

I *INSTALLATION INSTRUCTIONS*

F-Series ***180° Rotator***

Manual Number 225568

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C ONTENTS

	Page
INTRODUCTION, Section 1	
Introduction, 1.1	1
Special Definitions, 1.2	1
INSTALLATION, Section 2	
Truck System Requirements, 2.1	2
Rotator Installation, 2.2	3
Recommended Hydraulic Supply Options, 2.2	3
Installation Procedure, 2.3	4
Middle Hook Installation	8
Installing forks	8
Pror to Operation - rotator functions	9
PERIOD MAINTENANCE, Section 3	
100-Hour Maintenance, 3.1	10
500-Hour Maintenance, 3.2	10
1000-Hour Maintenance, 3.3	10
2000-Hour Maintenance, 3.4	10
SPECIFICATIONS, Section 4	
Torque Values, 4.1	11

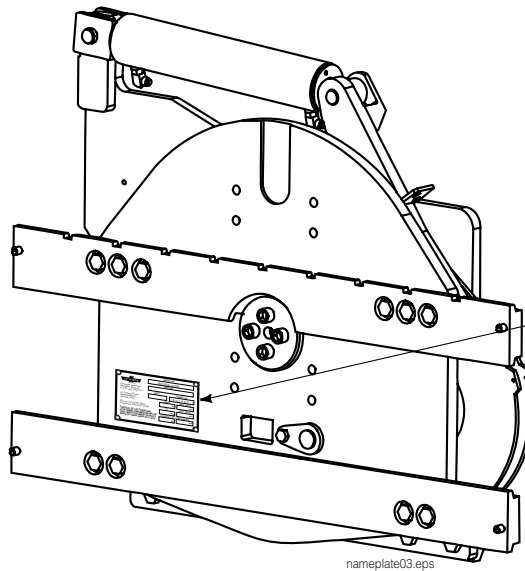
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1.1 Introduction

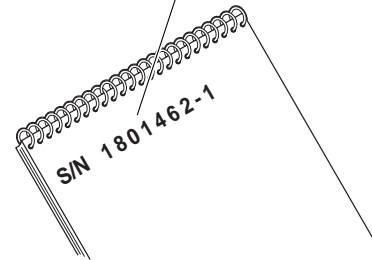
This manual provides the installation instructions, periodic maintenance requirements, troubleshooting procedures and service guides for Series 3 180° Rotators. Series 3 180° Rotators are designed for continuous-duty operations with minimal maintenance. In any communication about these Rotators, refer to the product I.D. number stamped on the nameplate as shown. If the nameplate is missing, the numbers can be found stamped on the back of the baseplate.

NOTE: Specifications are shown in (Imperial) (US) and (Metric) units where applicable.

IMPORTANT: All hoses, tubes and fittings on Series 3 Rotators are JIC.



MODEL No		3RX25E-A25G	
PART No			
DATE		SERIAL No	
		1 8 0 1 4 6 2 - 1	
MASS	HOR. Cof G		
kg	mm		
ET	VERT. Cof G		
mm	mm		
CAPACITY OF LIFT TRUCK AND ATTACHMENT COMBINATION MAY BE LESS THAN ATTACHMENT CAPACITY. REFER TO TRUCK CAPACITY PLATE.		CAPACITY AT LOAD CENTRE	
	kg	mm	



1.2 Special Instruction Definitions

CAUTION

A statement preceded by CAUTION is information that should be acted upon to prevent Machine Damage.



WARNING: A statement preceded by WARNING is information that should be acted upon to prevent bodily injury. A WARNING is always inside a ruled box.

IMPORTANT

A statement preceded by IMPORTANT is information that possesses special significance.

NOTE

A statement preceded by NOTE is information that is handy to know and may make your job easier.

2.1

Truck System Requirements

Series 3 - 180 Degree Rotators will provide maximum operating capability when the following requirements are met.



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 Valve Setting:

2300 psi (160 bar), maximum.
2000 psi (140 bar), recommended.

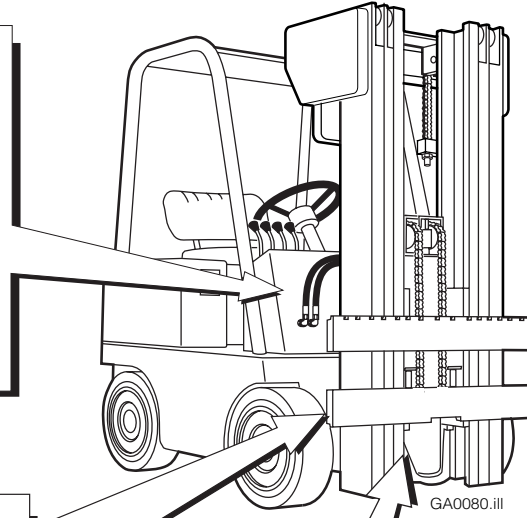
Truck Flow Volume ①

	Min ②	Recommended	Max ③
RX25	2.6 GPM (10 L/min)	5.3 GPM (20 L/min)	7.9 GPM (30 L/min)

box01

A	Carriage Mount Dimension (A) ITA (ISO)	
	Minimum	Maximum
Class II	14.96 in (380.0mm)	15.00 in (381.0 mm)

