

INSTALLATION INSTRUCTIONS

and PERIODIC MAINTENANCE

J-Series

Revolving Clamps

Manual Number 6904508-R1

**cascade[®]
corporation**

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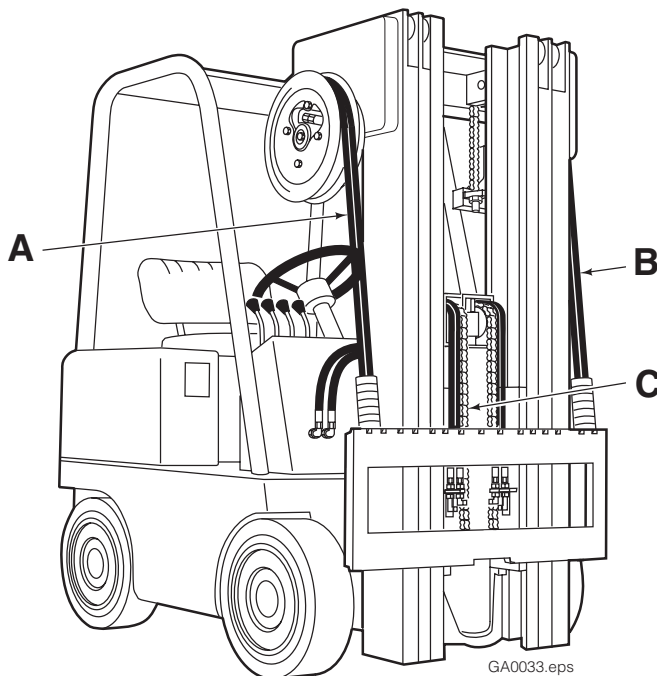
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<u>Recommended Hydraulic Supply</u>	<u>1</u>	This manual provides instructions for installing Cascade J-Series Revolving Clamp attachments.
<u>Truck Requirements</u>	<u>2</u>	Follow the suggested installation procedures for best results. If you have any questions or need more information, contact your nearest Cascade Service Department. Refer to back cover.
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<u>Custom Arm Installation</u>	<u>11</u>	Read the WARNING statements placed throughout this manual to emphasize safety during attachment installation.
<u>Periodic Maintenance</u>		IMPORTANT: Field alterations may impair performance or capability and could result in loss of warranty. Consult Cascade for any required modifications.
<u>14J Clamps</u>	<u>14</u>	
<u>18J, 22J & 26J Clamps</u>	<u>16</u>	IMPORTANT: J-Series Revolving Clamps are metric. Supply fittings adapted as required for application.
<u>Clamps with Forks</u>	<u>18</u>	IMPORTANT: All specifications are shown in US and (metric) units where applicable. All fasteners have a torque value range of $\pm 10\%$ of stated value.

RECOMMENDED HYDRAULIC SUPPLY

J-Series Revolving Clamps 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. The hose and fitting requirements are:

- **14J** – All hoses and fittings for SIDESHIFT, ROTATE and CLAMP (or FORK POSITION) functions require No. 6 hose with .28 in. (7 mm) minimum ID.
- **18J, 22J 26J SIDESHIFT and CLAMP (or FORK POSITION) functions** – Hoses and fittings should be No. 6 with .28 in. (7 mm) minimum ID.
- **18J, 22J 26J ROTATE function** – Hoses and fittings should be No. 8 with .40 in. (10 mm) minimum ID.



CAUTION: Rotate function supply circuit back pressure exceeding 500 psi (35 bar, 3.5 MPa) 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 (14J) or No. 8. (18J, 22J, and 26J).

Double Function without Solenoid

A and B

RH and LH THINLINE™ 2-port hose reel groups

OR (optional)

A and C

RH THINLINE™ 2-Port Hose Reel Group for ROTATE function, and mast single function Internal Hose Reeling Group for the CLAMP (or FORK POSITION) function.

Double Function with Solenoid

A RH 6-N-1 Cable-Hose Reel Group

Triple Function with Solenoid

A and B

LH THINLINE™ 2-port hose reel group and RH 6-N-1 Cable-Hose Reel Group

TRUCK REQUIREMENTS

Truck Relief Setting (see attachment nameplate)

Low Pressure	High Pressure	
2245 psi (155 bar, 15.5 MPa)	2755 psi (190 bar, 19.0 MPa)	Recommended
2740 psi (189 bar, 18.9 MPa)	3625 psi (250 bar, 25.0 MPa)	Maximum

NOTE: The attachment revolving connection has separate pressure relief control, see Instruction Step 12 for adjustment.

