** Sideshift Left
- F** Sideshift Right

- G** Forks Out
- H** Forks In

Fork Positioner with Sequence Valve

- E** Sideshift Left – Forks Out
- F** Sideshift Right – Forks in

Fork Positioner with Solenoid Valve

- E** Sideshift Left **OR** Tip Forward ❖
- F** Sideshift Right **OR** Tip Backward ❖

❖ Push Button

INSTALLATION

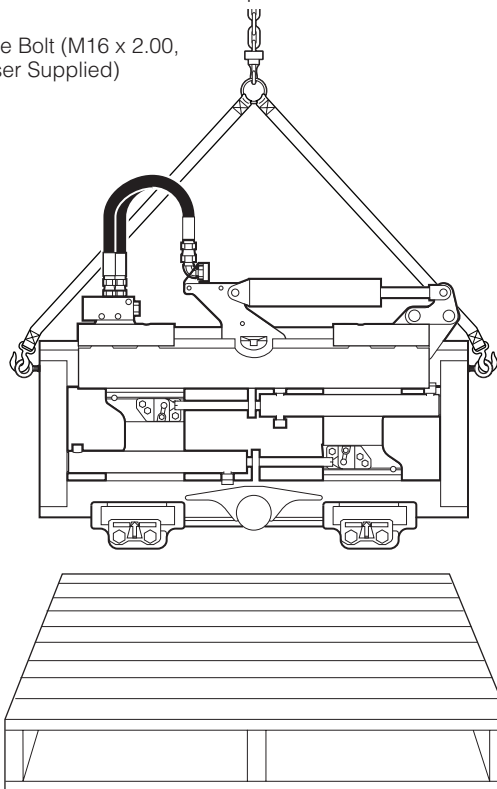
Follow the steps shown to install the attachment on the truck.
Read and understand all **WARNING** and **CAUTION** statements.
If a procedure is not understood, ask a supervisor, or call the nearest Cascade Service Department for assistance.

1 Attach overhead hoist

Attachments without forks installed –

Before lifting, secure fork position cylinders with cable ties to prevent excess movement.

Eye Bolt (M16 x 2.00,
User Supplied)



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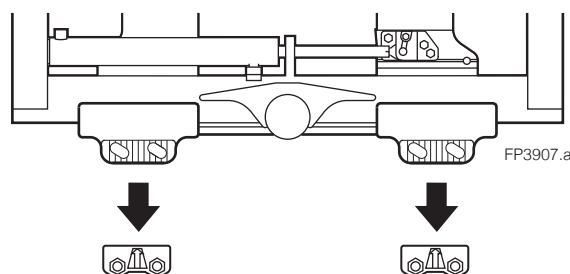


WARNING: Verify that the overhead hoist and chains or straps are rated for the weight of the attachment. Refer to nameplate for attachment weight.

2 Remove or unlock lower hooks

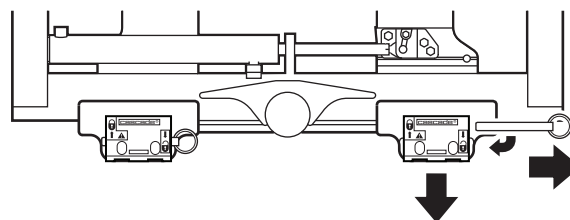
- **Bolt-On type** – Remove bolt-on lower mounting hooks.
- **Quick-disconnect type** – Remove pin. Move hook into unlocked position. Reinstall pin in lower hole.

BOLT-ON HOOKS



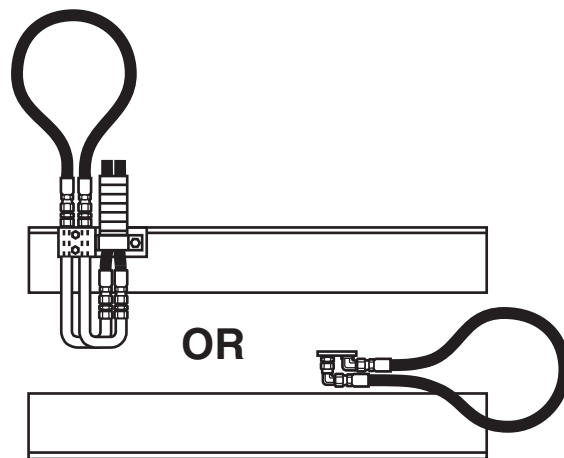
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QUICK-DISCONNECT HOOKS