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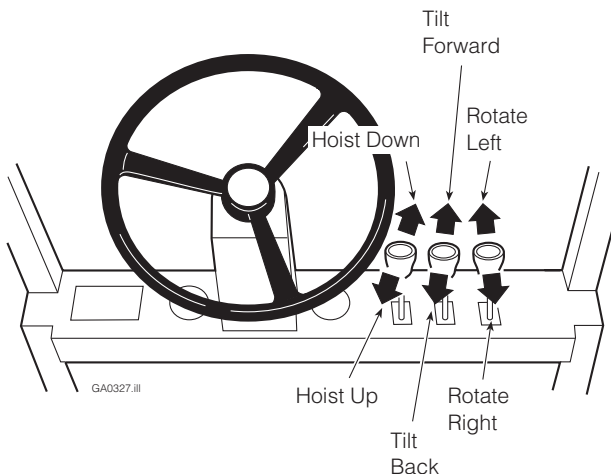


Clean carriage bars and inspect for damaged notches

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Auxiliary Valve Functions

Check for compliance with ANSI standards:



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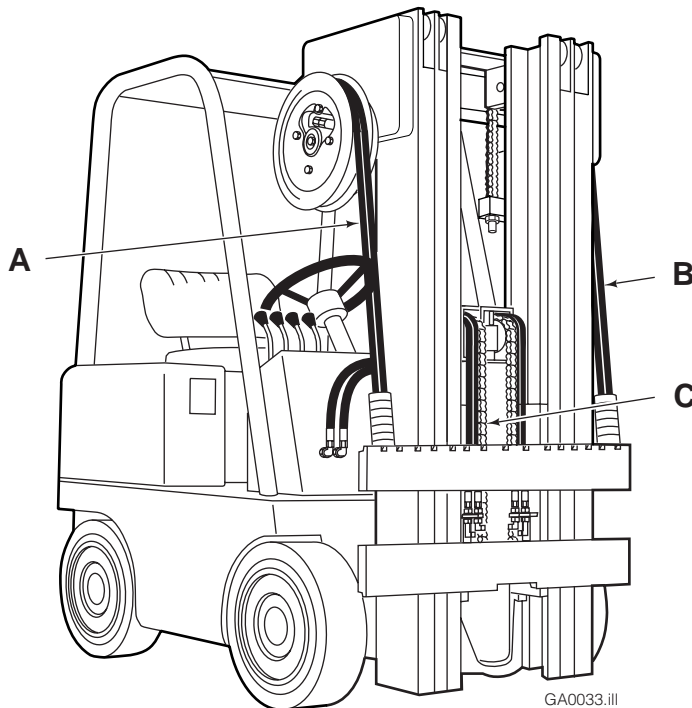
- ① Hydraulic Oil - Cascade attachments are compatible with SAE 10W petroleum base oil per Mil. Spec. Mil-0-5606 or MIL-0-2104B. Use of synthetic or aqueous base hydraulic oil is not recommended. Contact cascade if fire resistant hydraulic oil must be used.
- ② Flow less than minimum will result in equal arm movement
- ③ Flow greater than maximum can result in excessive heating, reduce system performance and short hydraulic system life.

2.2

Recommended Hydraulic Supply Options

Series 3 180° Rotators provide the best performance with one of the hydraulic supply arrangements shown below. Refer to *Cascade Hose and Cable Reel Selection Guide*, Part No. 212119, to select the correct hose reel for the mast and truck. The hose and fitting requirements are:

- All hoses for **rotate** functions should be at least No. 6 hose with 9/32 in. (7 mm) minimum I.D.
- All hoses for **bin hold** functions should be at least No. 6 hose with 9/32 in. (7 mm) minimum I.D.
- All **fittings** should have a minimum internal diameter of 9/32in. (7mm).



Rotate A or B

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

OR

C Mast single internal hose reeving group.

Bin Hold (option) A or B

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

OR

C Mast single internal hose reeving group.

