INSTALLATION INSTRUCTIONS

and PERIODIC MAINTENANCE

3H

Fixed Frame
Pivot Arm
Paper Roll Clamps

Manual Number 6912143

cascade® corporation

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

This manual provides installation instructions and periodic maintenance for Cascade 3H Fixed Frame Paper Roll Clamps.

IMPORTANT: Supply input fittings for CLAMP function are JIC and ROTATE are flareless.

NOTE: Specifications are shown in both US and (Metric) units. All fasteners have a torque value range of ±10% of stated value.

Weighted Emission Sound Pressure Level - Weighted emission sound pressure level ($L\rho A$) does not exceed 70 dB(A).

Measured Value of Whole Body Vibration - Measured value of whole body vibration (m/s^2) does not exceed 0,5 m/s^2.

Measured Value of Hand-Arm Vibration - Measured value of hand-arm vibration (m/s^2) does not exceed 2,5 m/s^2.

SPECIAL DEFINITIONS

The statements shown below 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 special information that is useful when servicing the attachment.



WARNING - A statement preceded by a 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.

RECOMMENDED HYDRAULIC SUPPLY

Truck Powered Attachments

3H Fixed Frame Paper Roll Clamps (truck powered attachments only) provide the best performance with the hydraulic supply arrangement 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 and fittings for CLAMP function should be at least No. 4 with 3/16 in. (5 mm) minimum ID.
- All hoses and fittings for ROTATE function should be at least No. 6, minimum internal diameter of 9/32 in. (7 mm).

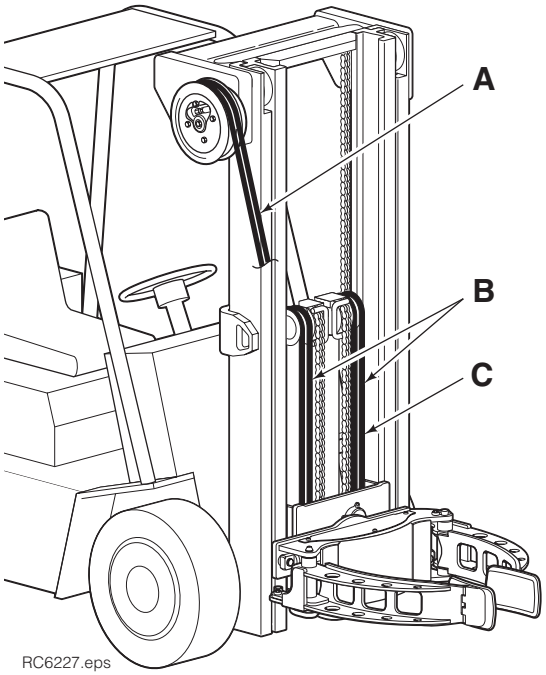
CAUTION: Rotate function supply circuit back pressure exceeding 500 psi (35 bar) can result in excessive oil heating, reduced attachment performance and shortened hydraulic system life. Check for restrictions such as numerous fittings and fitting/hose sizes less than No. 6.

Integral Attachments

A and C
RH THINLINE 2-Port Hose Reel Group and Mast Single Internal Hose Reeving Group.

OR

B Mast Double Internal Hose Reeving Group.



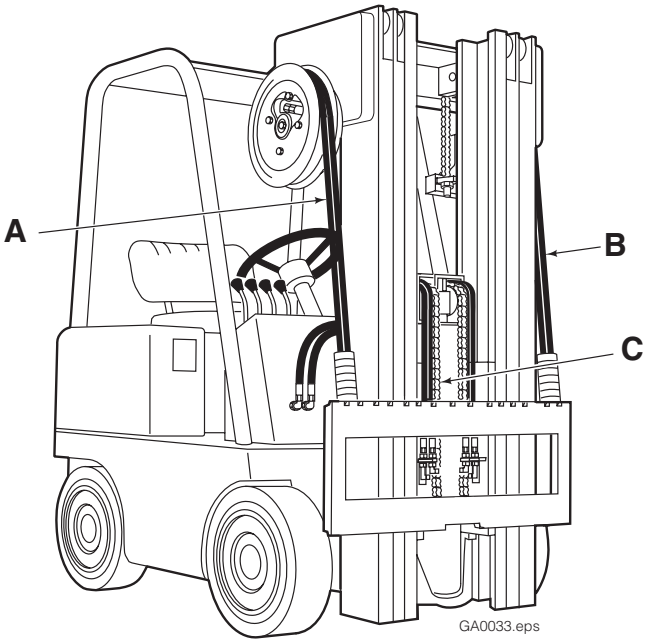
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Hang-On Attachments

A and C
RH THINLINE 2-Port Hose Reel Group and Mast Single Internal Hose Reeving Group.

OR

B Mast Double Internal Hose Reeving Group.



