



J-Series Integral Carriages –

***Sideshifter, Fork Positioner,
Sideshifting Fork Positioner,
Independent Fork Control,
Swingshift & Slope Pile***

Manual Number 6082563-R2

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corporation**

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This manual is for the Cascade J-Series Integral Sideshifter, Fork Positioner, Sideshift Fork Positioner, Independent Fork Control, Swingshift and Slope Pile attachments. Contents include an Operator's Guide, Installation Instructions, and Periodic Maintenance.

NOTE: All specifications are shown in US and (Metric) units where applicable. All fasteners have a torque value range of $\pm 10\%$ of stated value.

IMPORTANT: Information in this manual is based on general attachments. Some functions and features are not shown. Contact Cascade for specific information.



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.

WARNING: Do not operate this attachment unless you are a trained and authorized lift truck driver.

Special Definitions

The statements shown appear throughout this Manual where special emphasis is required. Read all WARNINGS and CAUTIONS before proceeding with any work. Statements labeled IMPORTANT and NOTE are provided as additional information of special significance or to make the job easier.



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.

CAUTION – A statement preceded by CAUTION is information that should be acted upon to prevent machine damage.

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

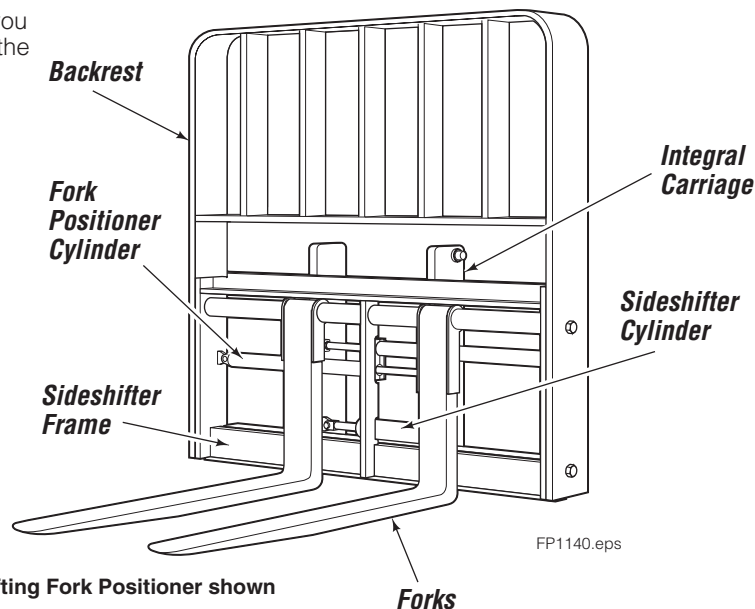
NOTE – A statement preceded by NOTE is information that is handy to know and may make the job easier.

OPERATION

This section contains operating instructions for the Cascade J-Series Integral attachments. It will help you avoid common errors which often cause damage to the equipment or product being handled.

This information is intended to simplify operator understanding about effective and safe attachment use and operation. Read this information thoroughly before operating the attachment. Be sure you know and understand all operating procedures and safety precautions. If you have any questions, or don't understand a procedure, ask your supervisor.

Emphasize Safety! Most accidents are caused by operator carelessness or misjudgment. You must watch for poorly maintained equipment and hazardous situations and correct them.



FP1140.eps

Sideshifting Fork Positioner shown

No riders



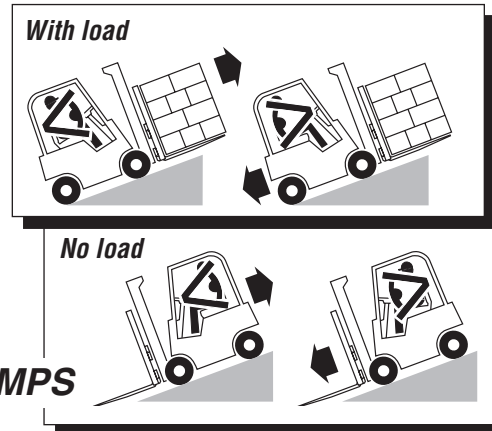
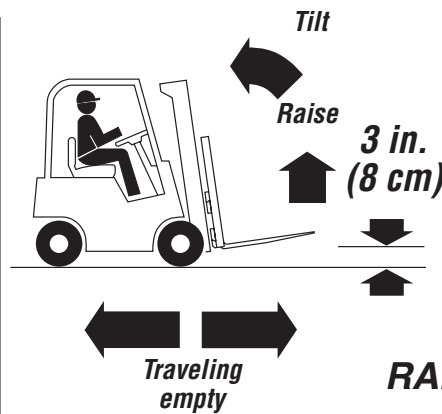
No reaching through mast



No standing under load



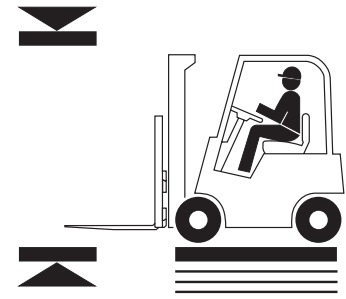
GA0047.eps



No parking on ramp



No turning on ramp



Watch clearances

GA0048.eps

TRAFFIC

Observe



Wet floors



Workers



Stops



Bumps



Dips



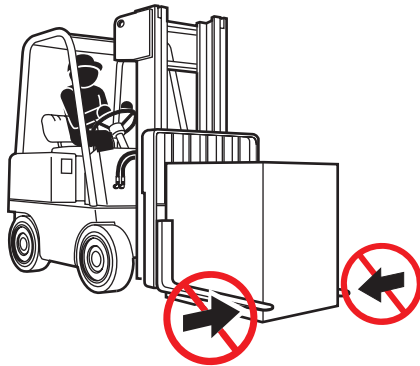
Slow for two-way traffic



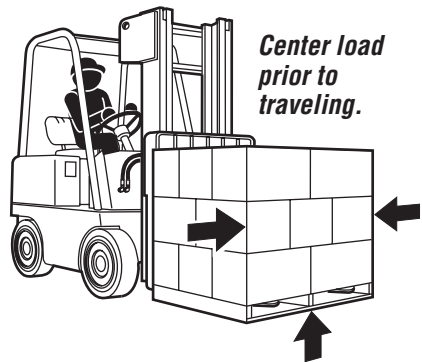
Sound horn, slow at intersection



Sound horn, slow at corner



CAUTION: Do not put side loads on forks. Do not clamp loads.



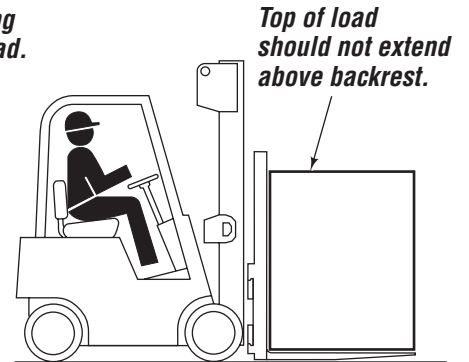
Center load prior to traveling.

Raise load prior to sideshifting.

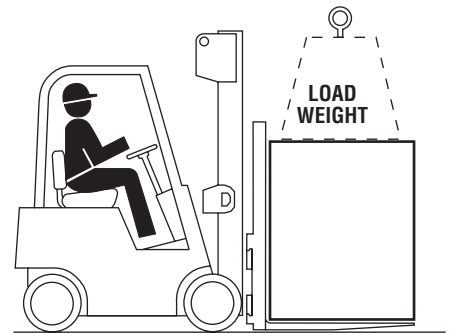
Limit sideshifting, swinging and sloping with raised load.