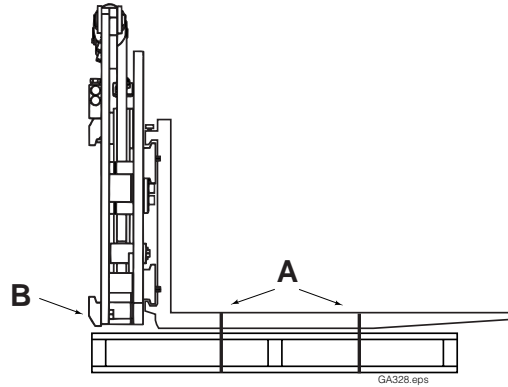
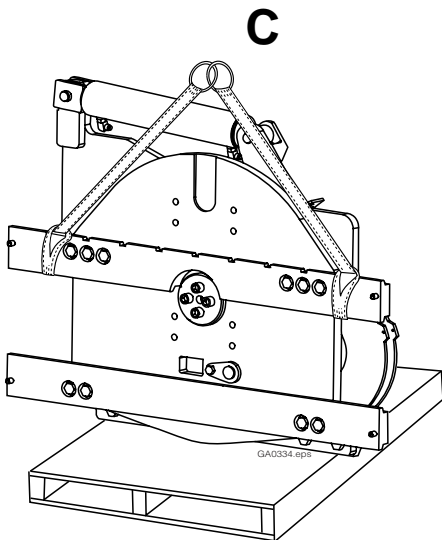
2.3

Installation Procedure

Follow the steps shown to install the Clamp 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 Prepare Attachment

- A** Remove banding.
- B** Remove bolt-on lower mounting hooks (if equipped).
- C** For rotators which are not shipped standing up, set rotator up as shown.



- C** Install two soft slings around the ends of the carriage bars as shown and attach to a suitable overhead chain hoist. Set the Rotator vertical.

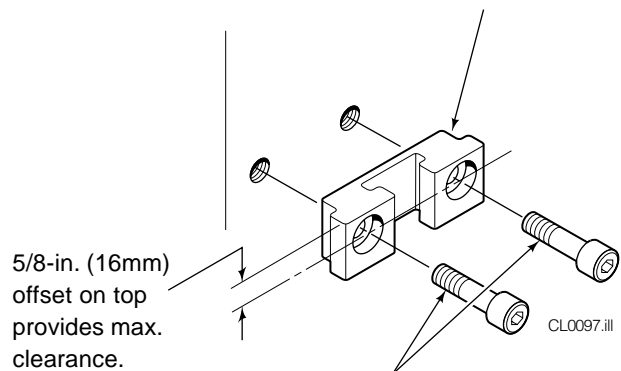
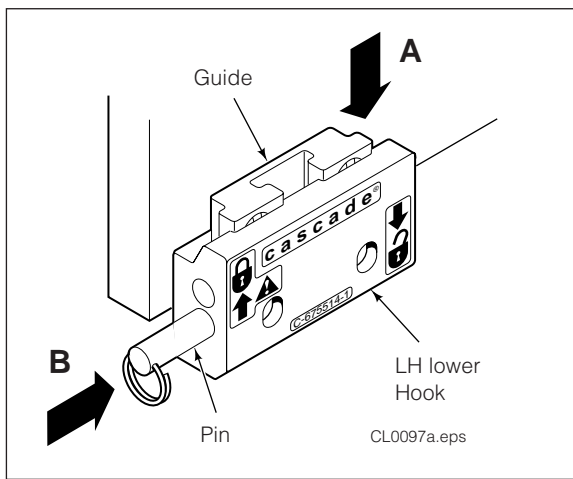


WARNING: Make sure your overhead hoist has a rated capacity of at least 1500 lbs. (700 kg).

2 Unlock Quick-Change lower mounting hooks

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

NOTE: Guides can be reversed to reduce hook-to-carriage clearance (See lower hook installation, Step 6).



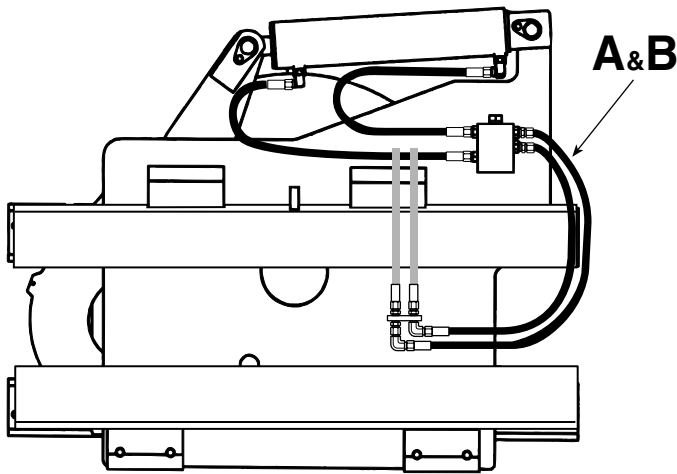
5/8-in. (16mm) offset on top provides max. clearance.