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TRUCK REQUIREMENTS

Truck Powered Attachments

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

2000 psi (140 bar) Recommended
2300 psi (160 bar) Maximum

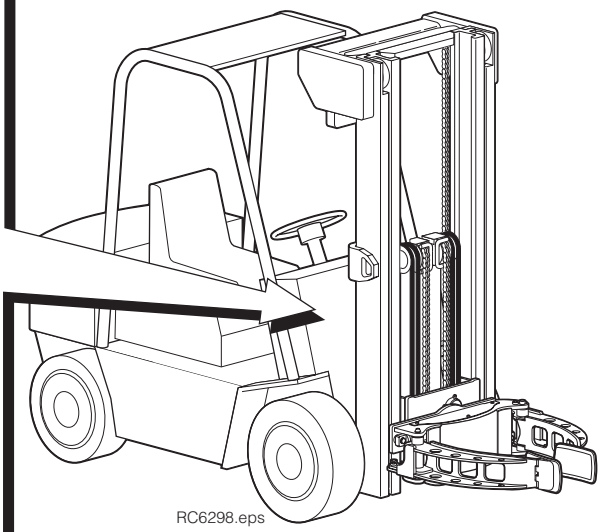
Truck Flow Volume ①

	Min. ②	Recommended	Max. ③
3H	1 GPM (4 L/min.)	3 GPM (11 L/min.)	5 GPM (19 L/min.)

① Cascade H-Series Roll Clamps 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.

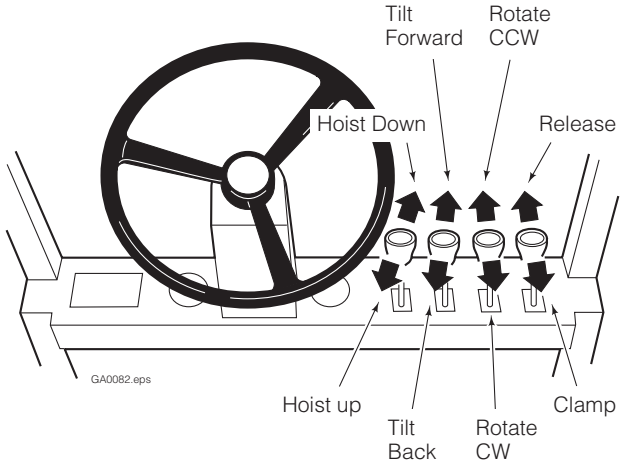
② Flow less than recommended will result in a rotate speed less than 2 RPM.

③ Flow greater than maximum can result in excessive heating, reduced system performance and short hydraulic system life.


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Auxiliary Valve Functions

Check for compliance with ANSI (ISO) standards



Truck Powered Hang-On Attachments

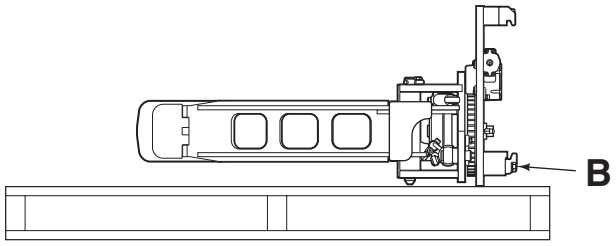
Follow the steps shown to install the attachment on the truck. Read and understand all **WARNING** statements. If a procedure is not understood, ask a supervisor, or call the nearest Cascade Service Department for assistance.

1 Attach overhead hoist

A Remove banding, set the attachment upright on the pallet.

B Remove bolt-on lower mounting hooks.

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 Prepare Hoses

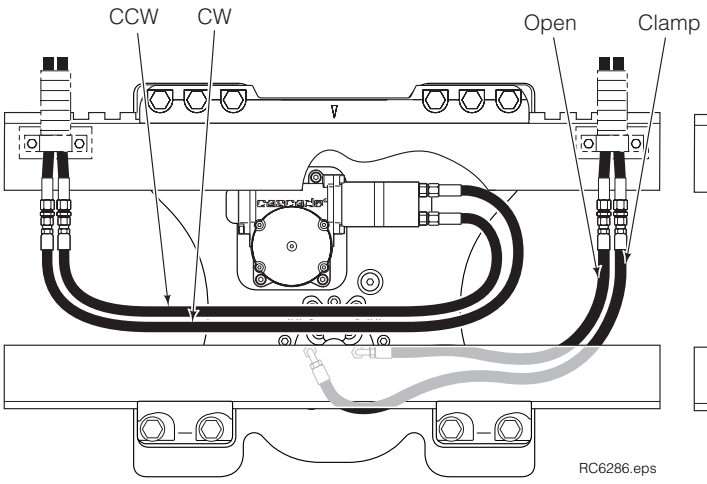
A Position truck carriage behind attachment.

B Determine hose lengths required.

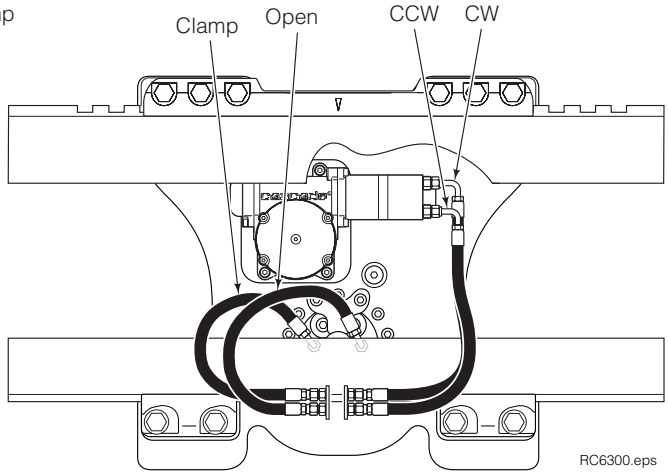
C Cut hoses to length and install end fittings.

CAUTION: Rotate function supply circuit back pressure exceeding 500 psi (35 bar) can result in excessive oil heating, reduced attachment performance and shortened hydraulic system life. Check for restrictions such as numerous fittings and fitting/hose sizes less than recommended.