Limit truck movement with raised load.



Top of load should not extend above backrest.



FP2199.eps

Load weight must not exceed combined truck/attachment capacity (see truck nameplate).

Total fork capacity (LH + RH fork) must be greater than load weight. Check capacity stamp on forks.

INTEGRAL ATTACHMENT OPERATION

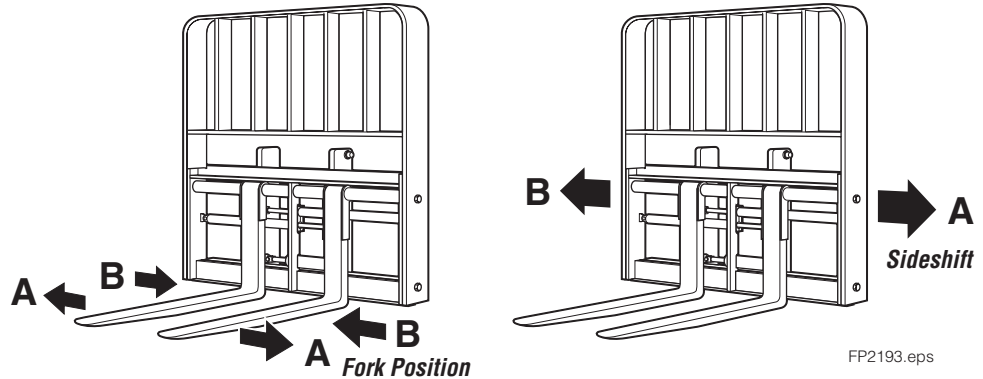
Integral Attachment Operation

SIDESHIFT

- A** Sideshift Left
- B** Sideshift Right

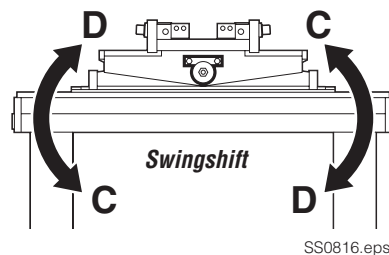
FORK POSITION

- A** Open Forks
- B** Close Forks



SIDESHIFT & FORK POSITION

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

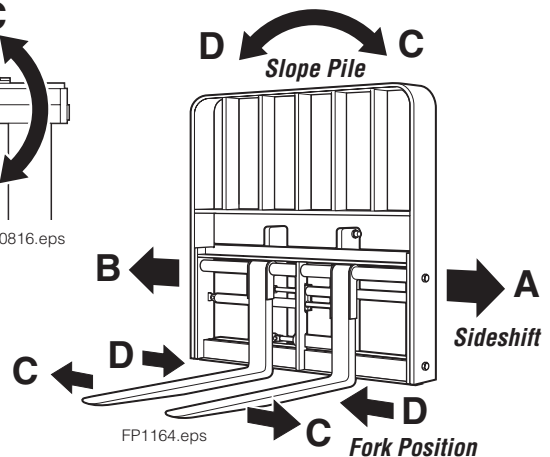


SIDESHIFT & SWING

- A** Sideshift Left
- B** Sideshift Right
- C** Swing Left
- D** Swing Right

SIDESHIFT & SLOPE

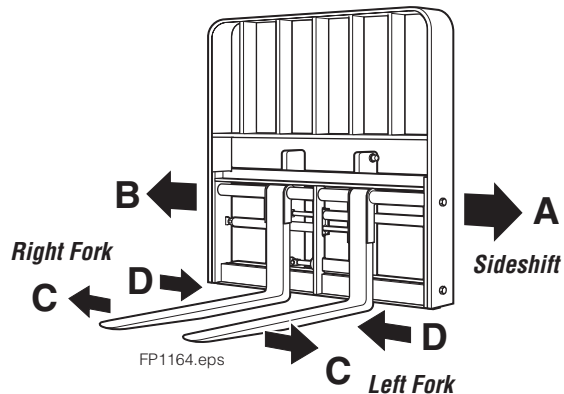
- A** Sideshift Left
- B** Sideshift Right
- C** Slope CCW
- D** Slope CW



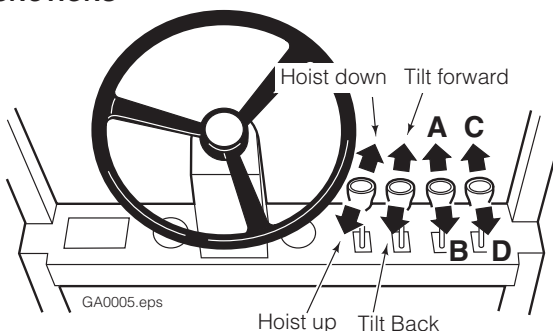
SIDESHIFT &

INDEPENDENT FORK CONTROL

- A** Sideshift Left
- B** Sideshift Right
- C** Open Left Fork
- C** Open Right Fork (Press Knob Button)
- D** Close Left Fork
- D** Close Right Fork (Press Knob Button)



AUXILIARY VALVE FUNCTIONS

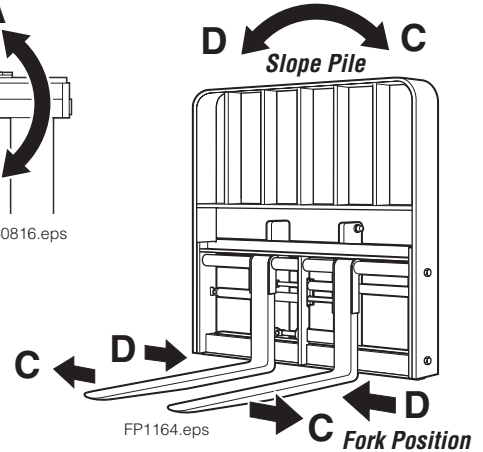
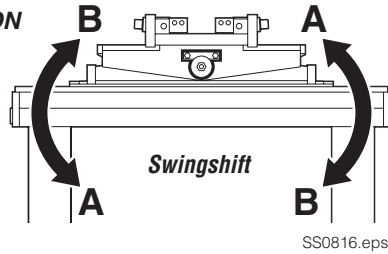


WARNING: Truck control handle and attachment function activation shown here conforms to ASME/ANSI B56.1 recommended practices. Failure to follow these practices may lead to serious bodily injury or property damage. End user, dealer and OEMs should review any deviation from the practices for safe operation.