Tighten Capscrews:
Class II / III Mounting - 165 ft. - lbs. (225 Nm)

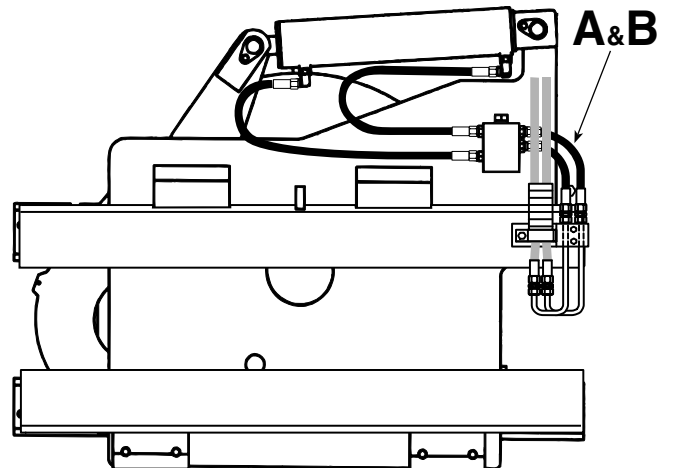
3

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.



Internal Hose Reaving



Single Hose Reel

4

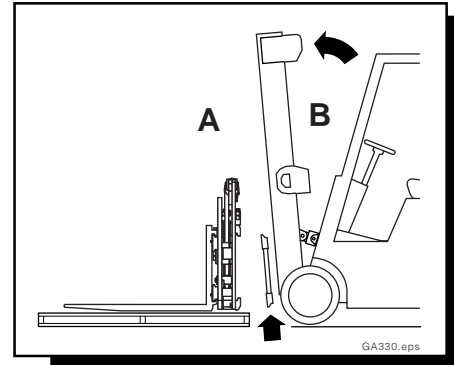
Flush hydraulic supply hoses

- A** Install hoses using union fittings.
- B** Operate auxiliary valves for 30 sec. in both directions.
- C** Remove union fittings. (at (A))

INSTALLATION

5 Mount rotator on truck carriage

- A** Centre the lift truck behind the attachment.
- B** Tilt the mast forward.
- C** Engage the mounting hook tab with the closest upper carriage bar notch and raise the truck carriage into position behind the attachment,
- D** Lift attachment 2in.(5cm) off the pallet.



ITA Class II – 0.60–0.66 in. (15–17 mm)

ITA Class II – 0.32–0.36 in. (8–9 mm)

Truck Carriage

C
Engage Tab

6 Install and engage lower hooks

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

Inspect hooks for excessive clearance. (Reverse guides to reduce clearance - See step 2)

Attach bolts from the front.