3 Flush hydraulic supply hoses

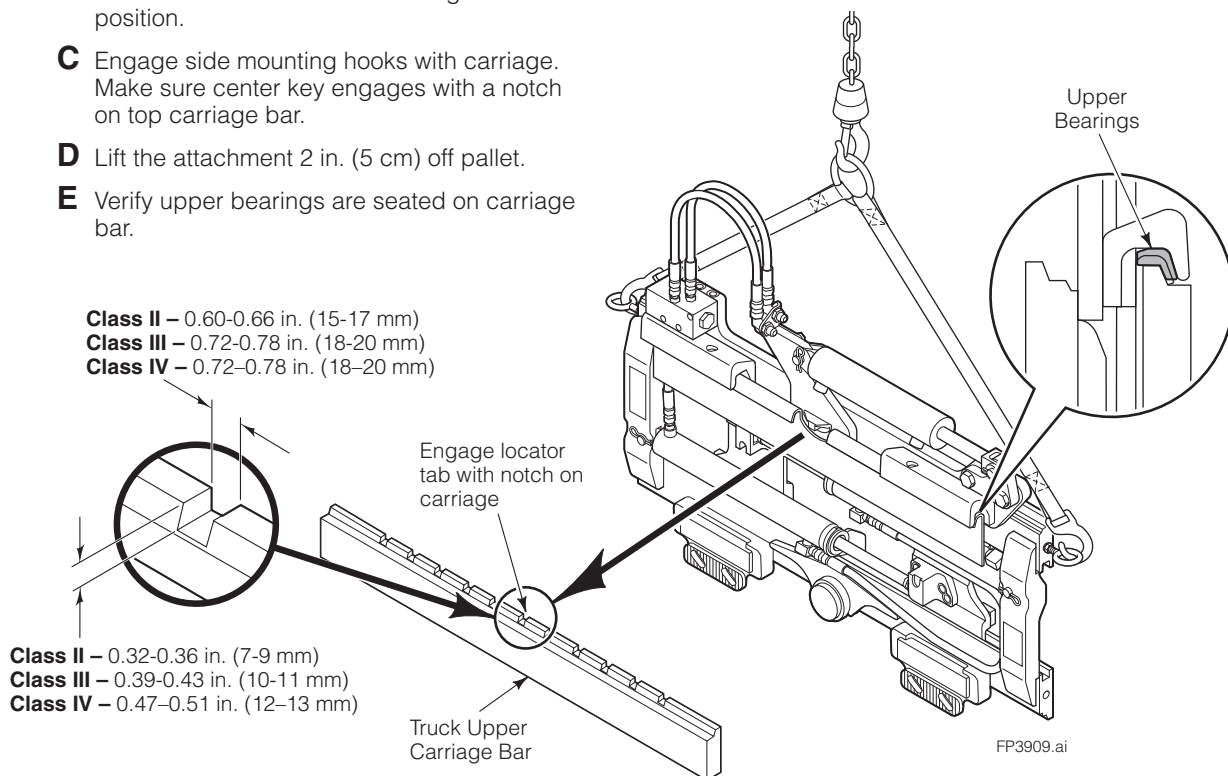
- A** Install hoses using union fittings.
- B** Operate auxiliary valves for 30 seconds.
- C** Remove union fittings.



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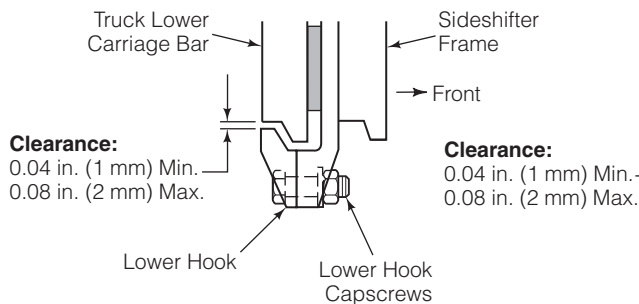
4 Mount attachment on truck carriage

- A** Center truck behind the attachment.
- B** Tilt mast forward and raise carriage into position.
- C** Engage side mounting hooks with carriage. Make sure center key engages with a notch on top carriage bar.
- D** Lift the attachment 2 in. (5 cm) off pallet.
- E** Verify upper bearings are seated on carriage bar.