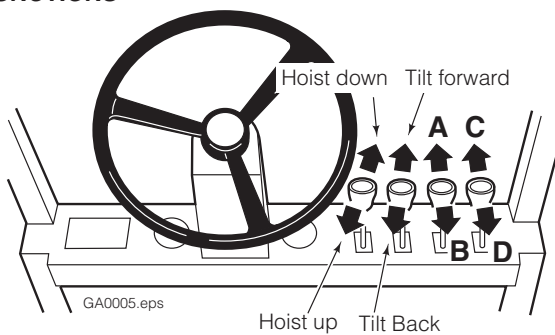
INTEGRAL ATTACHMENT OPERATION

SWING OR SLOPE WITH FORK POSITION

- A** Swingshift Left
- A** Slope Pile CCW
- B** Swingshift Right
- B** Slope Pile CW
- C** Open Forks
- D** Close Forks



AUXILIARY VALVE FUNCTIONS

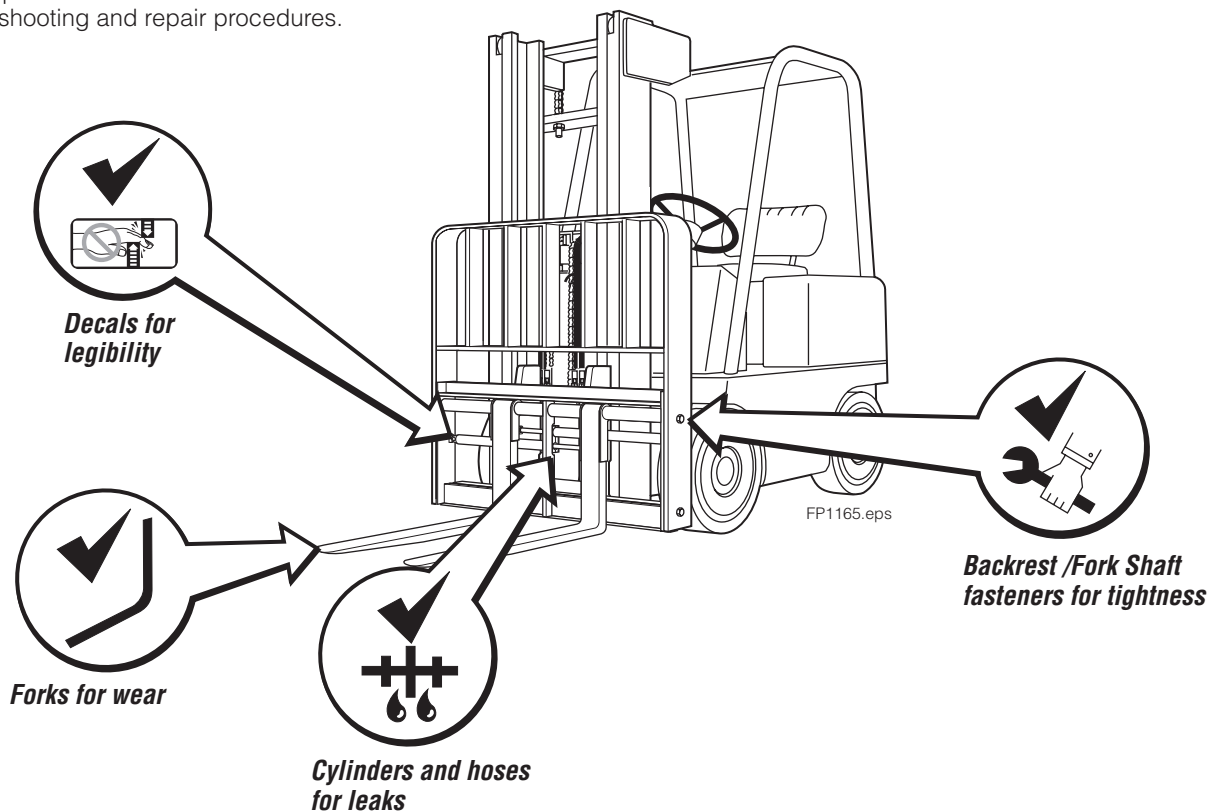


WARNING: Truck control handle and attachment function activation shown here conforms to ASME/ANSI B56.1 recommended practices. Failure to follow these practices may lead to serious bodily injury or property damage. End user, dealer and OEMs should review any deviation from the practices for safe operation.

OPERATION

Daily Inspection

Check items shown each day. Report problems to your supervisor. Refer to Service Manual 6052504 for troubleshooting and repair procedures.





WARNING: The safe operation and maintenance of industrial trucks is regulated by Occupational Safety and Health (OSHA) regulations 1910.178 and American National Standards Institute (ANSI) Safety Standard for Powered Industrial Trucks, ANSI B56.1. When operating and maintaining industrial trucks equipped with attachments you should pay particular attention to the following sections of these regulations. You should be familiar with **all** sections of these regulations. **Ask your employer for the complete regulations.**

(a) General Requirement

- (4) Modifications and additions which affect capacity and safe operation shall not be performed by the customer or user without manufacturers prior written approval. Capacity, operation and maintenance instruction plates, tags or decals shall be changed accordingly.
- (5) If the truck is equipped with front-end attachments other than factory installed attachments, the user shall request that the truck be marked to identify the attachments and show the appropriate weight of the truck and attachment combination at maximum elevation with load laterally centered.
- (6) The user shall see that all nameplates and markings are in place and maintained in a legible condition.

(e) Safety Guards

- (2) If the type of load presents a hazard, the user shall equip fork trucks with a vertical load backrest extension in accordance with (a)(2) following.
 - (a)(2) All new powered industrial trucks acquired and used by an employer after February 15, 1972 shall meet the design and construction requirements for powered industrial trucks established in the "American National Standard for Powered Industrial Trucks, Part II, ANSI B56.1", except for vehicles intended primarily for earth moving or over-the-road hauling.

(l) Operator Training

Only trained and authorized operators shall be permitted to operate a powered industrial truck. Methods shall be devised to train operators in the safe operation of powered industrial trucks.

(m) Truck Operations

- (1) Trucks shall not be driven up to anyone standing in front of a bench or other fixed object.
- (2) No person shall be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.
- (3) Unauthorized personnel shall not be permitted to ride on powered industrial trucks. A safe place to ride shall be provided where riding of trucks is authorized.
- (4) The employer shall prohibit arms or legs from being placed between the uprights of the mast or outside the running lines of the truck.
- (5i) When a powered industrial truck is left unattended, load engaging means shall be fully lowered, controls shall be neutralized, power shall be shut off and brakes set. Wheels shall be blocked if the truck is parked on an incline.
- (5ii) A powered industrial truck is unattended when the operator is 25 feet or more away from the vehicle which remains in his view, or whenever the operator leaves the vehicle and it is not in his view.
- (5iii) When the operator of an industrial truck is dismounted and within 25 feet of the truck still in his view, the load engaging means shall be fully lowered, controls neutralized and the brakes set to prevent movement.
- (6) A safe distance shall be maintained from the edge of ramps or platforms while on any elevated dock or platform or freight car. Trucks shall not be used for opening or closing freight doors.

- (10) A load backrest extension shall be used whenever necessary to minimize the possibility of the load or part of it from falling rearward.

(n) Traveling

- (4) The driver shall be required to slow down and sound the horn at cross isles and other locations where vision is obstructed. If the load being carried obstructs forward view, the driver shall be required to travel with the load trailing.
- (7i) When ascending or descending grades in excess of 10 percent, loaded trucks shall be driven with the load upgrade.
- (7iii) On all grades the load and load engaging means shall be tilted back if applicable, and raised only as far as necessary to clear the road surface.

(o) Loading

- (1) Only stable or safely arranged loads shall be handled. Caution shall be exercised when handling off-center loads which cannot be centered.
- (2) Only loads within the rated capacity of the truck shall be handled.
- (3) The long or high (including multiple-tiered) loads which may affect capacity shall be adjusted.
- (4) Trucks equipped with attachments shall be operated as partially loaded trucks when not handling a load.
- (5) A load engaging means shall be placed under the load as far as possible; the mast shall be carefully tilted backward to stabilize the load.
- (6) Extreme care shall be used when tilting the load forward or backward, particularly when high tiering. Tilting forward with load engaging means elevated shall be prohibited except to pick up a load. An elevated load shall not be tilted forward except when the load is in a deposit position over a rack or stack. When stacking or tiering, only enough backward tilt to stabilize the load shall be used.

(p) Operation of the Truck

- (1) If at any time a powered industrial truck is found to be in need of repair, defective, or in any way unsafe, the truck shall be taken out of service until it has been restored to safe operating condition.