Lower Carriage Bar

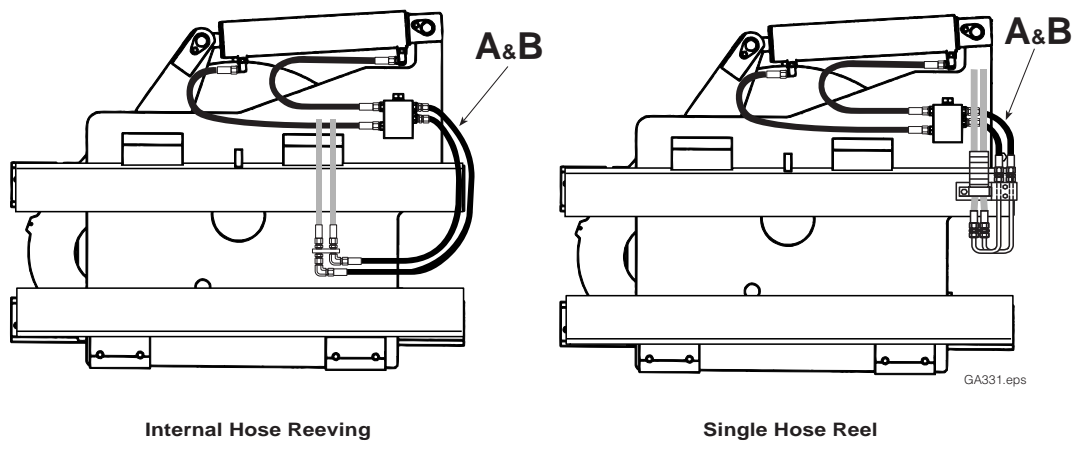
3/16 in (5 mm) Max

Lower Carriage Bar

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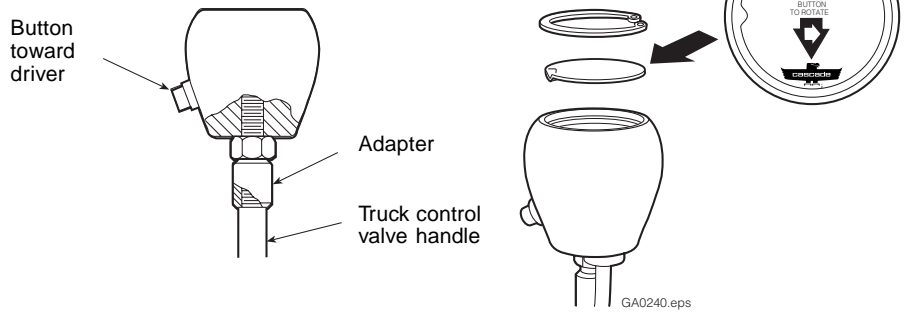
Tighten Capscrews:
Class II / III Mounting - 165 ft.-lbs. (225 Nm)

7 Connect Hoses as shown in Step 3

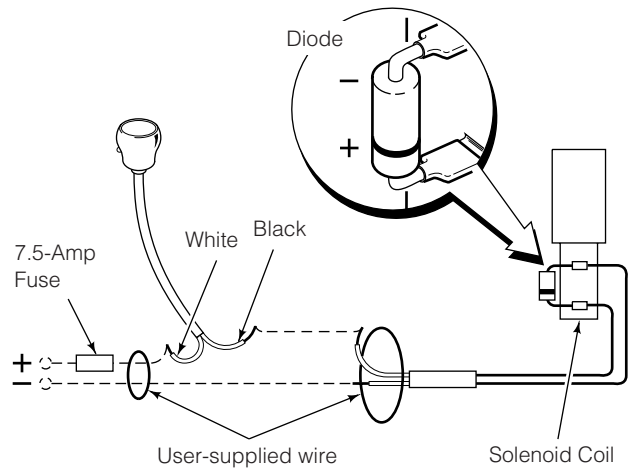
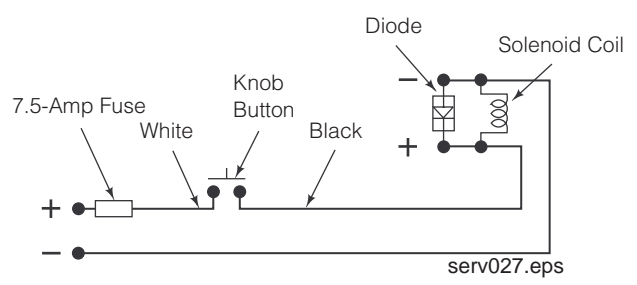


8 Install solenoid control knob - (Solenoid equipped units)

Install solenoid control knob - (Solenoid equipped units)



9 Install wiring - (Solenoid equipped units)

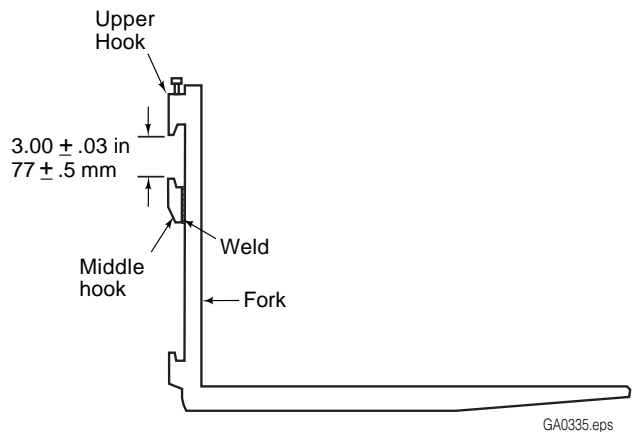
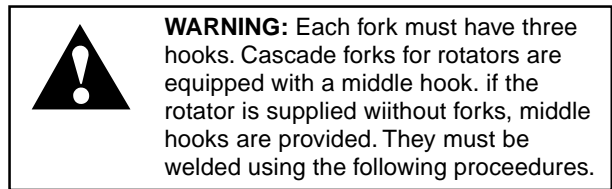


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Middle Hook Installation

- A** Position the middle hook using the dimensions shown.
- B** Mark the hook position on the fork.
- C** tack weld the hook to the fork bar using FCAW* 110 T5-K3 electrode.
- D** Weld a .38 in (9 mm) fillet weld on all four sides of the hook using the following specifications:
 - Oven pre-heat only the fork to 350° F (180°) for 1.5 hours.
 - Weld using FWAC* 110 T5-K3 electrode. Use 100 CO₂ Shielding gas. Use voltage and amperage as per manufacturers specifications.
 - Cover the weldment with an insulation blanket and slow cool.