Truck Flow Volume ^①

	Min. ^②	Recommended	Max. ^③
CLAMP (or FORK POSITION), SIDESHIFT	5 GPM (19 L/min)	12 GPM (45 L/min.)	16 GPM (61 L/min.)
14J ROTATE	5 GPM (19 L/min)	8 GPM (32 L/min.)	12 GPM (45 L/Min.)
18J, 22J, 26J ROTATE	5 GPM (19 L/min)	10 GPM (38L/min.)	15 GPM (57 L/Min.)

① Cascade Revolving Clamp 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.

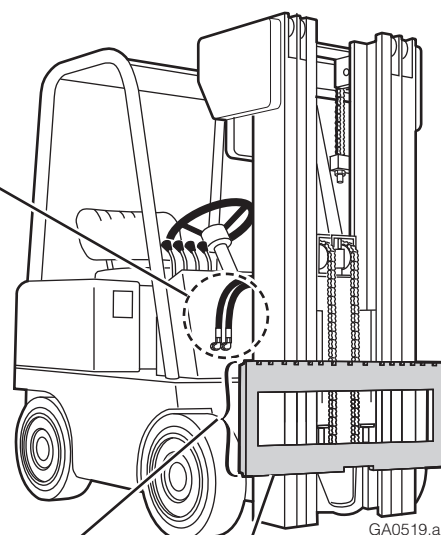
② Flow less than recommended will result in reduced system performance.

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

Reference: SS-2792 SH 2 (R0), SS-2784 SH 2 (R2), SS-2790 SH 2 (R1), SS-2806 SH 2 (R2)



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 Mount Dimension (A) ITA (ISO)

	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)

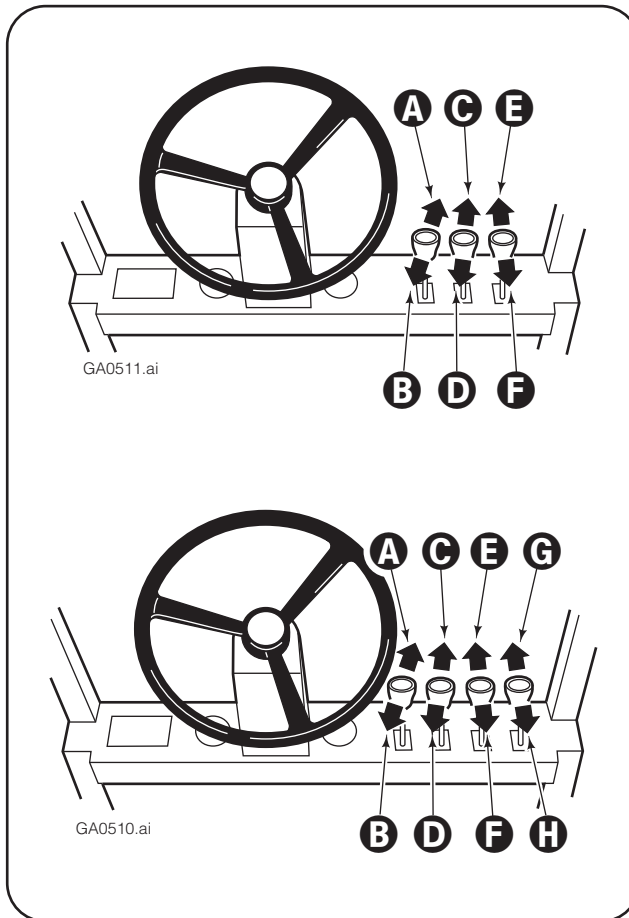
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Carriage – Clean and inspect carriage bars. Make sure the bars are parallel and that ends are flush. Repair any damaged notches.

TRUCK REQUIREMENTS

Auxiliary Valve Functions

Check for compliance with ANSI/ITSDF (ISO) standards:



Main Functions

A Hoist Down	C Tilt Forward
B Hoist Up	D Tilt Back

Auxiliary Functions

Revolving Clamps

E Rotate CCW	G Open
F Rotate CW	H Close

Revolving Clamps with Solenoid Adaption

E Rotate CCW / Open (Press Button)
F Rotate CW / Close (Press Button)

Revolving Clamps with Sideshift

E Sideshift Left	G Rotate CCW / Open (Press Button)
F Sideshift Right	H Rotate CW / Close (Press Button)



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.