CAUTION: Hoses should be 2000 psi (140 bar) working pressure rated for all functions.



Installation RH & LH 2-Port Thinline™ Hose Reels Back (Driver's) View



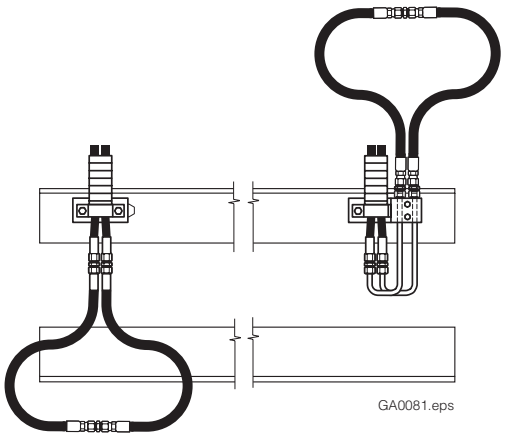
Installation using Internal Hose Reeving Back (Driver's) View

3 Flush hydraulic supply hoses

A Install hoses as shown.

B Operate auxiliary valves for 30 sec.

C Remove union fittings.



4 Mount attachment on truck carriage

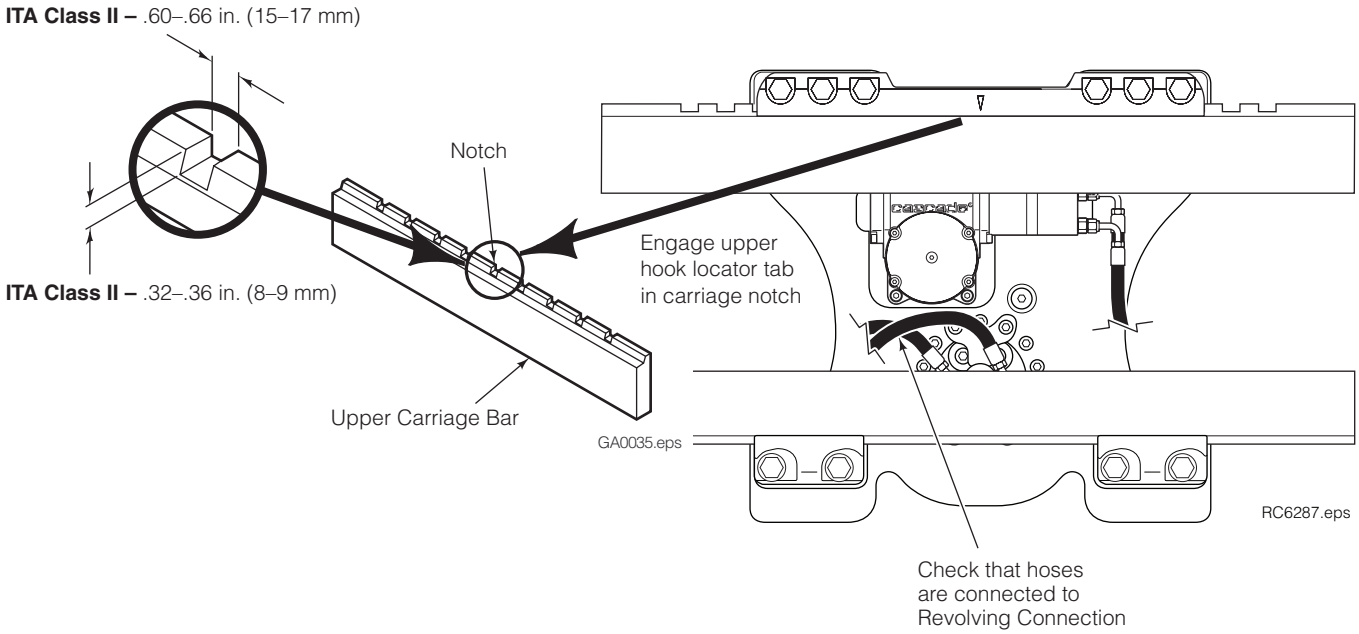
A Center truck behind attachment.

B Tilt forward and raise carriage into position.

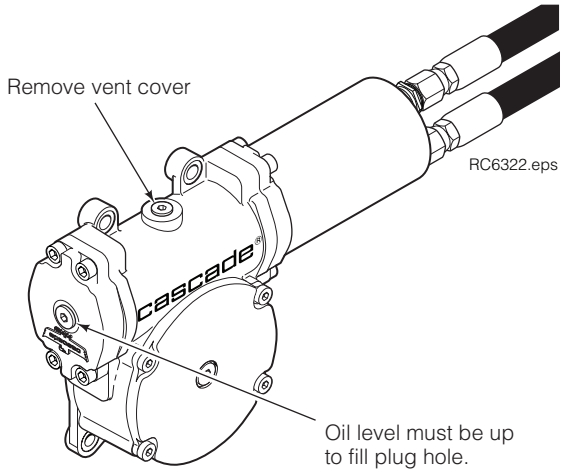
C Engage top mounting hooks with carriage. Make sure the centering tab engages the center notch on top carriage bar.

D Lift attachment 2 in. (5 cm) off pallet. Make sure lower index block (if equipped) engages fork slot on lower carriage bar.

WARNING: Do not remove the locator tab from an upper hook. If required, grind a new notch into the carriage bar to accommodate the tab for centering.