(q) Maintenance of Industrial Trucks

- (1) Any power-operated industrial truck not in safe operating condition shall be removed from service. All repairs shall be made by authorized personnel.
- (5) All parts of any such industrial truck requiring replacement shall be replaced only by parts equivalent as to safety with those used in the original design.
- (6) Industrial trucks shall not be altered so that the relative positions of the various parts are different from what they were when originally received from the manufacturer, nor shall they be altered either by the addition of extra parts not provided by the manufacturer or by the elimination of any parts. Additional counter-weighting of fork trucks shall not be done unless approved by the truck manufacturer.
- (7) Industrial trucks shall be examined before being placed in service and shall not be placed in service if the examination shows any condition adversely affecting the safety of the vehicle. Such examinations shall be made at least daily. When industrial trucks are used on a round-the-clock basis, they shall be examined after each shift. Defects when found shall be immediately reported and corrected.

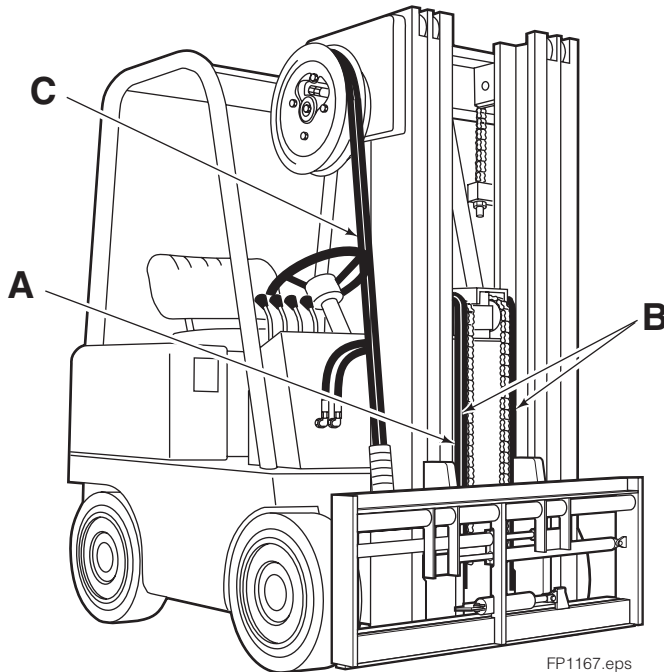
INSTALLATION

Recommended Hydraulic Supply

J-Series Integral attachments can be operated with any of the hydraulic supply arrangements, as shown below. Refer to *Cascade Hose & Cable Reel Selection Guide*, Part No. 212199 to select the correct hose reel for the mast and truck.

Fork Positioning function: No. 3 hose/No. 4 fittings with 5/32 in. (4 mm) minimum ID.

Sideshifting function: No. 4 hose/No. 6 fittings with 3/16 in. (5 mm) minimum ID.



Sideshift & Slope Pile Non-Solenoid

B Mast Double Internal Reeving

OR

A & C Single Internal Hose Reeving and RH THINLINE™ 2-port Hose Reel.

Swingshift & Fork Position Non-Solenoid

B Mast Double Internal Reeving

OR

A & C Single Internal Hose Reeving and RH THINLINE™ 2-port Hose Reel.

Slope Pile & Fork Position Non-Solenoid

B Mast Double Internal Reeving

OR

A & C Single Internal Hose Reeving and RH THINLINE™ 2-port Hose Reel.

Sideshift or Fork Position

A Mast Single Internal Reeving

Sideshift & Fork Positioner Non-Solenoid

B Mast Double Internal Reeving

OR

A & C Single Internal Hose Reeving and RH THINLINE™ 2-port Hose Reel.

Solenoid Adaption (on truck)

B Mast Double Internal Reeving

OR

A & C Single Internal Hose Reeving and RH THINLINE™ 2-port Hose Reel.

Solenoid Adaption (on attachment)

A & C Cable reel with Mast Single Internal Reeving

OR

C 6-N-1 Cable/Hose Reel

Sideshift & Independent Fork Control

B & C Single Internal Hose Reeving and RH 6-N-1 Cable Hose Reel.

Sideshift & Swingshift Non-Solenoid

B Mast Double Internal Reeving

OR

A & C Single Internal Hose Reeving and RH THINLINE™ 2-port Hose Reel.

INSTALLATION

Truck Requirements

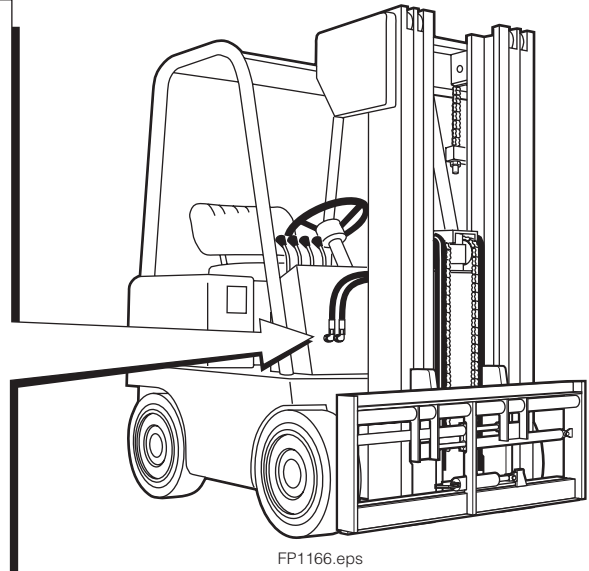
Truck Relief Setting

2300 psi (160 bar) Recommended
2500 psi (170 bar) Maximum

Truck Flow Volume ^①

	Min. ^②	Recommended	Max. ^③
J-Series	15 GPM (56 L/min.)	25 GPM (95 L/min.)	35 GPM (132 L/min.)

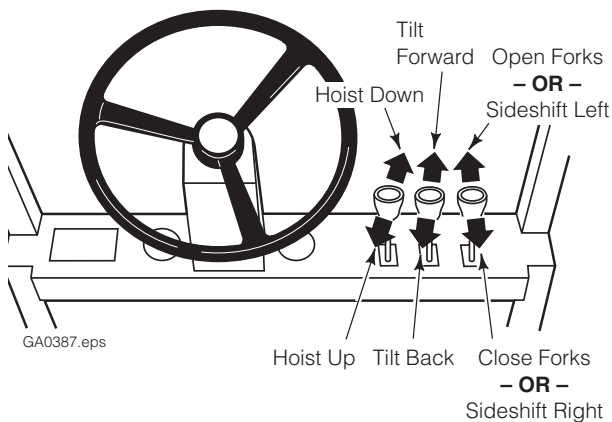
- ① Cascade J-Series Integral attachments are compatible with SAE 10W petroleum base hydraulic fluid meeting Mil. Spec. MIL-O-5606 or MIL-O-2104B. Use of synthetic or aqueous base hydraulic fluid is not recommended. If fire resistant hydraulic fluid is required, special seals must be used. Contact Cascade.
- 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.