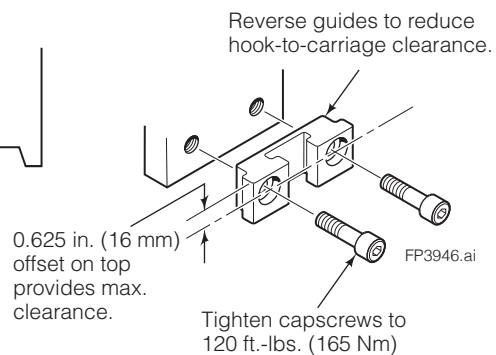


5 Install lower hooks

BOLT-ON



QUICK-DISCONNECT

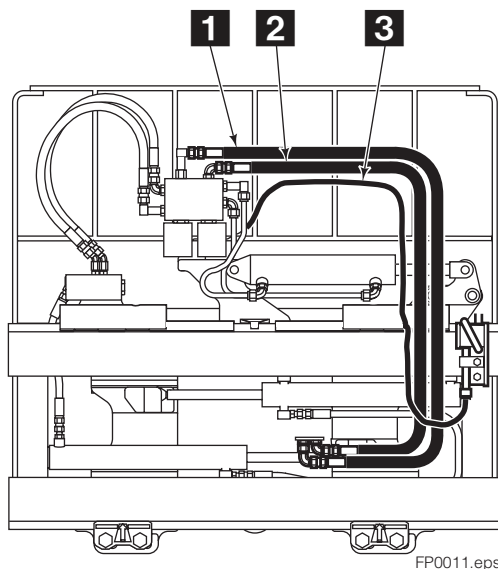


6 Install hoses

Hydraulic supply kits are available as follows:

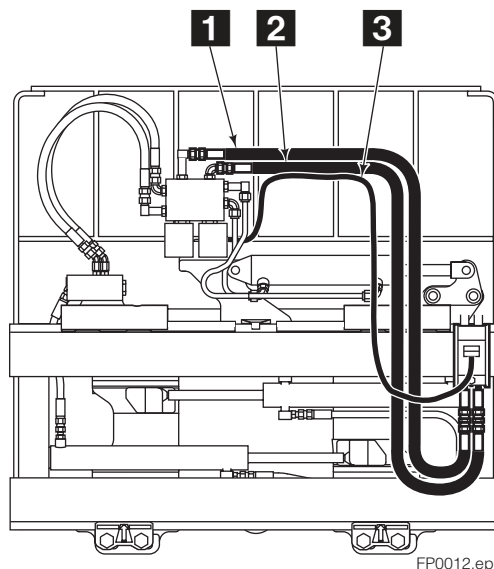
- **Single Internal Reeving Hydraulic Supply** – Installation Kit 224041 (2 Hoses)
- **Double Internal Reeving Hydraulic Supply** – Installation Kit 224042 (4 Hoses)

SOLENOID EQUIPPED



- 1** Open Forks then Sideshift Left **3** Solenoid Cable
2 Close Fork then Sideshift Right

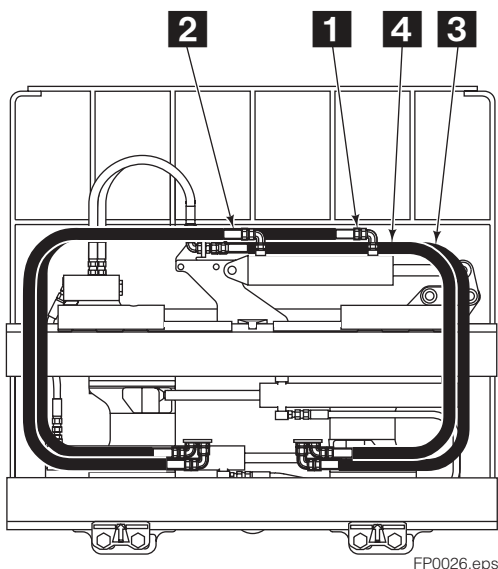
CABLE REEL AND INTERNAL REEVING



- 1** Open Forks then Sideshift Left **3** Solenoid Cable
2 Close Fork then Sideshift Right