INSTALLATION

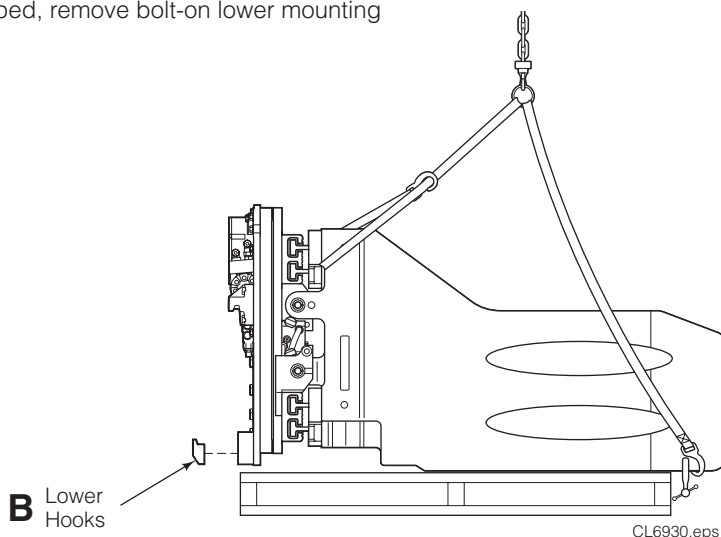
Follow the steps shown to install the attachment on the truck. Read and understand all **WARNING** and **CAUTION** statements. If a procedure is not understood, ask a supervisor, or call the nearest Cascade Service Department for assistance.

1 Attach overhead hoist

- A** Remove banding, set the attachment upright on pallet. Use lifting eyes, clamps and multiple chains to stabilize the attachment while lifting.
- B** If equipped, remove bolt-on lower mounting hooks.



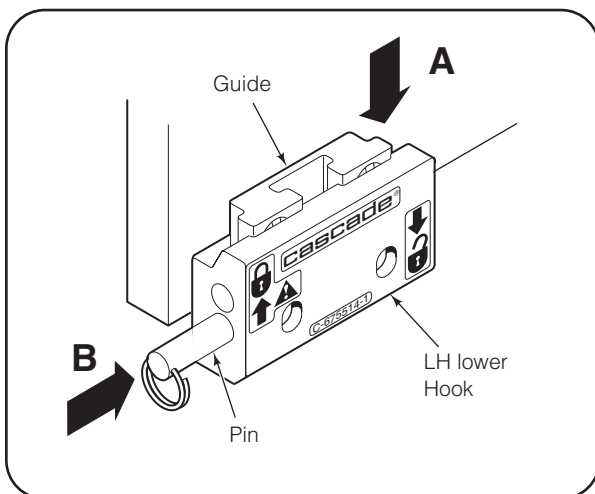
WARNING: Verify that the overhead hoist and chains or straps are rated for the weight of the attachment. Refer to nameplate for attachment weight.



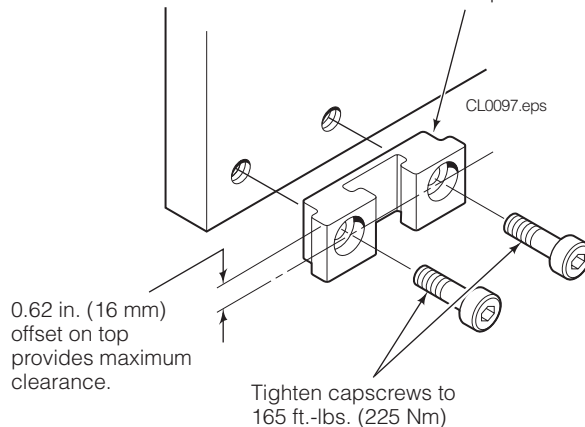
Side View
(Bale Clamp Shown)

2 If equipped, unlock Quick-Change lower mounting hooks

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



NOTE: Guides can be reversed to reduce the clearance between the hook and carriage. Refer to Step 7.



3 Prepare hoses

A Determine hose lengths required for hydraulic supply configuration of truck.

B Cut hoses to length, install end fittings.