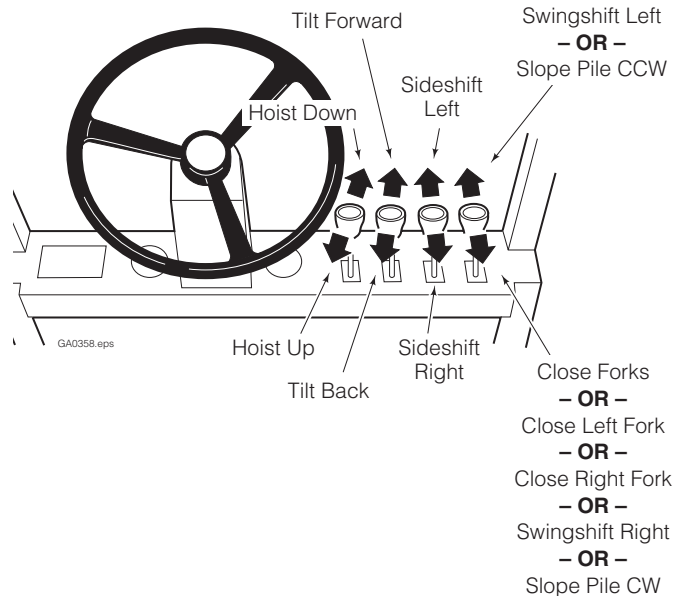
Auxiliary Valve Functions

Check for compliance with ANSI (ISO) standards:

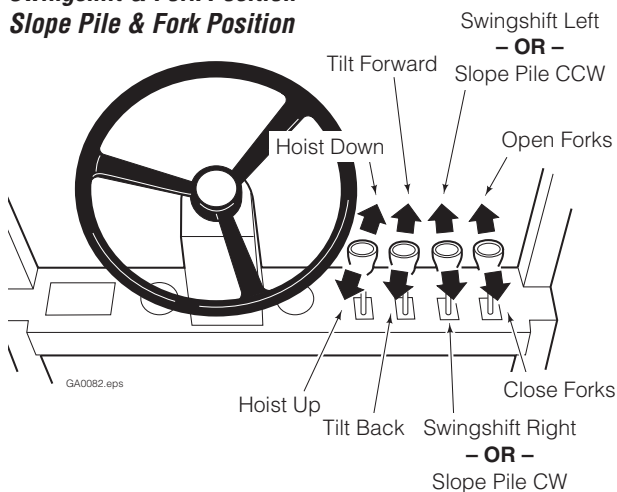
Sideshifter or Fork Positioner



Sideshift & Fork Position Sideshift & Independent Fork Control Sideshift & Swingshift Sideshift & Slope Pile



Swingshift & Fork Position Slope Pile & Fork Position



INSTALLATION

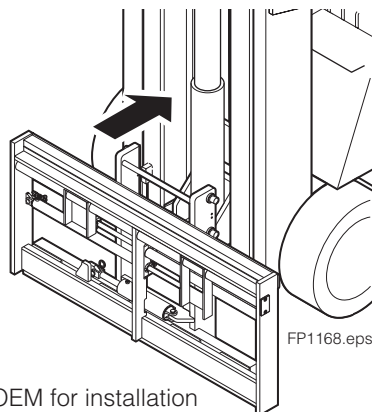
Attachment Installation

IMPORTANT: Integral attachment installation is an OEM or dealer responsibility. Some of the following steps may or may not be required, but are shown for reference. Refer to the appropriate OEM Service Manual for service and repair procedures.



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

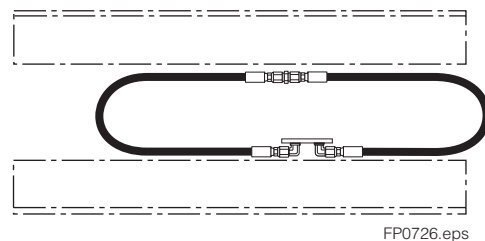
1 Integral attachment carriage and additional components should be installed in mast per OEM specifications and procedures.



NOTE: See OEM for installation details on load roller, sidethrust roller, chain anchor, etc.

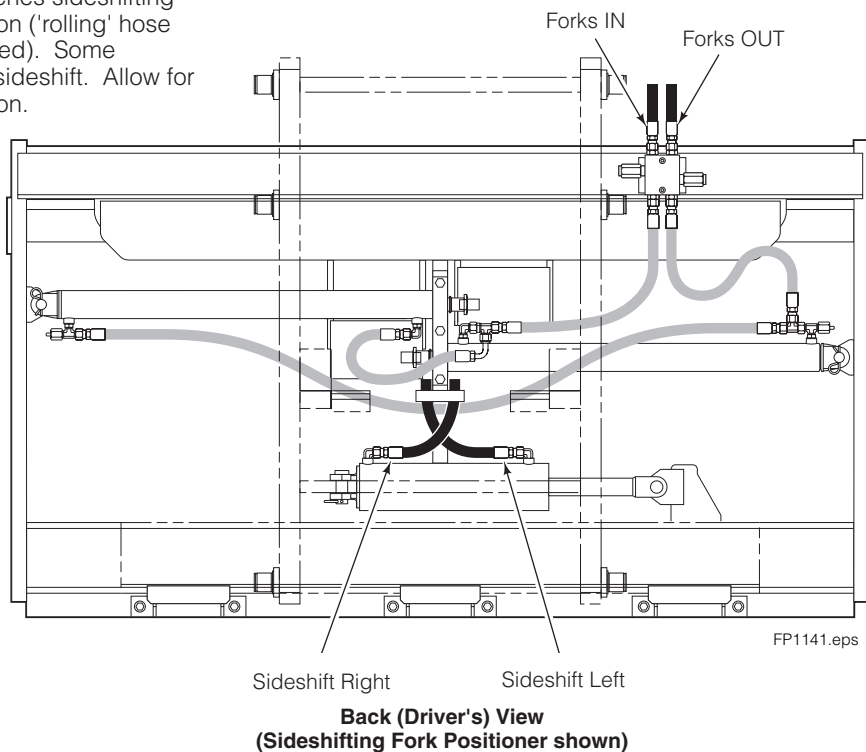
2 Flush supply hoses

- A** Connect supply hoses to supply terminals and connect together using union fittings as shown.
- B** Operate auxiliary valves for 30 sec.
- C** Remove union fittings.



3 Install hoses

CAUTION: Allow for 6 inches sideshifting movement in each direction ('rolling' hose arrangement recommended). Some attachments vary in total sideshift. Allow for movement in each direction.



4 Install Forks

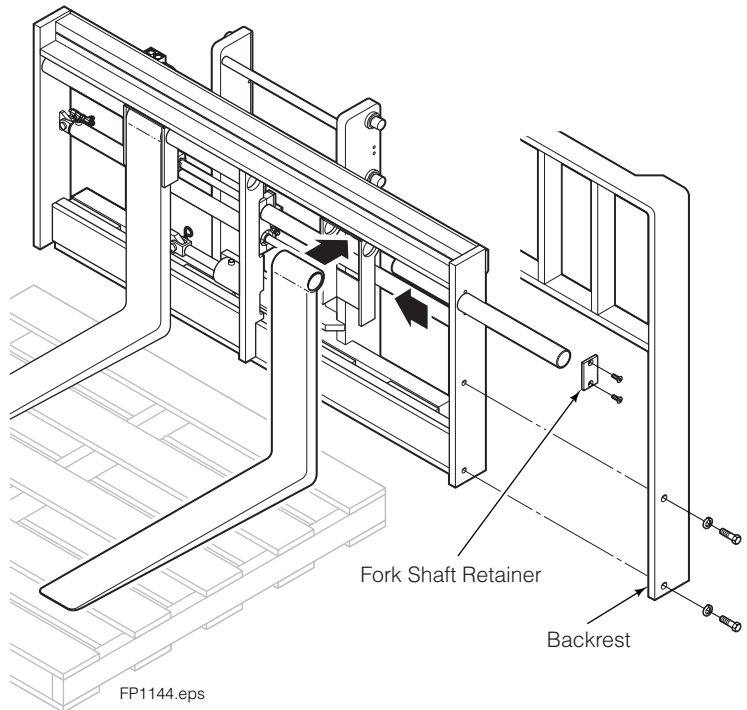
Use pallets or blocks as necessary to raise forks to installation height. Keep feet clear of forks when installing.