* Flux Core Arc Weld

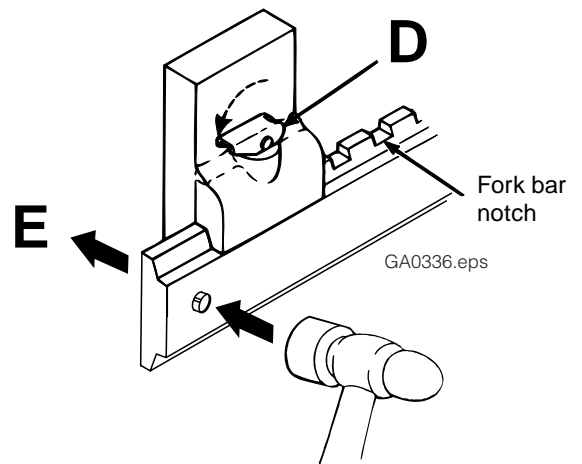
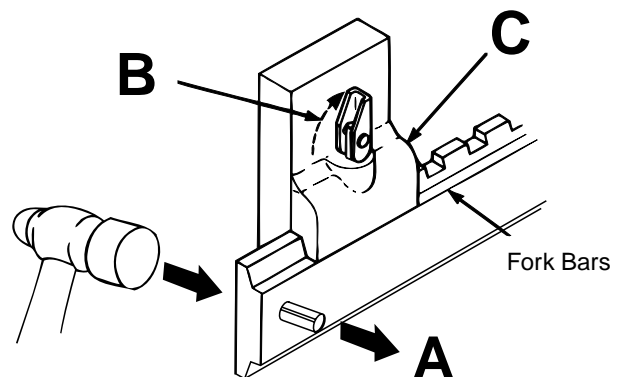


11

How To Install and Position Forks

- A** Drive the roll pins located at each end of the carriage bars through to the back until they are clear of the face of the bar. It is not necessary to drive these pins completely out.
- B** Release the spring lock on the top of each fork.
- C** Slide the forks into position on the fork bars.
- D** Lock each fork into place by pushing the spring lock lever down. Make sure the pin is engaged in the fork bar notch.
- E** Drive home the roll pin from the rear of the carriage bar so that it is now flush with the back.
- F** Removal is a reversal of installation.

WARNING – When installing or removing forks, handle with care to avoid dropping. The roll pin fork keepers must be in place at all times during rotator operation.