6-N-1 CABLE-HOSE REEL

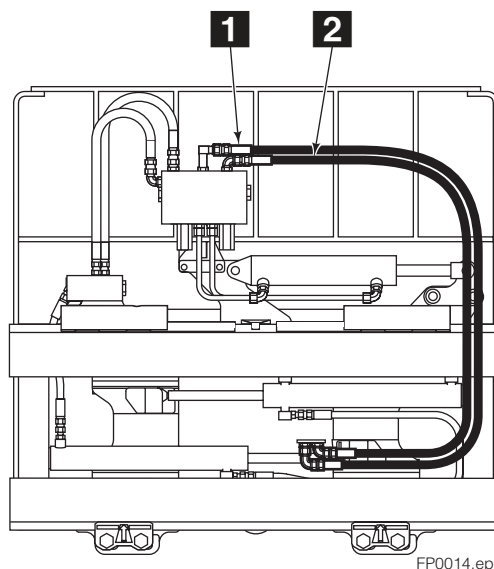
STANDARD VALVE



- 1** Sideshift Left **3** Open
2 Sideshift Right **4** Close

SINGLE AND DOUBLE INTERNAL REEVING

SEQUENCE VALVE



- 1** Open Forks then Sideshift Left
2 Close Fork then Sideshift Right

INTERNAL REEVING

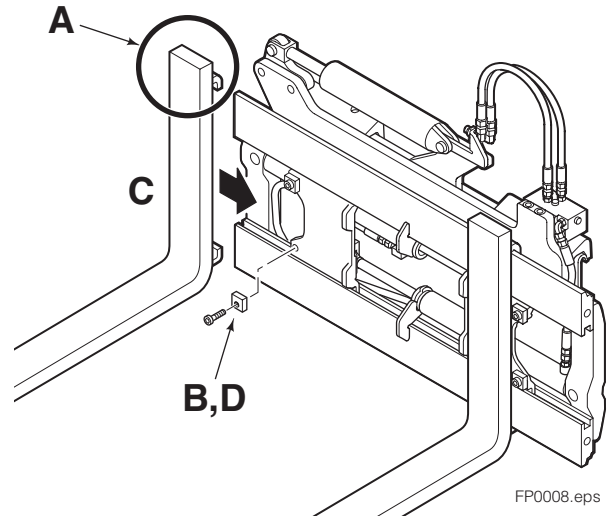
INSTALLATION

7 Install forks

- A** Remove fork locking pins.
- B** Remove fork blocks.
- C** Install forks using a pallet or blocks. Keep feet clear of forks.
- D** Reinstall fork blocks and hardware. Adjust blocks to provide .06 in. (1.5 mm) clearance with side of fork.

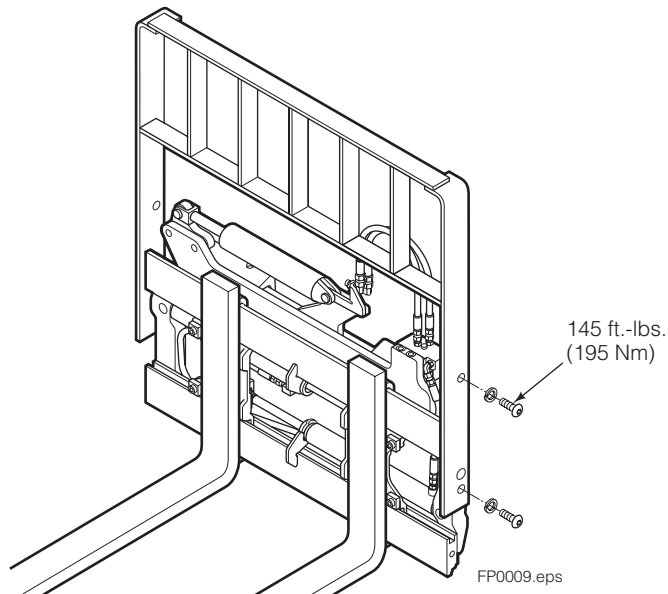


WARNING: Remove locking pins from forks. Make sure that forks slide freely on carriage bars.



Tighten fork block capscrews to:
55F – 60 ft.-lbs. (80 Nm)
100F, 120F – 115 ft.-lbs. (155 Nm)

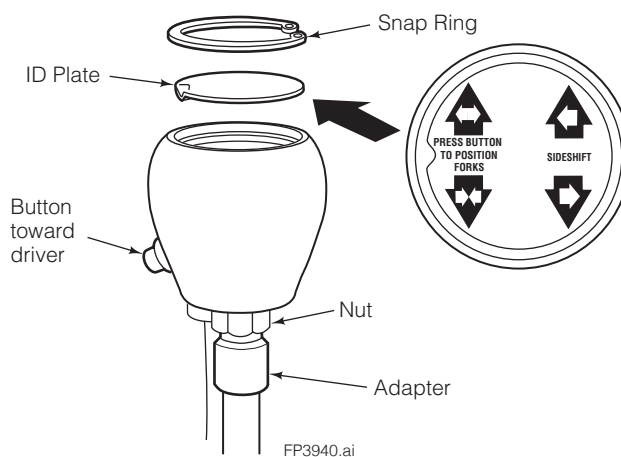
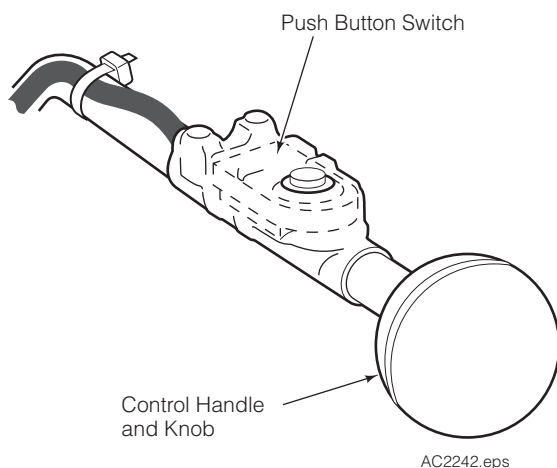
8 Install backrest