A If equipped, remove backrest. For reassembly, tighten Cascade backrests to 145 ft.-lbs. (195 Nm). For other backrests, see OEM recommendations.

B If equipped, remove fork shaft retainer capscrews. For reassembly, tighten capscrews to 50 ft.-lbs. (65 Nm).

C Pull the fork shaft out of the attachment enough to install fork into fork carrier.

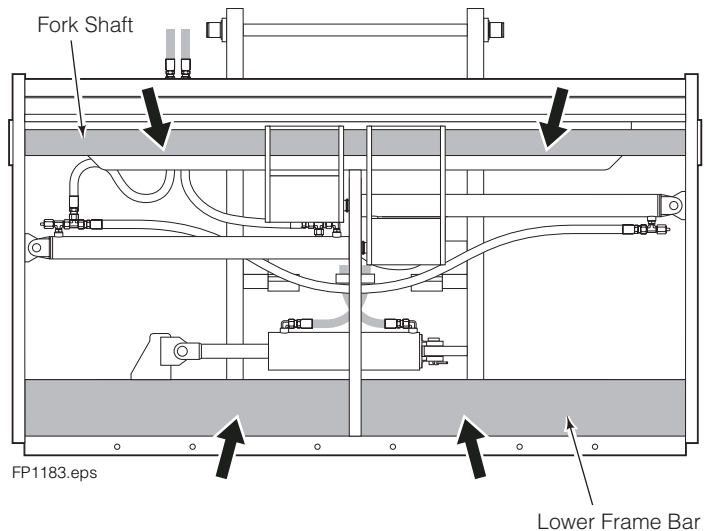
D Slide the fork shaft through the fork carrier and fork.



5 Check fork shaft and lower frame bar lubrication

The fork shaft and lower frame bar is prelubed at the factory with grease. No additional lubrication is required during installation.

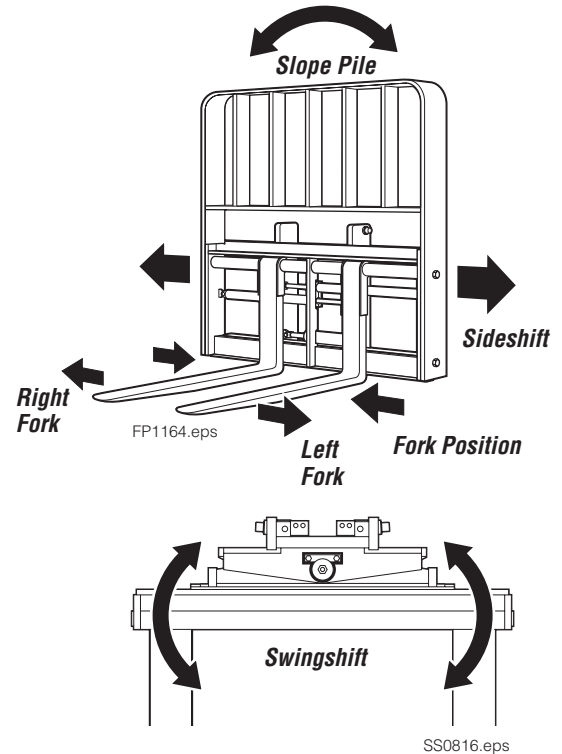
NOTE: After 300 hours of operation, the fork shaft and lower frame bar should be checked for contamination. If there is contamination, clean fork shaft and lower frame bar. Apply chassis grease to the fork shaft and apply chassis grease or Slip-Plate (or equivalent 'paint-on' graphite) to the lower frame bar.



**Front View
(Sideshifting Fork Positioner shown)**

6 Cycle Fork Positioner functions

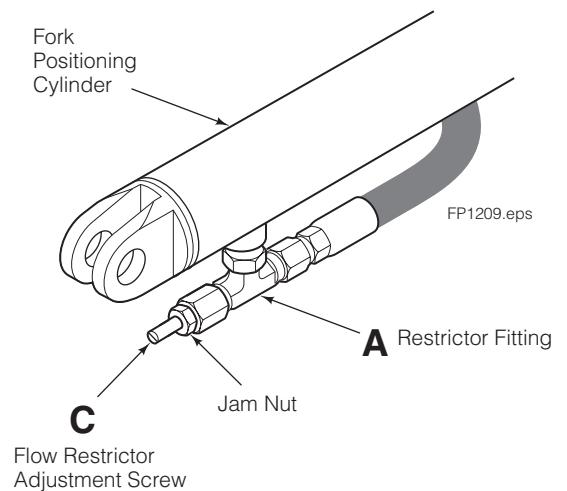
- Open and close forks several times. Sideshift left and right. Check for smoothness and equal movement.
- Check for operation in accordance with ANSI (ISO) standards. Refer to Integral Attachment Operation on pages 4 and 5.
- Check for leaks at fittings, valve, cylinders.



7 Adjust forks for equal movement (if required)

NOTE: Attachment is factory adjusted for equal fork movement when operated at recommended pressure and flow rate.

- Locate cylinder restrictor fittings. Loosen jam nuts and screw both flow restrictors in until they bottom. Screw each restrictor out, counterclockwise, three turns.
- Spread forks fully, then close. Look for unequal fork movement.
- On faster fork (one that bottoms first), screw flow restrictor in, clockwise, 1/2 turn.
- Repeat steps B and C until fork movement is equal. Tighten jam nuts.





WARNING: After completing any service procedure, always test the Fork Positioner/ Sideshifter through five complete cycles to make sure the attachment operates correctly before returning it to the job.

100-Hour

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 capscrews, worn or damaged hoses, and hydraulic leaks.
- Check fork shafts for bends, damage or wear. Replace if bent. Consult Cascade if damaged or worn.

300-Hour

After each 300 hours of truck operation, in addition to the 100-hour maintenance, perform the following procedures:

- Tighten Cascade backrest (if equipped) capscrews to the following torque values:

M12 Capscrew – 75 ft.-lbs. (100 Nm)

M16 Capscrew – 145 ft.-lbs. (195 Nm)

For other backrests, see OEM recommendations.

- If equipped with zerk fittings, apply general purpose chassis grease to upper and lower bearings.
- Inspect frame retainers for wear. Replace if necessary. Tighten lower frame retainer capscrews to 200 ft.-lbs. (275 Nm).
- Inspect fork shaft and front of lower frame bar for grease contamination. Remove contaminated grease from fork shaft and lower frame bar. Apply a general purpose chassis grease to the fork shaft. Apply a general purpose chassis grease or Slip-Plate (or a 'paint-on' graphite equivalent) to the lower frame bar.