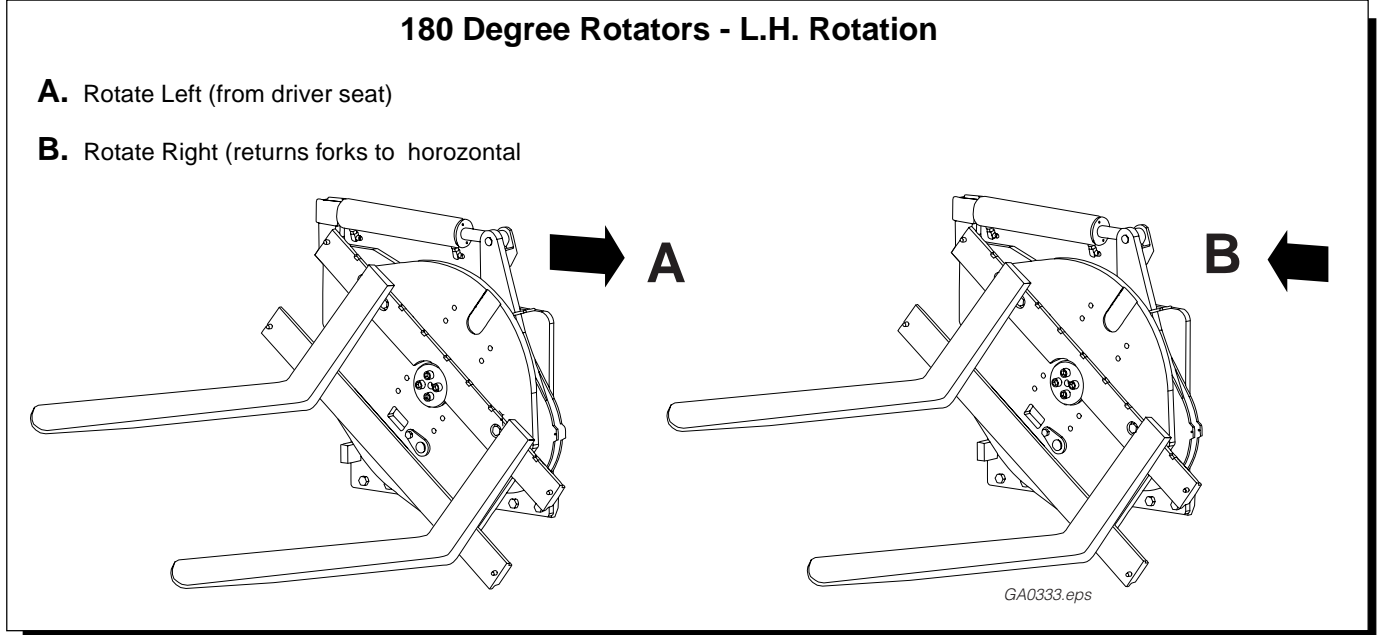
/ INSTALLATION

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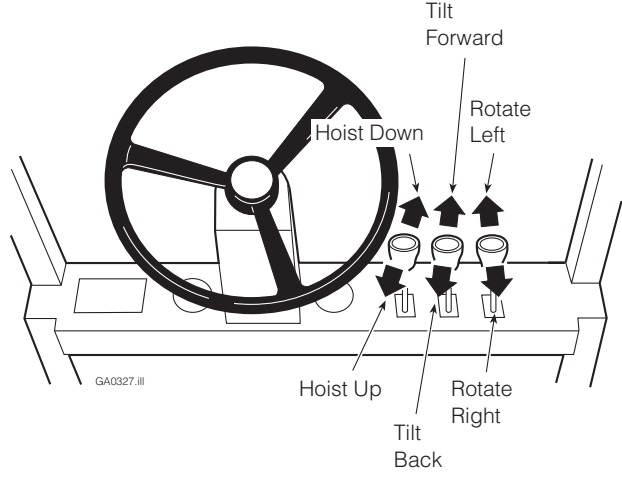
Prior to Operation

- With no load, Cycle Rotator functions several times.
- Check for operation in accordance with ITA (ISO) standards.
- Lift a maximum load, check for smooth rotation movement.
- Check for leaks at fittings, valve and cylinder.

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



Auxiliary Functions Valve



3.1 100-Hour Maintenance

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

- Inspect the cylinders for oil leaks or damage to the cylinder rod.
- Check pins attaching the cylinder to the frame and crank arm are not loose or damaged.
- Check between the front and back plate for any objects that may interfere with the mechanism.
- Check for worn, damaged or leaking hoses.
- Check the bolts holding the main thrust plate are tight and all accounted for.
- Check for any excessive looseness in the front plate.
- Check the bolts holding the bin hold assembly to the front plate (where fitted).
- Lubricate the main thrust bearing and crank arm bushing as indicated.



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

3.2 500-Hour Maintenance

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

- Tighten the lower mounting hooks. Use the torque specifications shown in Section 7.1-4
- Check for wear to the thrust bearing as indicated.
- Check for any damage or wear to the bin hold arm assembly.(where fitted).
- Check the spring latches on the forks for wear, they must engage the notches in the top bar.
- Check the top carriage bar notches for wear.

3.3 1000-Hour Maintenance

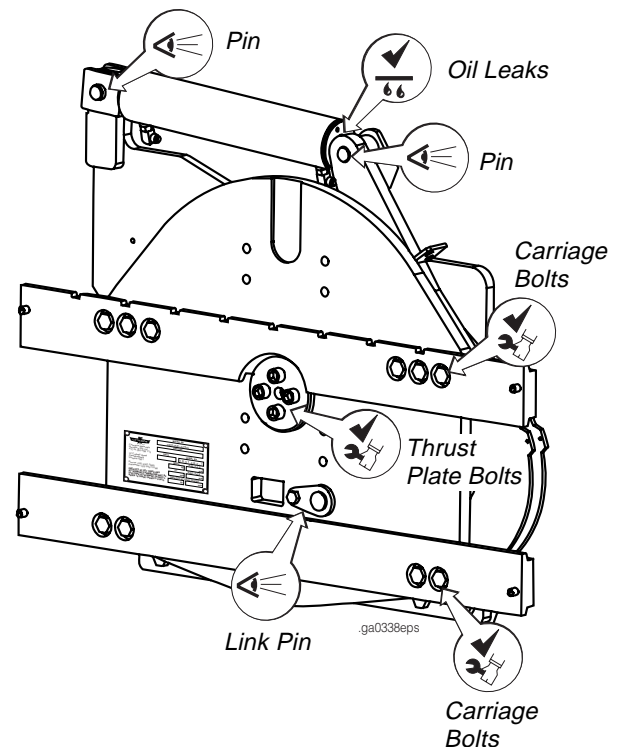
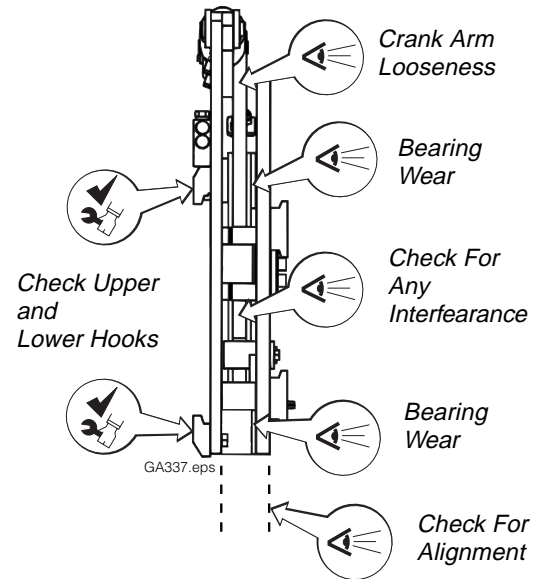
After each 1000 hours of lift truck operation, in addition to the 100-hour and 500-hour maintenance procedures, perform the following.