9 Solenoid equipped units – Install solenoid control knob or push button switch

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

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

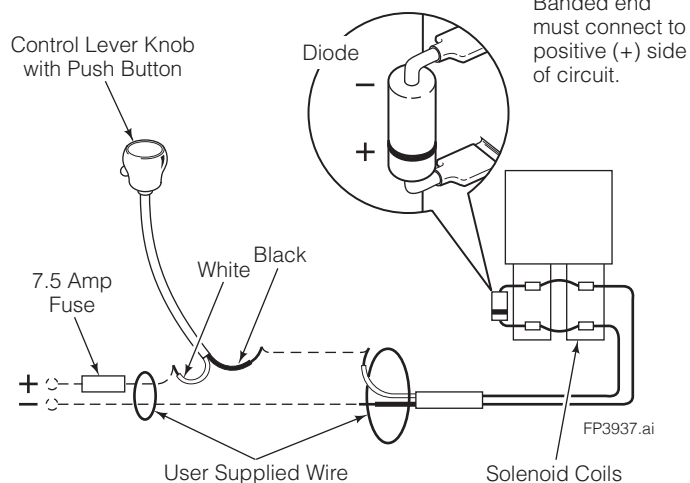
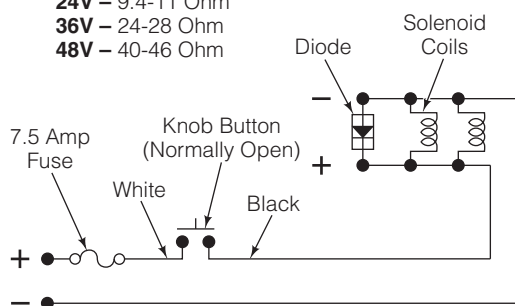


Install the push button switch to the control lever. Refer to Installation Instructions 6822725, included with switch, for complete installation procedure.

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

10 Install wiring – Solenoid equipped units

12V – 2.4-2.8 Ohm
24V – 9.4-11 Ohm
36V – 24-28 Ohm
48V – 40-46 Ohm



IMPORTANT: Banded end must connect to positive (+) side of circuit.

11

Cycle Fork Positioner functions

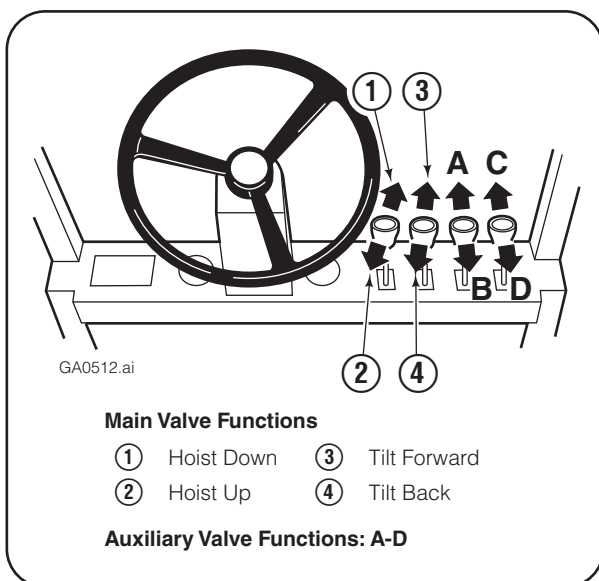
- Open and close forks several times. Sideshift left and right. Check for smoothness and equal movement.
- Check for operation in accordance with ANSI (ISO) standard.
- Check for leaks at fittings, valve and cylinders.



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.