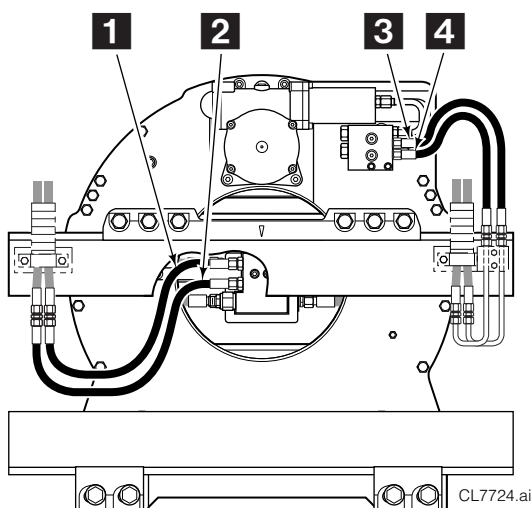
IMPORTANT: Early solenoid configurations may vary from the current configuration. Contact Cascade for further assistance.

CAUTION: Rotate function supply circuit back pressure exceeding 500 psi (35 bar, 3.5 MPa) 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 (14J) or No. 8. (18J, 22J, and 26J).

CAUTION: Use hoses that are 2600 psi (180 bar, 18.0 MPa) working pressure rated for all attachment functions.

14J

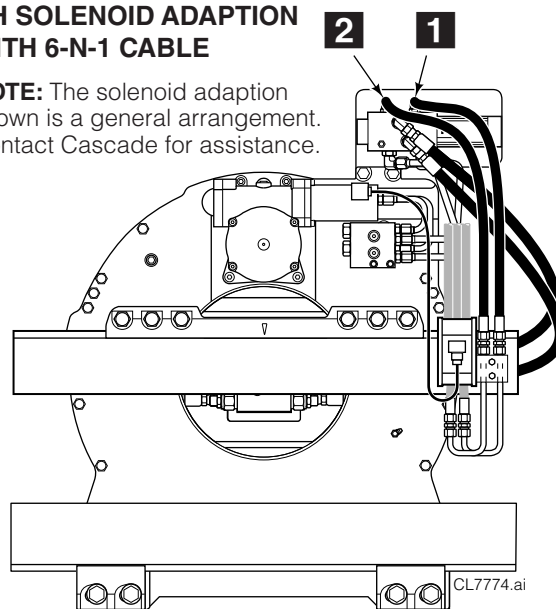
RH & LH 2-PORT THINLINE™ HOSE REELS



- | | |
|----------------------------|---------------------|
| 1 Open (or Release) | 3 Rotate CCW |
| 2 Close (or Clamp) | 4 Rotate CW |

RH SOLENOID ADAPTION WITH 6-N-1 CABLE

NOTE: The solenoid adaption shown is a general arrangement. Contact Cascade for assistance.



- | |
|---|
| 1 Open (or Release) / Rotate CCW |
| 2 Close (or Clamp) / Rotate CW |