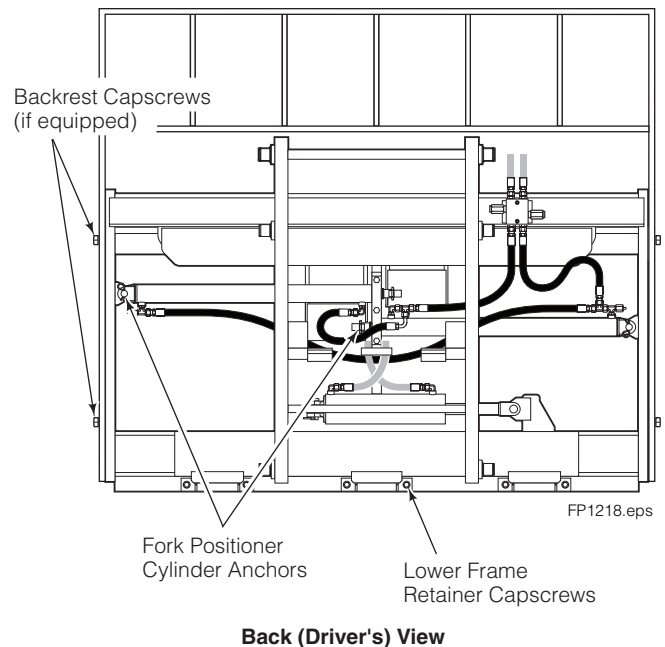
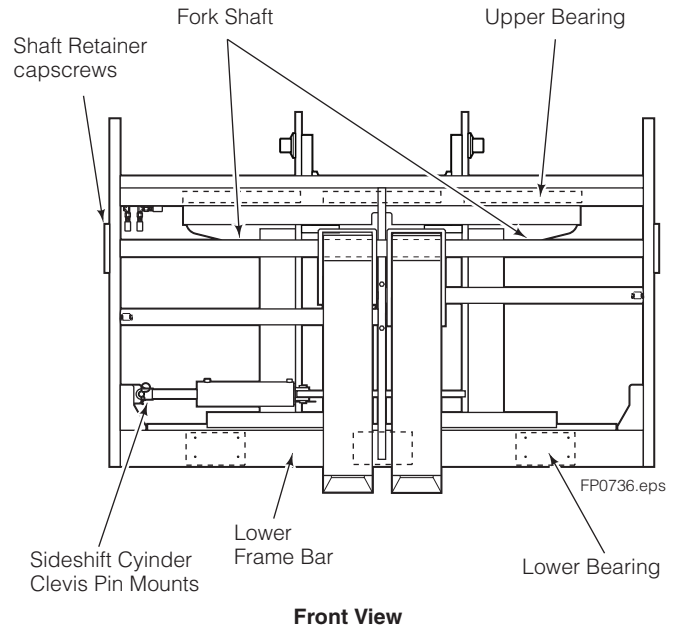
1000-Hour

After each 1000 hours of truck operation, in addition to the 100 and 300-hour maintenance, perform the following procedures:

- Inspect sideshift upper and lower bearings for wear. If the frame is rubbing the carriage or lower bearing capscrews, replace the entire bearing set. Refer to Service Manual 6052504 for repair procedures.
- Inspect sideshift cylinder pivot pins and clevis pins for wear. Replace part as necessary.
- Inspect fork position cylinder anchor nuts for wear. Replace if necessary.

NOTE: Anchors operate with a loose clearance.

- Tighten lower bearing capscrews to 200 ft.-lbs. (270 Nm).
- Tighten fork shaft retainers capscrews (if equipped) to 49 ft.-lbs. (66 Nm).



2000-Hour

After 2000 hours of truck operation, in addition to the 100, 300 and 1000-hour maintenance, 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.

Inspect for the following defects:

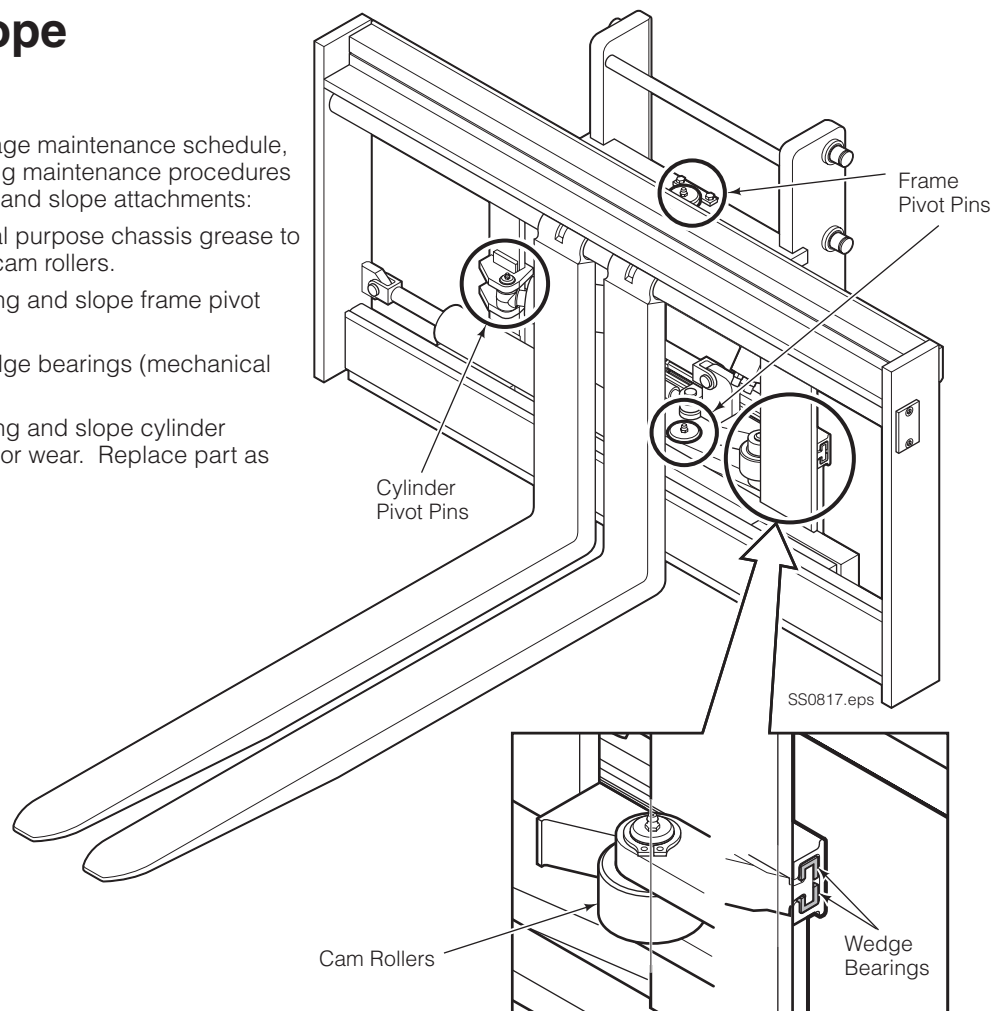
- Surface cracks
- Straightness of blade and shank
- Fork angle
- Difference in height of fork tips
- Positioning lock
- Wear on fork blade and shank
- Wear on fork hooks
- Legibility of marking

NOTE: Fork Safety Kit 3014162 contains wear calipers, inspection sheets and safety poster. Also available is fork hook & carriage wear gauge 209560 (Class II), 209561 (Class III) and 6104118 (Class IV).

Swing and Slope Attachments

In **addition** to the previous page maintenance schedule, where applicable, the following maintenance procedures must be completed on swing and slope attachments:

- **300 Hours** – Apply general purpose chassis grease to pivot pin zerk fittings and cam rollers.
- **1000 Hours** – Inspect swing and slope frame pivot points for wear.
- **1000 Hours** – Inspect wedge bearings (mechanical swing frame) for wear.
- **1000 Hours** – Inspect swing and slope cylinder pivot pins and clevis pins for wear. Replace part as necessary.