- Inspect all non lube thrust bushes. If the bushes are worn to a thickness less than 4 mm, they must be replaced. See Section 4.

3.4 2000-Hour Maintenance

After each 2000 hours of lift truck operation, in addition to the 100,500, and 1000 hour maintenance procedures, perform the following procedures.

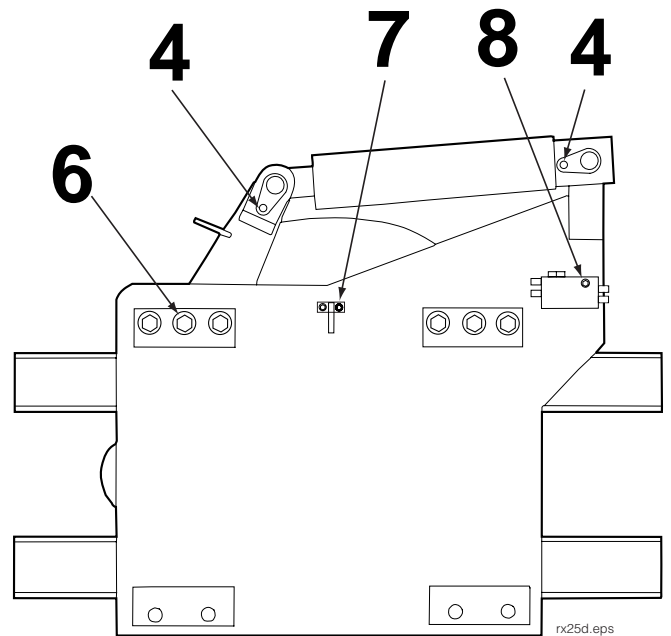
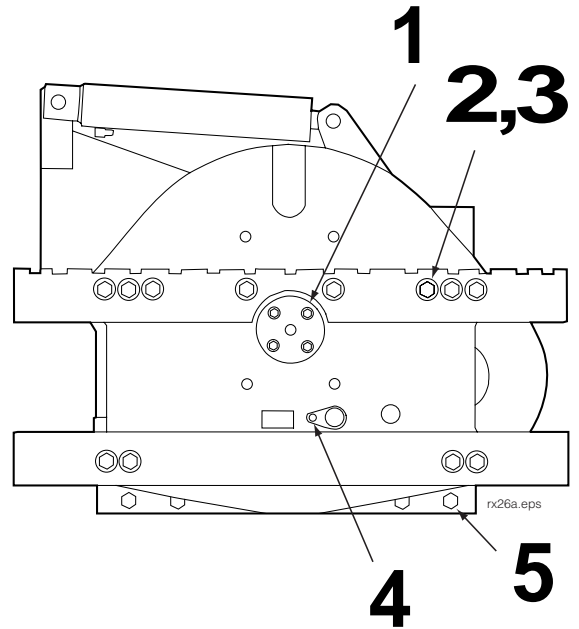
- Replace all main and thrust bushes. See Section 4.



4.1 Torque Values

Ref	Fastener	Size	Ft.-lbs	Nm
1	Retainer	M16	242	330 ■
2	Carriage Bar - Hex Bolt ★	M16	139	190 ■
3	Carriage Bar - Cap Screw ★	M16	242	330 ■
4	Link Pin - Bolt	M12	56	77 ■
5	Lower Hooks - Hex Bolt	M16	139	190
6	Top Hooks- Cap Screws	M16	242	330 ■
7	Center Bracket -Cap Screw	M8	15	20 ■
8	Valve - C.S. Cap Screw	M8	15	20 ■

■ Use Loctite 242 (Blue)
 ★ Number and Types of fasteners varies depending on Model



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

AMERICAS

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