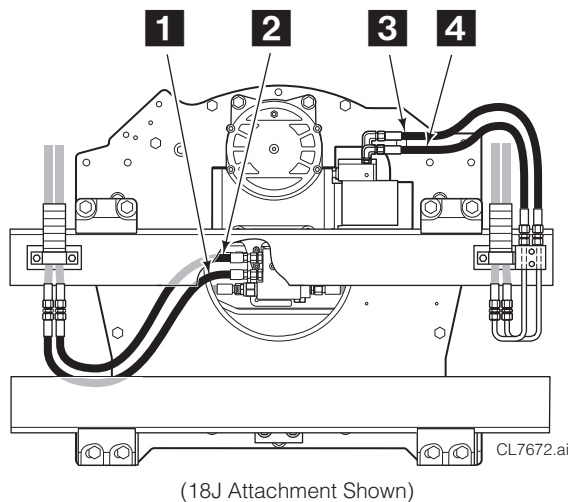
Back (Driver's) Views

Step continued on the following page

3 Prepare hoses (Continued)

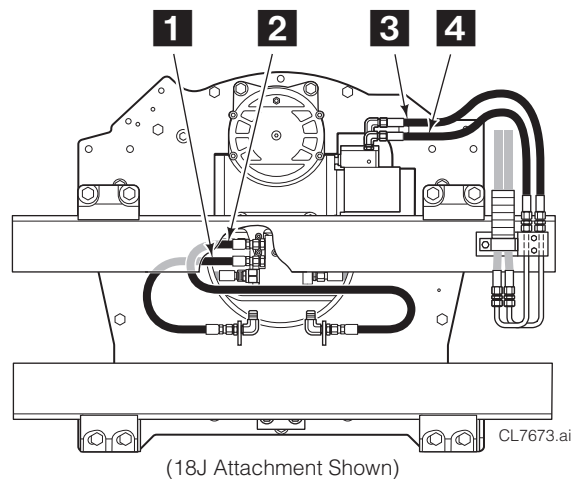
18J, 22J, 26J

RH & LH 2-PORT THINLINE™ HOSE REELS



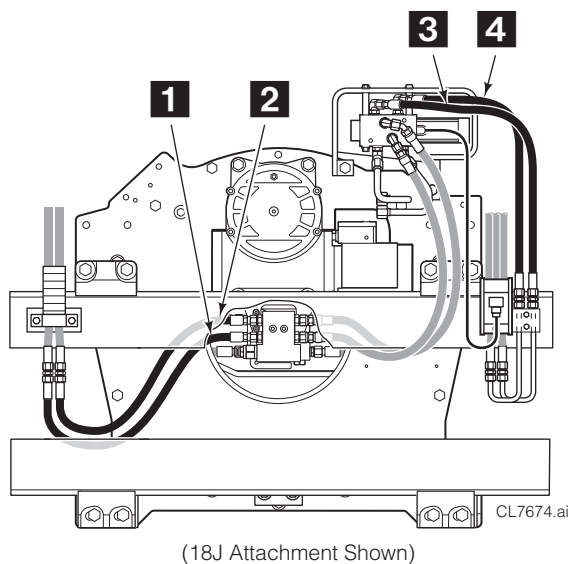
- | | |
|----------------------------|---------------------|
| 1 Open (or Release) | 3 Rotate CCW |
| 2 Close (or Clamp) | 4 Rotate CW |

RH 2-PORT THINLINE™ HOSE REEL AND SINGLE INTERNAL HOSE REEL



- | | |
|----------------------------|---------------------|
| 1 Open (or Release) | 3 Rotate CCW |
| 2 Close (or Clamp) | 4 Rotate CW |

LH 2-PORT THINLINE™ HOSE REEL AND SOLENOID ADAPTION WITH 6-N-1 CABLE



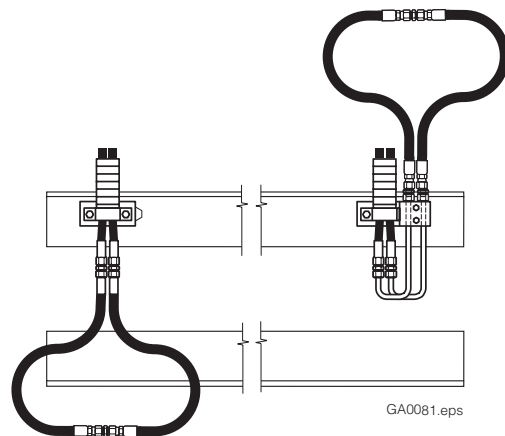
- | | |
|--------------------------|----------------------------|
| 1 Sideshift Left | 3 Rotate CCW / Open |
| 2 Sideshift Right | 4 Rotate CW / Close |

NOTE: The solenoid adaption shown is a general arrangement. Contact Cascade for assistance.

Back (Driver's) Views

4 Flush hydraulic supply hoses

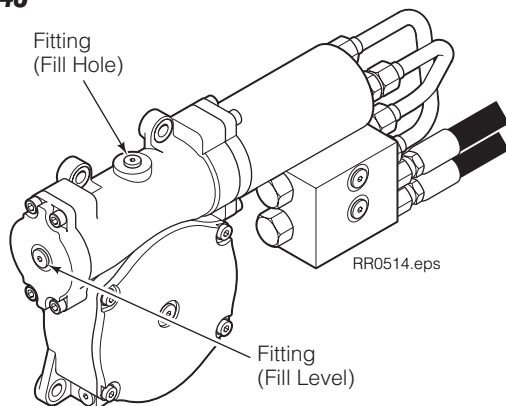
- A** Install hoses as shown.
- B** Operate auxiliary valves for 30 seconds.
- C** Remove union fittings.
- D** Connect hoses to clamp fittings as shown in Step 3.