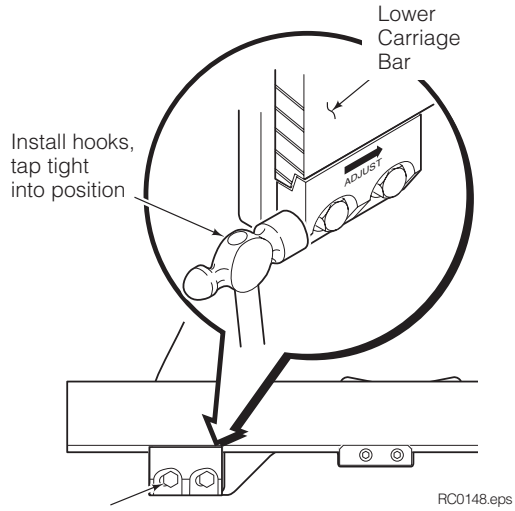


5 Remove gearbox oil level fitting, check lubricant level. Remove vent cap.



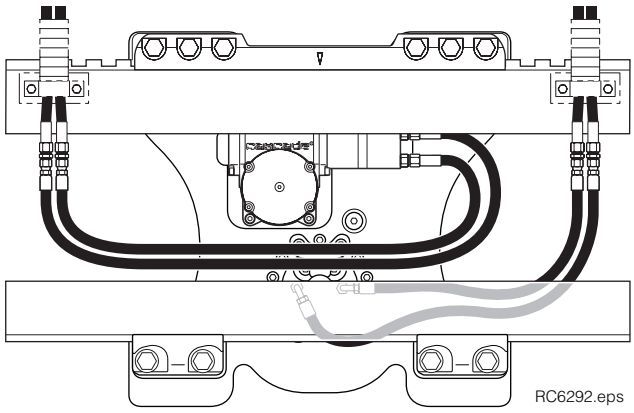
6 Install and engage lower hooks.

BOLT-ON TYPE



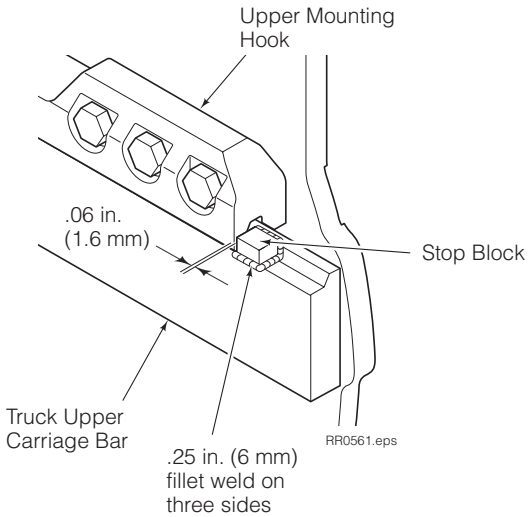
Tighten capscrews to 125 ft.-lbs. (165 Nm)

7 Connect hoses to carriage hose terminal fittings.



8 Install stop block kit

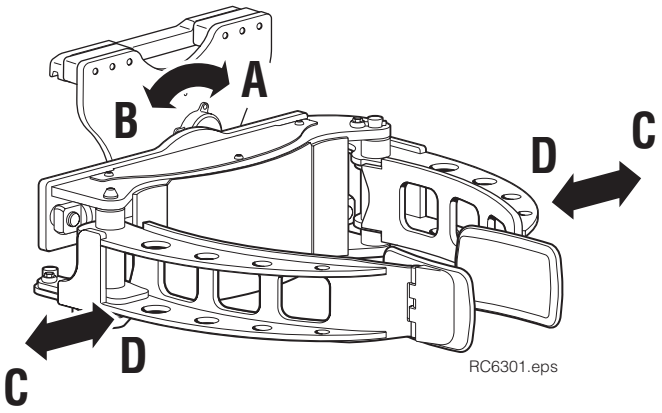
- Locate a stop block on the outward side of each upper hook. Preheat each stop block and carriage bar weld area to 325 °F (180 °C).
- Use AWS E7018 low hydrogen rod and weld a .25 in. (6 mm) fillet full length on three sides of each stop block.



9 Cycle attachment functions

- With no load, cycle all functions several times.
- Check functions for operation in accordance with ANSI (ISO) standards.
- Clamp and rotate a maximum load, check for smoothness and normal rotation.
- Visually check for leaks at fittings and cylinder rod ends. Avoid touching leaking fittings with hands.

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



ROTATE
(Driver's view)

A Counterclockwise (CCW)

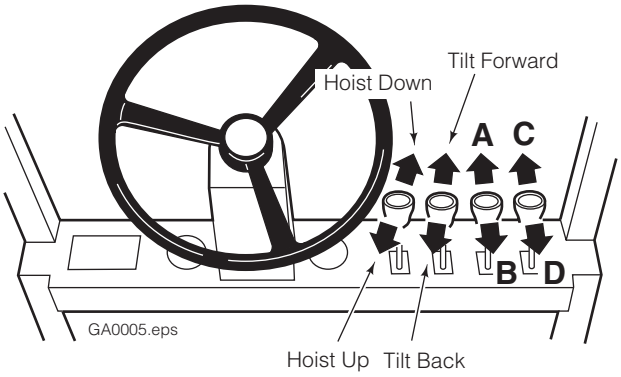
B Clockwise (CW)

ARMS

C Release

D Clamp

Auxiliary Valve Functions



WARNING: Truck control handle and attachment function activation shown here conforms to ANSI/ITSDF 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.