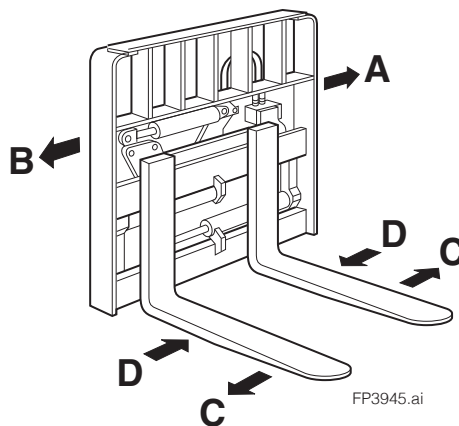


WARNING: Make sure all personnel are clear of the attachment during testing.



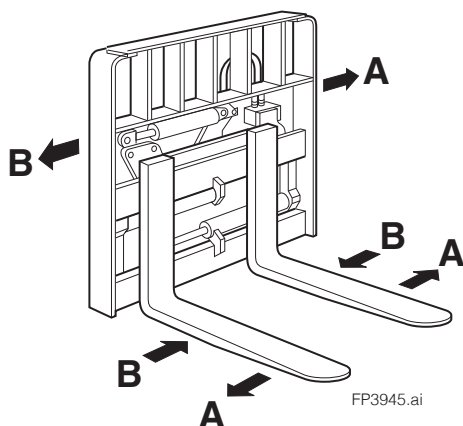
STANDARD VALVE

- A** Sideshift Left
- B** Sideshift Right
- C** Forks Out
- D** Forks In



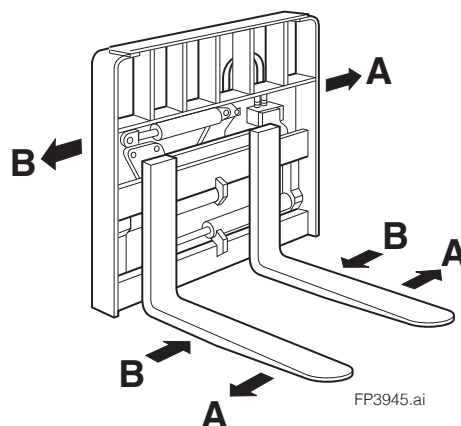
FORK POSITIONING WITH SEQUENCE VALVE

- A** Sideshift Left – Forks Out
- B** Sideshift Right – Forks In
- C** (not used)
- D** (not used)



FORK POSITIONING WITH SOLENOID VALVE

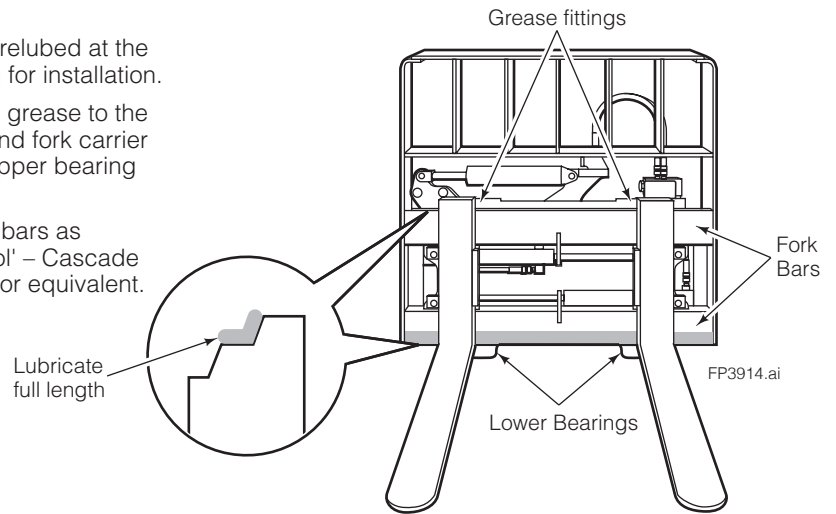
- A** Sideshift Left
- A** Forks Out (Press Knob Button)
- B** Sideshift Right
- B** Forks In (Press Knob Button)



12 Lubrication points

IMPORTANT: The attachment is prelubed at the factory and requires no lubrication for installation.