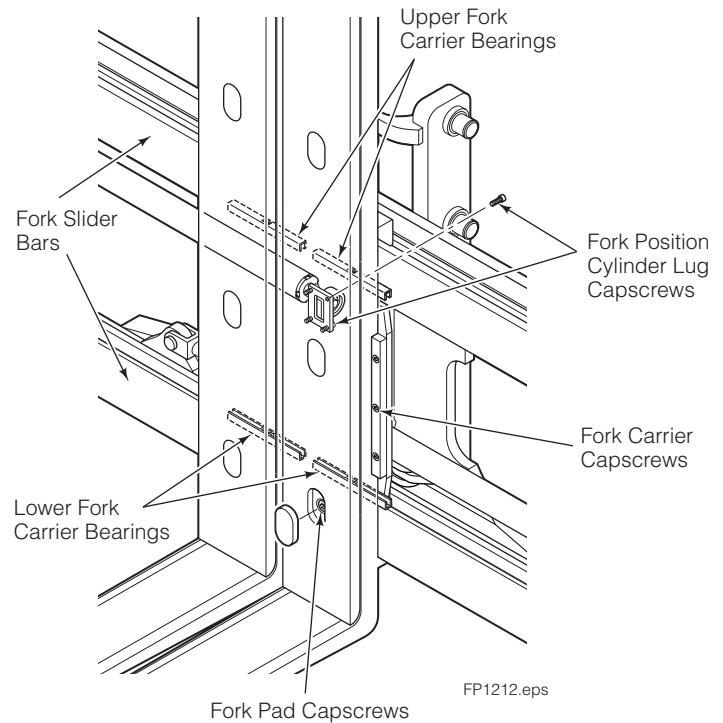
Hook-Type Fork Positioner Attachments

In **addition** to the previous page maintenance schedule, where applicable, the following maintenance procedures must be completed on hook-type fork positioner attachments:

- **300 Hours** – Apply general purpose chassis grease to fork carrier bearings.
- **300 Hours** – Tighten capscrews as follows:
 - Fork Position Cylinder Lug** – 15 ft.-lbs. (20 Nm)
 - Fork Pad** – 500 ft.-lbs. (678 Nm)
 - Fork Carrier** – 28 ft.-lbs. (38 Nm)

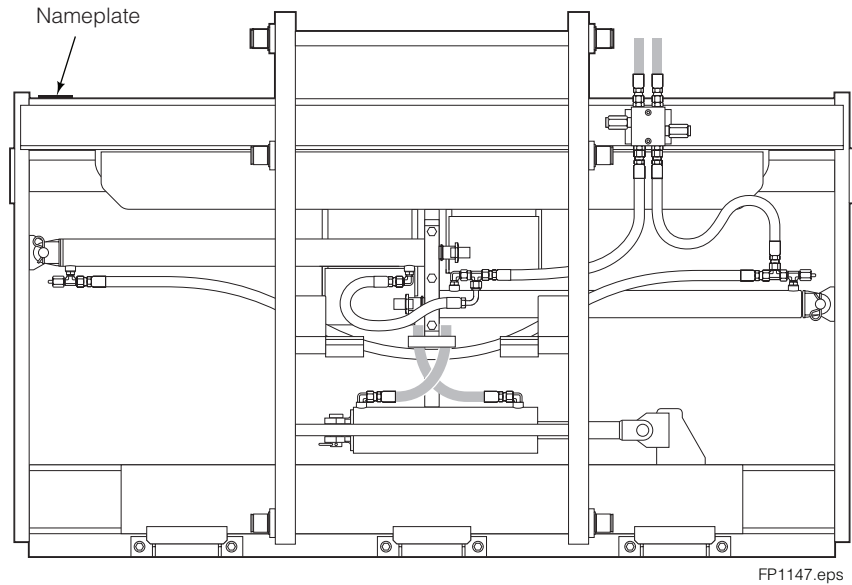
NOTE: Apply Loctite 242 to Fork Position Cylinder Lug and Fork Pad capscrews.

- **300 Hours** – Apply general purpose chassis grease or Slip-Plate (or a 'paint-on" graphite equivalent) to the fork slider bars.



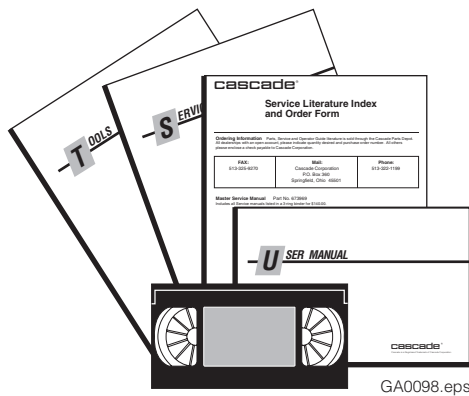
P RODUCT IDENTIFICATION

The product model number and serial number can be found on the nameplate located on the top left surface of the attachment. Refer to the nameplate for ordering replacement parts.



**Back (Driver's) View
(Sideshifting Fork Positioner shown)**

P UBLICATIONS



PART NO.	DESCRIPTION
6082563	User Manual
6052504	Integral Carriage Service Manual
679929	Tool Catalog
673964	Literature Order Form

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AMERICAS

Cascade Corporation

U.S. Headquarters

2201 NE 201st
Fairview, OR 97024-9718
Tel: 800-CASCADE (227-2233)
Fax: 888-329-8207

Cascade Canada Inc.

5570 Timberlea Blvd.
Mississauga, Ontario
Canada L4W-4M6
Tel: 905-629-7777
Fax: 905-629-7785

Cascade do Brasil

Rua João Guerra, 134
Macuco, Santos - SP
Brasil 11015-130
Tel: 55-13-2105-8800
Fax: 55-13-2105-8899

EUROPE-AFRICA

Cascade Italia S.R.L.

European Headquarters

Via Dell'Artigianato 1
37030 Vago di Lavagno (VR)
Italy
Tel: 39-045-8989111
Fax: 39-045-8989160

Cascade (Africa) Pty. Ltd.

PO Box 625, Isando 1600
60A Steel Road
Sparton, Kempton Park
South Africa
Tel: 27-11-975-9240
Fax: 27-11-394-1147

ASIA-PACIFIC

Cascade Japan Ltd.

2-23, 2-Chome,
Kukuchi Nishimachi
Amagasaki, Hyogo
Japan, 661-0978
Tel: 81-6-6420-9771
Fax: 81-6-6420-9777

Cascade Korea

121B 9L Namdong Ind.
Complex, 691-8 Gojan-Dong
Namdong-Ku
Inchon, Korea
Tel: +82-32-821-2051
Fax: +82-32-821-2055

Cascade-Xiamen

No. 668 Yangguang Rd.
Xinyang Industrial Zone
Haicang, Xiamen City
Fujian Province
P.R. China 361026
Tel: 86-592-651-2500
Fax: 86-592-651-2571

Cascade India Material Handling Private Limited

No 34, Global Trade Centre
1/1 Rambaugh Colony
Lal Bahadur Shastri Road,
Navi Peth, Pune 411 030
(Maharashtra) India
Phone: +91 020 2432 5490
Fax: +91 020 2433 0881

Cascade Australia Pty. Ltd.

1445 Ipswich Road
Rocklea, QLD 4107
Australia
Tel: 1-800-227-223
Fax: +61 7 3373-7333

Cascade New Zealand

15 Ra Ora Drive
East Tamaki, Auckland
New Zealand
Tel: +64-9-273-9136
Fax: +64-9-273-9137

Sunstream Industries Pte. Ltd.

18 Tuas South Street 5
Singapore 637796
Tel: +65-6795-7555
Fax: +65-6863-1368