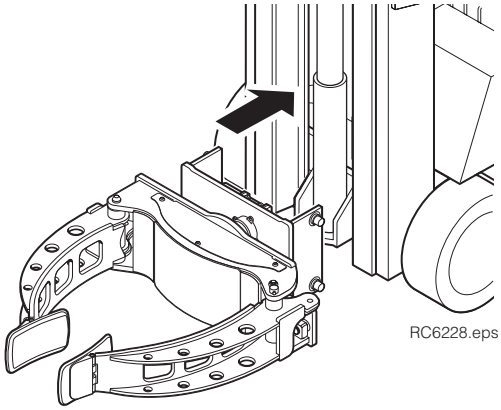
Truck Powered Integral Attachments

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

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

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.

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



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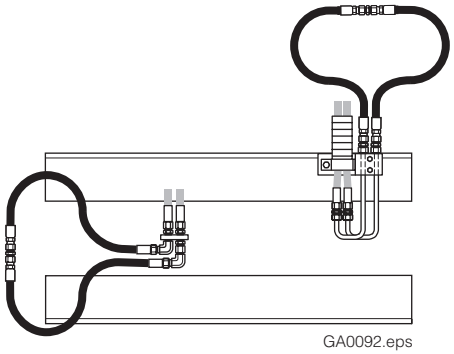
NOTE: See OEM for installation details on load roller, sidethrust roller, chain anchor, etc.

2 Flush hydraulic supply hoses

A Install hoses as shown.

B Operate auxiliary valves for 30 seconds.

C Remove union fittings.



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3 Install Hoses

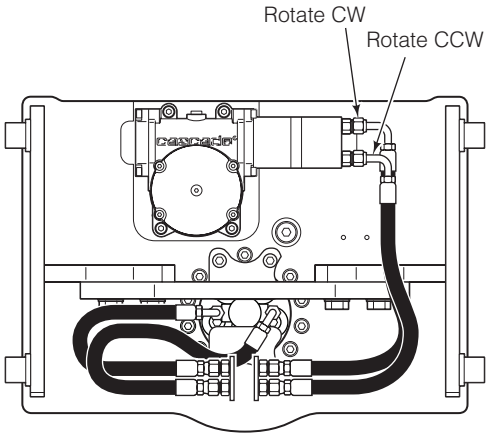
A Position truck carriage behind attachment.

B Determine hose lengths required.

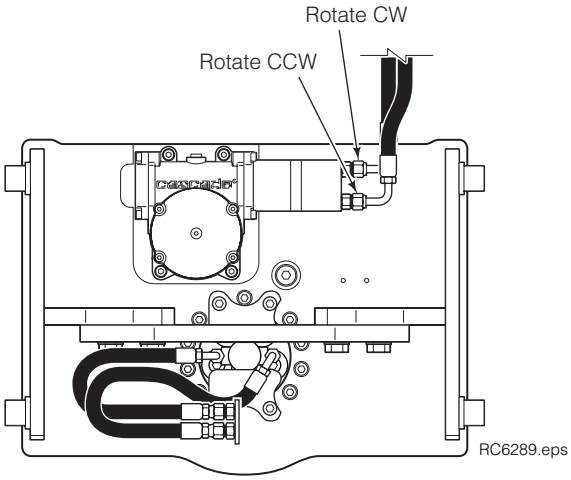
C Cut hoses to length and install end fittings.

CAUTION: Rotate function supply circuit back pressure exceeding 500 psi (35 bar) can result in excessive oil heating, reduced attachment performance and shortened hydraulic system life. Check for restrictions such as numerous fittings and fitting/hose sizes less than recommended.

CAUTION: Hoses should be 2000 psi (140 bar) working pressure rated for all functions.



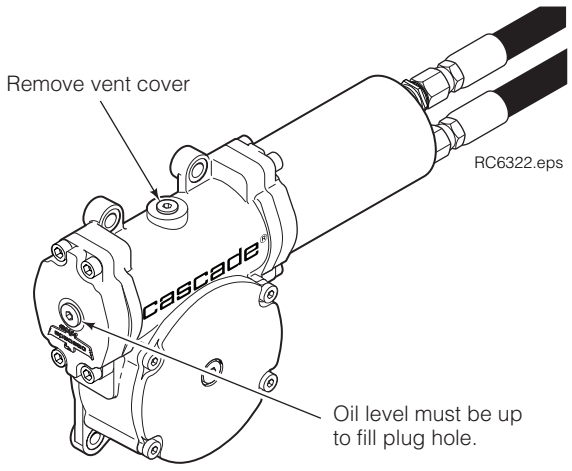
Double Internal Hose Reeving
Back (Driver's) View



Internal Hose Reeving (LH) And Hose Reel (RH)
Back (Driver's) View

4 Remove gearbox oil level fitting, check lubricant level. Remove vent cap.

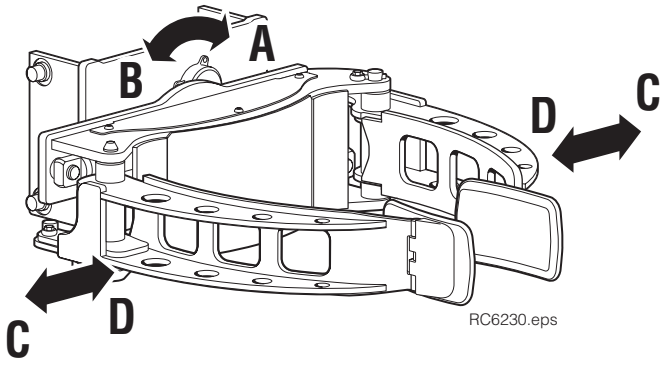
If necessary, fill gearbox with Cascade Gear Lube 656300 or equivalent SAE 90 wt. gear lube (AGMA 'mild' 6EP Gear Oil).