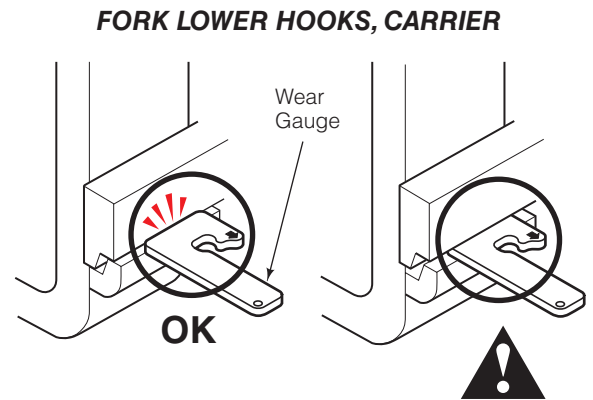
- Apply general purpose chassis grease to the upper bearing grease fittings and fork carrier bearings. Sideshift to access upper bearing grease fittings.
- Apply graphite dry-lube to fork bars as required. Use 'Slip Plate Aerosol' – Cascade part no. 599489, 'Graphokote', or equivalent.



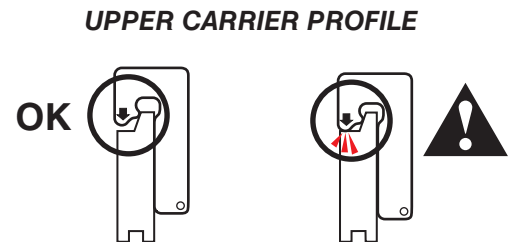
13 Inspect fork hooks, carrier profile and clearance

NOTE: Use go/no-go Wear Gauge Part No. 209560 (Class II), 209561 (Class III) or 6105257 (Class IV).

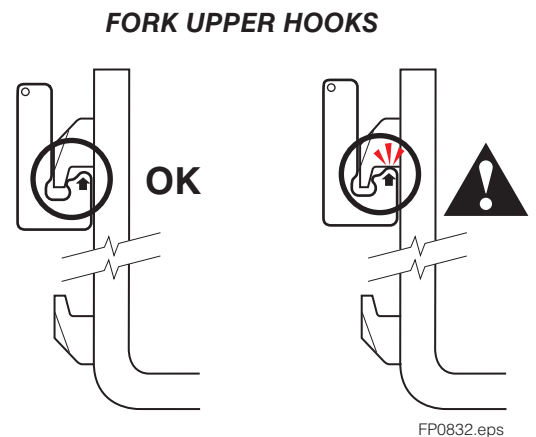
- A** Inspect the fork lower hooks and carrier. If the gauge fits between the carrier and lower hook, repair or replacement is needed.



- B** Inspect the upper carrier profile. If the gauge arrow touches the carrier, repair or replacement is needed.



- C** Inspect the fork upper hooks. If the gauge arrow touches the hook, repair or replacement is needed.



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Daily

Check items shown each day. Report problems to a supervisor.

- Check for the following:
 - Loose or missing hardware
 - Worn or damaged hoses
 - Hydraulic leaks
- Check decals and nameplate for legibility.

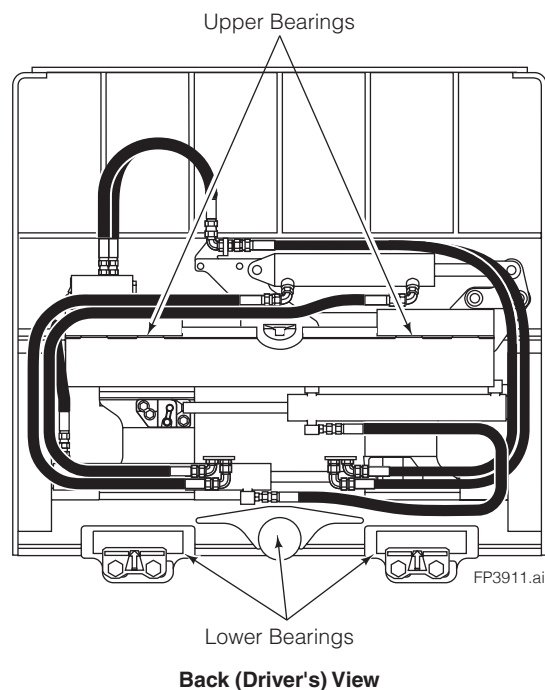
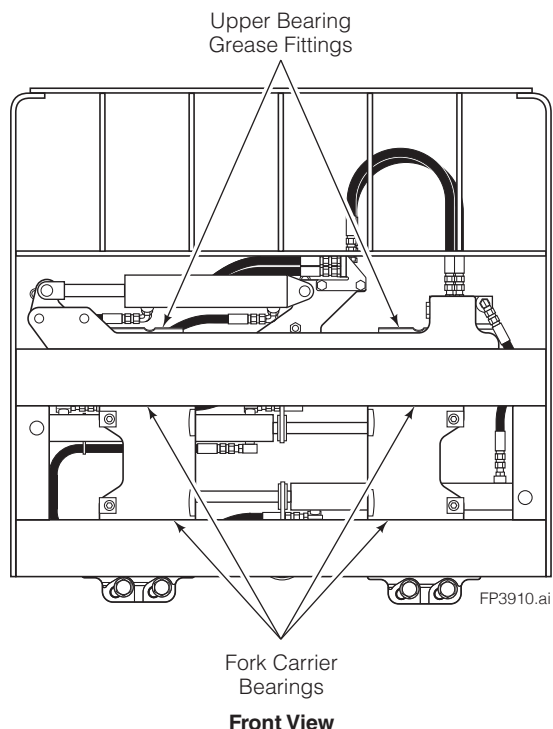


