

# **Upending Roll Clamps**

Manual Number 6837771-R2



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This manual provides the installation and periodic maintenance for Cascade Upending Roll Clamps. Follow the suggested installation procedures for best results. Contact Cascade Service Department with any questions or for more information. Refer to back cover.

Read the **WARNING** statement placed throughout this manual to emphasize safety during attachment installation.

**IMPORTANT:** Field alterations may impair performance or capability and could result in loss of warranty. Consult Cascade for any required modifications. Upending Roll Clamps 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 must be No. 6 minimum with an orifice size of 9/32 in. (7 mm) minimum.

- All hoses and fittings must be No. 8 minimum with an orifice size of 13/32 in. (10 mm) minimum.
- **ROTATE Function:** All hoses and fittings must be No. 8 minimum with an orifice size of 13/32 in. (10 mm) minimum.

**IMPORTANT:** Cascade Upending Roll Clamps are custom built and size of connecting supply fittings on the attachment will vary. Consult Cascade if fitting size and type can not be determined.

**CAUTION:** ROTATE function supply circuit back pressure exceeding 500 psi (35 bar) and a maximum flow rate of 15 GPM (54 L/min.) 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. 8.



### Non-Revolving Upending Roll Clamps A and B

RH and LH THINLINE™ 2-port Hose Reels

Revolving Upending Roll Clamps A and B

RH THINLINE™ 2-port Hose Reel Group and LH 6-N-1 Cable/Hose Reel Group

## Swing Frame Upending Roll Clamps A and B

RH THINLINE<sup>™</sup> 2-port Hose Reel Group and LH THINLINE<sup>™</sup> 4-port Hose Reel Group

OR

## **Truck Relief Setting**

2300 psi (160 bar) Maximum

#### Truck Flow Volume <sup>①</sup>

	Min. <sup>2</sup>	Recommended	Max. <sup>3</sup>
25F ROTATE,	5 GPM	7 GPM	10 GPM
CLAMP	(18 L/min.)	(26 L/min.)	(37 L/min.)
38F CLAMP	5 GPM	10 GPM	12 GPM
	(18 L/min.)	(37 L/min.)	(45 L/min.)
38F ROTATE	5 GPM	12 GPM	15 GPM
	(18 L/min.)	(45 L/min.)	(56 L/min.)
45F ROTATE,	5 GPM	7 GPM	10 GPM
CLAMP	(18 L/min.)	(26 L/min.)	(37 L/min.)
77F, 90F, 100F	10 GPM	15 GPM	20 GPM
ROTATE, CLAMP	(37 L/min.)	(37 L/min.)	(75 L/min.)
G-Series	5 GPM	10 GPM	15 GPM
ROTATE, CLAMP	(18 L/min.)	(37 L/min.)	(56 L/min.)
20H-33H	5 GPM	10 GPM	15 GPM
ROTATE, CLAMP	(18 L/min.)	(37 L/min.)	(56 L/min.)
34H, 38H, 42H, 46H, 55H ROTATE, CLAMP	10 GPM (38 L/min.)	15 GPM (56 L/min.)	20 GPM (75 L/min.)
UPEND	5 GPM	10 GPM	15 GPM
	(18 L/min.)	(37 L/min.)	(56 L/min.)
SWING	1 GPM	2 GPM	3 GPM
	(4 L/min.)	(8 L/min.)	(12 L/min.)

① Cascade attachments are compatible with SAE 10W petroleum base hydraulic fluid meeting Mil. Spec. MIL-0-5606 or MIL-0-2104B. Use of synthetic or aqueous base hydraulic fluid is not recommended. If fire resistant hydraulic fluid is required, special seals must be used. Contact Cascade.

② Flow less than recommended will result in reduced system performance.

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.



Auxiliary Valve Functions Check for compliance with ANSI (ISO) standards:



	1	2
Non-Revolving	Upender Forward	Upender Back
Non-Revolving with Swing	Upender Forward <b>OR</b> Swing Extend (Push Button)	Upender Back <b>OR</b> Swing Retract (Push Button)
Revolving	Upender Forward <b>OR</b> Rotate CCW (Push Button)	Upender Back OR Rotate CW (Push Button)



#### Carriage

Clean and inspect carriage bars for damage and smoothness. Repair any protruding welds or damaged notches. GA0496.eps

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.

**NOTE:** If equipped with swing function a solenoid-operated control valve group should be installed. Refer to the Appendix section.





#### **Prepare Hoses**

A Position truck carriage behind attachment.

- **B** Determine hose lengths required.
- **C** Cut hoses to length, install end fittings.

**IMPORTANT**: Cascade Upending Roll Clamps are custom built and locations for connecting supply hoses to the attachment will vary from the illustration shown. Consult Cascade if locations can not be determined.