5 Cycle attachment functions

- With no load, cycle all functions several times.
- Check functions for operation in accordance with ANSI (ISO) standards.
- Clamp and rotate a maximum load, check for smoothness and normal rotation.
- Visually check for leaks at fittings and cylinder rod ends. Avoid touching fittings with hands.

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



ROTATE
(Driver's view)

A Counterclockwise (CCW)

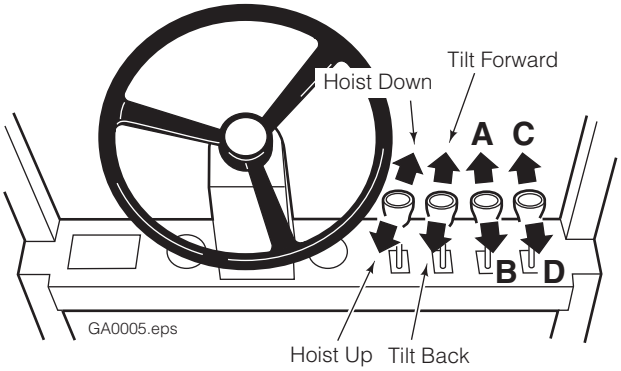
B Clockwise (CW)

ARMS

C Release

D Clamp

Auxiliary Valve Functions



WARNING: Truck control handle and attachment function activation shown here conforms to ANSI/ITSDF 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.

Manual Integral Attachments

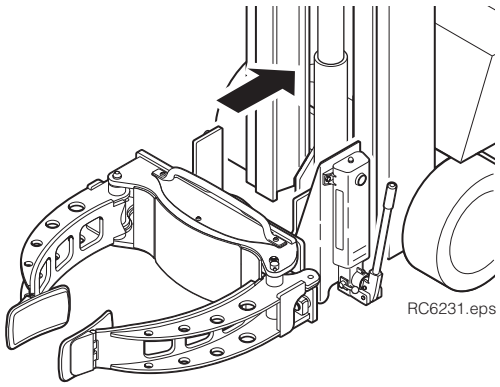
Follow the steps shown to install the attachment on the truck. Read and understand all **WARNING** statements. If a procedure is not understood, ask a supervisor, or call the nearest Cascade Service Department for assistance.

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.



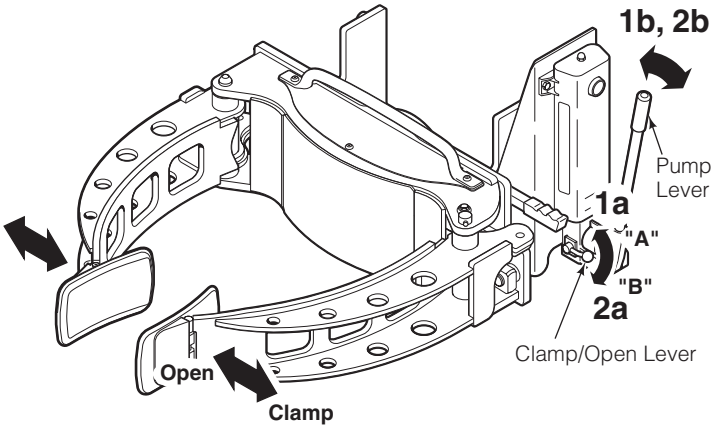
2 Cycle Clamp functions

- With no load, cycle all functions several times.
- Clamp and rotate a maximum load, check for smoothness and normal rotation.

WARNING: Make sure the load is centered.

- Check for leaks at fittings and cylinder rod ends.

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

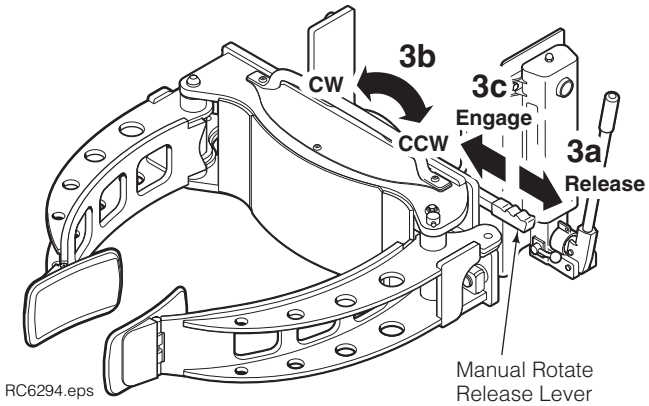


Operation

1 To close arms/clamp a load:
- **a** Position the CLAMP/OPEN Lever to "A".
- **b** Pump the Pump Lever forward and back until the arms are closed or load is clamped.

2 To open arms/release a load:
- **a** Position the CLAMP/OPEN Lever to "B".
- **b** Pump the Pump Lever forward and back until the load is released and/or the arms are open.

3 To rotate the attachment:
- **a** Use the Manual Rotate Release Lever to **release** the lever mechanism from the bearing notch.
- **b** Rotate the attachment **CW** or **CCW** in 90° increments.
- **c** Use the Manual Rotate Release Lever to **engage** the bearing's notch.