WARNING: After completing any service procedure, always test each function through five complete cycles. First test with no load, then test with a load to make sure the attachment operates correctly before returning it to the job.

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 lower hooks for wear and proper clearance. Adjust if necessary, refer to installation Step 5. Tighten lower hook capscrews to:
 - Class II/III** – 120 ft.-lbs (165 Nm)
 - Class IV** – 235 ft.-lbs (320 Nm)
- Apply general purpose chassis grease to upper sideshift bearing grease fittings and lower bearings. Sideshift to access upper bearing grease fittings.
- Apply graphite dry-lube to fork bars as required. Use 'Slip Plate Aerosol' – Cascade part no. 599489, 'Graphokote', or equivalent.
- Tighten the backrest capscrews to a torque of 145 ft.-lbs. (195 Nm).
- Apply general purpose chassis grease to the upper bearing grease fittings and fork carrier bearings. Sideshift to access upper bearing grease fittings.
- Check the forks and carriage for wear with wear gauge part no. 209560 (Class II), 209561 (Class III) or 6105257 (Class IV).
- Inspect the thickness of the upper bearings. If any bearing is worn to less than 0.06 in. (1.5 mm) thickness, replace entire set.
- Inspect the exposed thickness of the lower bearings. If the exposed thickness is less than 0.06 in. (1.5 mm), they should be replaced.
- Inspect the fork carrier bearings. If the exposed thickness is less than 0.06 in. (1.5 mm), they should be replaced.



2000-Hour Maintenance

After each 2000 hours of truck operation, in addition to the daily and 1000-hour maintenance, perform the following procedures:

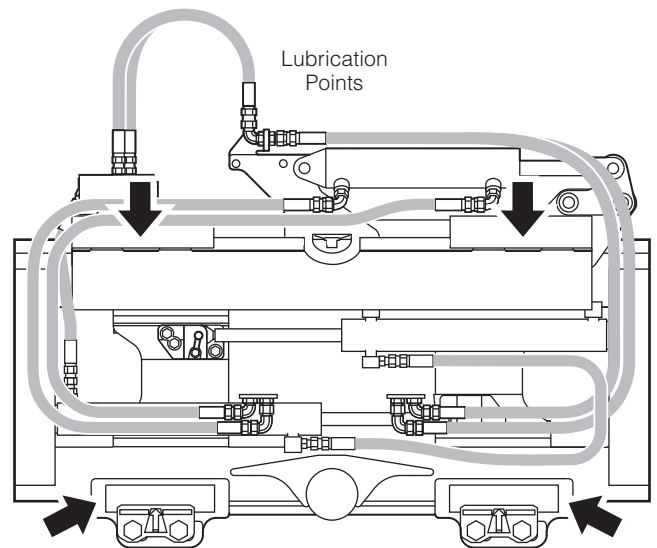
- Replace the sideshift upper and lower bearing sets and fork carrier bearings.
- **Fork Inspection** – After 2000 hours of truck operation, forks in use shall be inspected at intervals of not more than 12 months (for single shift operations) or whenever any defect or permanent deformation is detected. Severe applications will require more frequent inspection.

Fork inspection shall be carried out by trained personnel to detect any damage that might impair safe use. Any fork that is defective shall be removed from service. Reference ANSI B56.1-2005 (ISO 3691).

Inspect for the following defects:

- Surface cracks
- Straightness of blade and shank
- Fork angle
- Difference in height of fork tips
- Positioning lock
- Wear on fork blade and shank
- Wear on fork hooks
- Legibility of marking

NOTE: Fork Safety Kit 3014162 contains wear calipers, inspection sheets and safety poster.



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

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