Upender Back Clamp Open Forward Open Clamp Copen Clamp Clamp

> Non-Revolving Attachments Back (Driver's) View

**CAUTION**: Hoses should be 2300 psi (160 bar) working pressure rated for all attachment functions.

**CAUTION:** ROTATE function supply circuit back pressure exceeding 500 psi (35 bar) and a maximum flow rate of 15 GPM (54 L/min.) 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. 8.



Back (Driver's) View



Non-Revolving Attachments with Swing Back (Driver's) View



### Flush hydraulic supply hoses

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





**Centering Tab** – Make sure the centering tab engages the center notch on top carriage bar.

**NOTE:** Centering tab can be oriented in four different positions to center the attachment, as shown.

**Left Hook Tab** – Center the attachment, then make sure left hook tab engages closest notch on top carriage bar.



**NOTE:** For integral carriages, install in mast per OEM specification and procedures.









### Install stop block kit (Revolving attachments)

- Preheat each stop block and carriage bar weld area to 325° F (180° C).
- Use AWS E-7018 low hydrogen rod and weld a .25 in. (6 mm) fillet full length on three sides of each stop block.





## **Cycle Attachment Functions**

- With no load, cycle all functions several times.
- Check functions for operation in accordance ٠ with ANSI (ISO) standards.
- Clamp a maximum load and check for smooth arm movement.
- Check for leaks at fittings and cylinder rod ends.



**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.

#### NON-REVOLVING **UPENDING**



- **A** Upender Forward **B** Upender Back
- C Open

- **D** Clamp

A Upender Forward **A** Rotate CCW (Push Button)

**REVOLVING UPENDING** 

(Solenoid equipped)

- B Upender Back
- **B** Rotate CW (Push Button)
- C Open
- **D** Clamp

#### **NON-REVOLVING UPENDING WITH SWING** (Solenoid equipped)

- A Upender Forward
- **A** Swing Extend (Push Button)
- **B** Upender Back
- **B** Swing Retract (Push Button)
- C Open
- **D** Clamp











## General

## **Daily Inspection**

At the beginning of each operational shift, complete the following inspections:

- 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 contact pad pivot joints for wear. Repair or replace as necessary.
- Check that load-holding hydraulic system is functioning properly. Test using one of the Cascade Clamp Force Indicators:

#### Digital

**300G-DFI-324C** – Split Arm Clamps, 8 x 12 in. Radiused Pads

**300G-DFI-812C –** Solid Arm Clamps, 8 x 24 in. Radiused Pads

#### Analog

**300G-CFI-324C** – Split Arm Clamps, 8 x 12 in. Radiused Pads

**300G-CFI-812C** – Solid Arm Clamps, 8 x 24 in. Radiused Pads

• Check decals and nameplate for legibility.

## **1000-Hour Maintenance**

After each 1000 hours of truck operation, in addition to the daily inspections, perform the following procedures:

- 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.
- Tighten lower mounting hook capscrews to:

#### F-Series:

```
CL II & III – 110 ft.-lbs. (150 Nm)
60F, 66F, 77F CL IV – 200 ft.-lbs. (270 Nm)
90F and greater CL IV – 265 ft.-lbs. (360 Nm)
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G-Series:
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Class II/III – 125 ft.-lbs. (165 Nm)
CL IV – 250 ft.-lbs. (340 Nm)
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#### H-Series:

Class II/III – 125 ft.-lbs. (165 Nm) CL IV – 265 ft.-lbs. (360 Nm)

## 2000-Hour Maintenance

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

 Inspect all arm and cylinder pivot pins for wear and replace if necessary.



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



Non-Revolving Attachments Side View



Non-Revolving Attachments Back (Driver's) View

## 4000-Hour Maintenance

After each 4000 hours of truck operation, to daily inspections, 1000 and 2000-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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## **Revolving Attachments**

In **addition** to the previous page maintenance schedule, where applicable, the following maintenance procedures must be completed on revolving attachments.

## **1000-Hour Maintenance**

- Check sample of baseplate capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6844925 for checking and replacement procedures.
- Check sample of rotation bearing capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6844925 for checking and replacement procedures.



**WARNING:** A sampling of baseplate and bearing capscrews must be checked for proper torque at 1000 hours (see TB183). A complete inspection is required every 2000 hours. Failure to keep the capscrews tightened can result in attachment damage and serious injury.

- Lubricate rotator bearing assembly with multi-purpose extreme-pressure NLGI 2 grease (Whitmore 'Omnitask' or equivalent). Rotate attachment in 90° increments and grease in each position.
- Check rotator drive gearcase lubricant level. Lubricant should be filled up to end cover hole. Add lubricant through the end cover 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.

## 2000-Hour Maintenance

- Check all rotation bearing capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6844925 for checking and replacement procedures.
- Inspect all arm and cylinder pivot pins for wear and replace if necessary.



Revolving Attachments Side View





Revolving Attachments Back (Diver's) View

## **Swing Equipped Attachments**

In **addition** to the previous page maintenance schedule, where applicable, the following maintenance procedures must be completed on attachments with SWING function.

## **1000-Hour Maintenance**

- Inspect swing components and frame for wear and replace if necessary.
- Inspect all load-bearing structural weld on swing frame pivots and swing cylinder pivot areas for visual cracks. Replace components as required.

## 2000-Hour Maintenance

Inspect swing pivot components for wear. Replace if necessary.



Attachments with Swing Side View

### Swing Control Valve Installation

Swing equipped upending roll clamps require a solenoidoperated control valve group to convert a two function auxiliary control valve to three function operation.

For hose reel information, refer to Installation Instructions 673835 for THINLINE<sup>™</sup> 2-Port Hose Reels and Installation Instructions 675395 for THINELINE<sup>™</sup> 2-Port Hose Reels (for masts without internal reeving). Control valve groups for different voltages are listed in the table shown.

**NOTE:** The solenoid valves may vary. If installation and hosing connections are unclear, consult Cascade.

Determine an appropriate mounting location for the control valve on the truck cowl. The valve can be mounted horizontally or vertically. The valve must not extend outside the width of the cowl or interfere with the truck mast.

Control Valve Group				
With Low With Knob Profile Switch Part Number Part Number		Truck Voltage		
674924	6014883	12V		
674925	6014885	24V		
674926	6014886	36V		
674927	6014887	48V		



2

Assemble the solenoid valve, fittings, cover and subplate. Position the assembly on the truck cowl noting any clearance problems.



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### Swing Control Valve Installation



Mark the mounting location on the truck cowl. Grind and clean the area in preparation for welding. Tack-weld the subplate to the cowl and mount the valve to the subplate with the capscrews supplied in the kit.



Measure and assembly two hoses (user-supplied) to run from the solenoid valve **P** and **T** ports to the **truck valve** ports. Install the hoses.

**IMPORTANT:** Proceed to Step 7 if lift truck is equipped with mast internal hose reeving.



#### Installation with RH 2-Port and LH 4-Port Hose Reels



**ROTATE Function** – Measure and assemble two hoses (user-supplied) to run from the control valve **C1** and **C4** ports to the **RH hose reel**. Install hoses.

SWING Function – Measure and assemble two hoses (user-supplied) to run from the control valve C2 and C3 ports to the LH 4-port hose reel 3 and 4 ports. Install hoses.



## APPENDIX

## Swing Control Valve Installation

#### Installation with RH 2-Port and LH 4-Port Hose Reels (Continued)



**CLAMP Function** – Measure and assemble two hoses (user-supplied) to run from the **truck valve** ports to the **LH 4-port hose reel 1 and 2** ports. Install hoses.

LH 4-Port

Hose Reel

3

CLAMP/OPEN

Truck Auxiliary Valve with \_\_ pushbutton (ROTATE and SWING

Function

**WARNING**: The hose operating the OPEN function must connect to **Port 1** on the 4-port hose reel.



C1

Truck Auxiliary Valve (CLAMP)

C4

ROTATE

Function

RC0731.eps

Carriage Hose

Terminal

LH 4-Port

### Swing Control Valve Installation

## Installation with RH and LH 2-Port Hose Reels and Internal Hose Reeving

**ROTATE Function** – Measure and assemble two hoses (user-supplied) to run from the control valve **C1** and **C4** ports to the **RH hose reel**. Install hoses.

SWING Function – Measure and assemble two hoses (user-supplied) to run from the control valve C2 and C3 ports to the internal hose reeving hoses. Install hoses.





**CLAMP Function** – Measure and assemble two hoses (user-supplied) to run from the **truck valve** ports to the **LH 2-port hose reel**. Install hoses.



## APPENDIX

### Swing Control Valve Installation



Locate the auxiliary valve lever that operates the hydraulic hoses connected to the solenoid control valve **P** and **T** ports. Install a new knob with pushbutton, or shrink-wrap low profile switch onto the control lever.

**IMPORTANT:** Lever should control the ROTATE function per ANSI (ISO) standard. When the pushbutton is depressed, the lever should activate the SWING function.

**CAUTION:** Secure cable with cable ties to avoid pinching at truck cowl during handle movement.



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Connect the wiring from the pushbutton and control valve terminals to the truck electrical system as shown.

**IMPORTANT:** Fuse must be connected to an unswitched positive terminal – control valve must be able to energize with truck key in off position.



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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

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