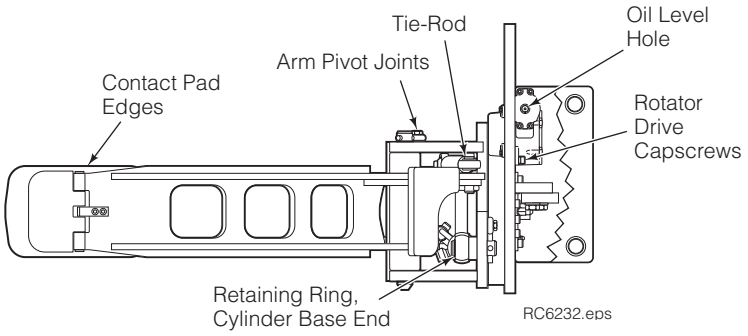
IMPORTANT: The first 500 Hours of attachment operation, check rotator drive gearcase lubricant level (remove vent cap). Oil should be filled up to the bottom of the fill plug hole. Add oil through the fill plug hole. If necessary, fill with Cascade Rotator Drive Lubricant, Part No. 656300 or SAE 90 wt. gear lube (AGMA 'mild' 6 EP Gear Oil). Replace the plug.

WARNING: After completing any service procedure, 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.

Daily Inspection

Prior to each shift of truck operation, complete the following procedures:

- Check for loose or missing bolts, worn or damaged hoses and hydraulic leaks.
- Check edges of contact pads for wear or sharp nicks that could damage or tear paper rolls. Grind edges smooth.
- Check that load-holding hydraulic system is functioning properly. Cascade Clamp Force Indicators 830141 and 832442 are available for this test.
- Check for unseated or missing retaining rings.
- Check decals and nameplate for legibility.

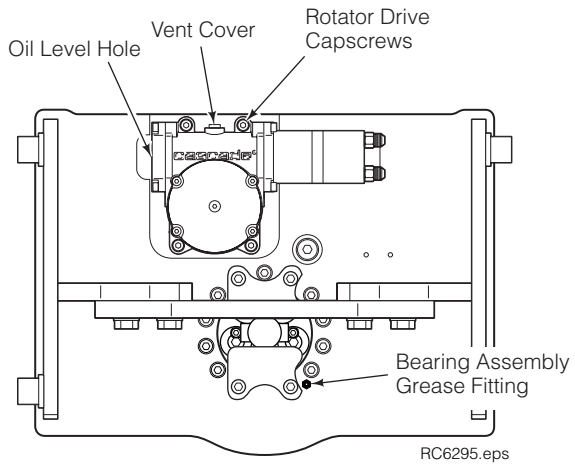


Left Side

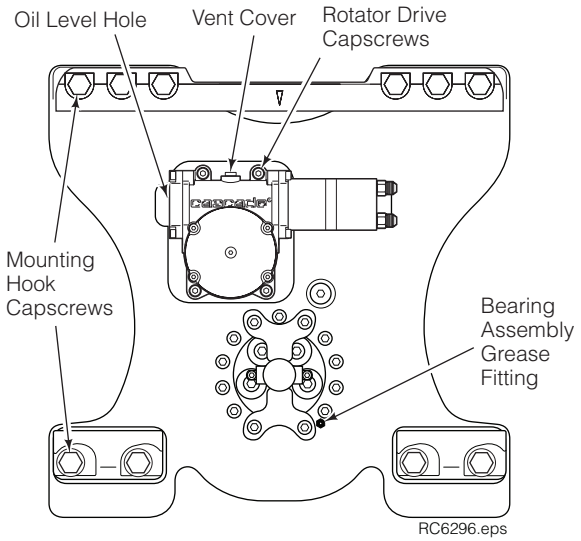
1000-Hour Maintenance

Every time the lift truck is serviced or every 1000 hours of truck operation, complete the following maintenance procedures:

- Change rotator drive gearcase lubricant. Drain oil out the case drain hole. Fill through the fill hole up to the level hole. Use Cascade Rotator Drive Lubricant, Part No. 656300, or SAE 90 wt. gear lube (AGMA 'mild' 6 EP Gear Oil). Replace plug.
- Tighten rotator drive capscrews to 24 ft.-lbs. (32 Nm)
- Lubricate rotator bearing assembly gear. For standard application use EP-2 grease (Whitmore 'Omnitask' or equivalent). For food industry, use NSF H1 grease (Dow Corning Molykote® G-0052 FM White EP Grease or equivalent). Rotate attachment in 90 degree increments and grease in each position.
- Inspect all arm, frame and cylinder pivot bushings for wear. Replace if necessary.
- Inspect all load-bearing structural welds on arms, arm pivots and cylinder pivot areas for visual cracks. Replace components as required.
- Inspect wear tile, arm tips and contact pads for wear and damage. Replace or repair, as needed.
- Inspect tie-rod jam nuts and tighten accordingly.
- Tighten lower mounting hook capscrews to the torque of 120 ft.-lbs. (165 Nm).



Integral Attachment
Back (Driver's) Side



Hang-On Attachment
Back (Driver's) Side

4000-Hour Maintenance

After each 4000 hours of truck operation, in addition to the 1000-hour maintenance, perform the following procedures:

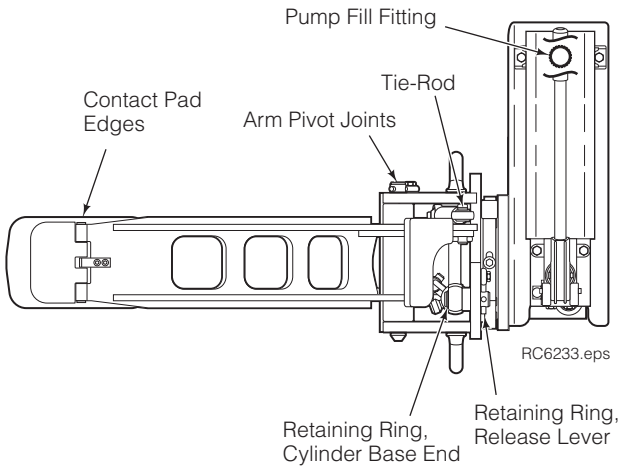
- Due to normal mechanical wear and component service life, cylinder seals should be replaced to maintain performance and safe operation.

WARNING: After completing any service procedure, 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.

Daily Inspection

Prior to each shift of truck operation, complete the following procedures:

- Check for loose or missing bolts, worn or damaged hoses and hydraulic leaks.
- Check edges of contact pads for wear or sharp nicks that could damage or tear paper rolls. Grind edges smooth.
- Check for damage to the pump.
- Check for external hydraulic leaks.
- Check for unseated or missing retaining rings.
- Check decals and nameplate for legibility.

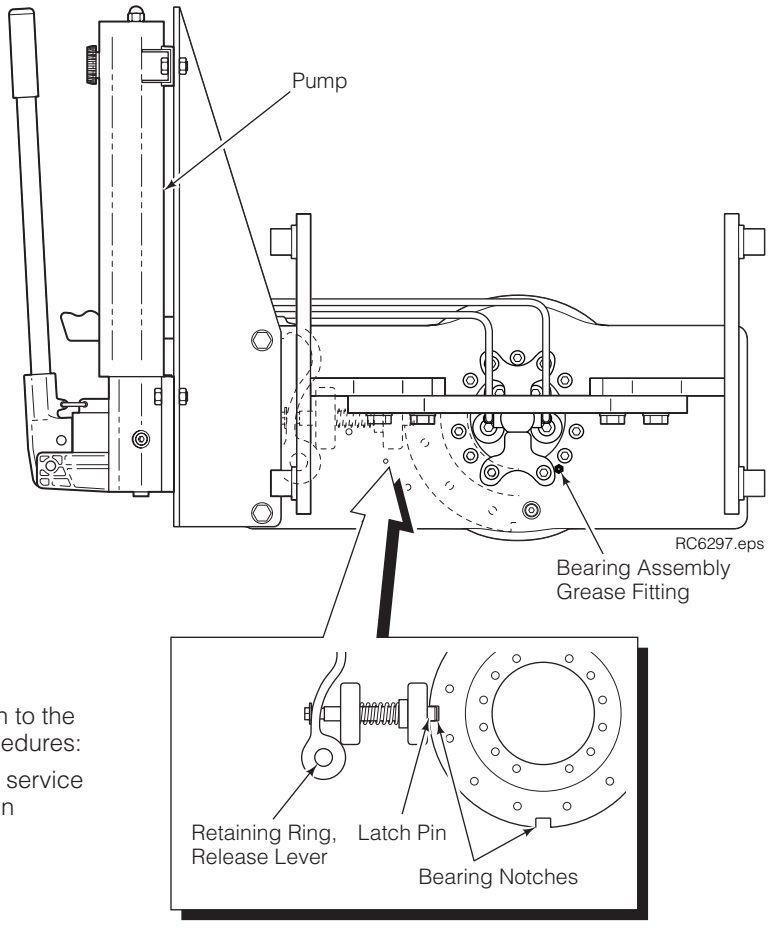


Left Side

1000-Hour Maintenance

Every time the lift truck is serviced or every 1000 hours of truck operation, complete the following maintenance procedures:

- Lubricate rotator bearing assembly gear. For standard application use EP-2 grease (Whitmore 'Omnitask' or equivalent). For food industry, use NSF H1 grease (Dow Corning Molykote® G-0052 FM White EP Grease or equivalent). Rotate attachment in 90 degree increments and grease in each position.
- Inspect all arm, frame and cylinder pivot bushings for wear. Replace if necessary.
- Inspect all load-bearing structural welds on arms, arm pivots and cylinder pivot areas for visual cracks. Replace components as required.
- Inspect wear tile, arm tips and contact pads for wear and damage. Replace or repair, as needed.
- Inspect tie-rod jam nuts and tighten accordingly.
- Inspect the release lever's latch pin and bearing's notch edges are not rounded or damaged.



Back (Driver's) Side

4000-Hour Maintenance

After each 4000 hours of truck operation, in addition to the 1000-hour maintenance, perform the following procedures:

- Due to normal mechanical wear and component service life, cylinder seals should be replaced to maintain performance and safe operation.

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Do you have questions you need answered right now? Call your nearest Cascade Service Department.
Visit us online at www.cascorp.com

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
Praça Salvador Rosa,
131/141-Jordanópolis,
São Bernardo do Campo - SP
CEP 09891-430
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 P Ltd
Sy no 271/8, Ingawale Patil Estate,
Godown No.9,10 & 11, Bhugaon,
Off Paud Road, Tal Mulshi, Dist
Pune 411 042

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

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