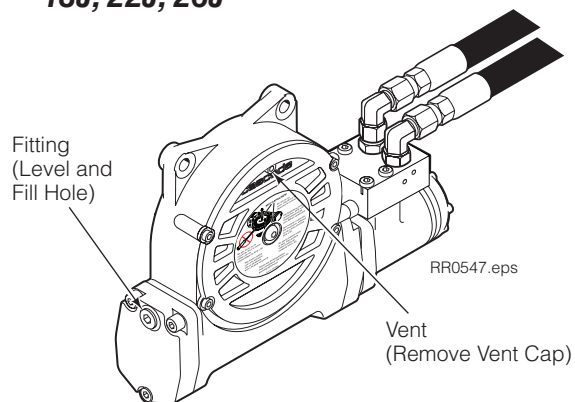
5 Remove gearbox oil level fitting, check lubricant level. If equipped, remove vent cap.

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

14J



18J, 22J, 26J



6 Mount attachment on truck carriage

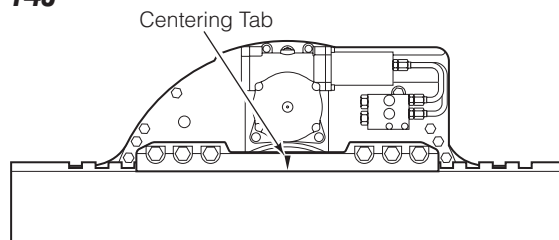
- A** Center the truck behind the clamp.
- B** Tilt mast forward and raise carriage into position.
- C** Engage upper mounting hooks with carriage.

14J – Make sure centering tab engages center notch on the top carriage bar.

18J, 22J, 26J – Make sure the locator tab on the left upper hook engages the closest notch on the top carriage bar.

- D** Lift clamp 2 in. (5 cm) off pallet.

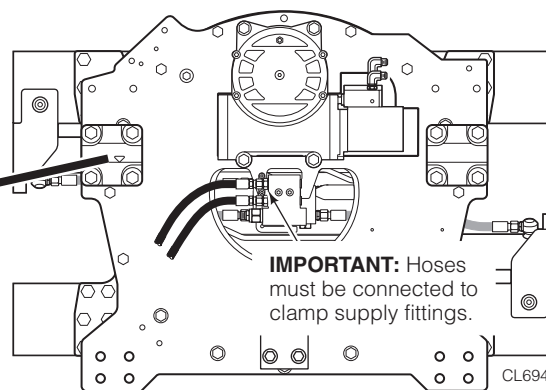
14J



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Back (Driver's) View

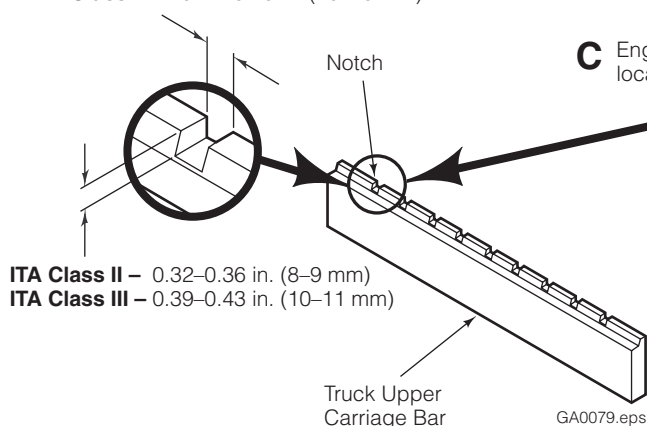
18J, 22J, 26J



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Back (Driver's) View

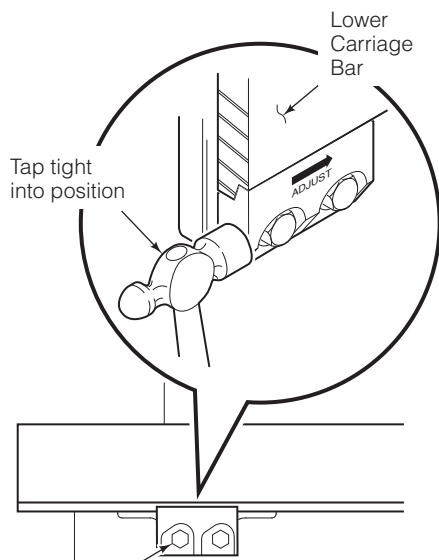
ITA Class II – 0.60–0.66 in. (15–17 mm)
ITA Class III – 0.72–0.78 in. (18–20 mm)



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7 Install and engage lower hooks

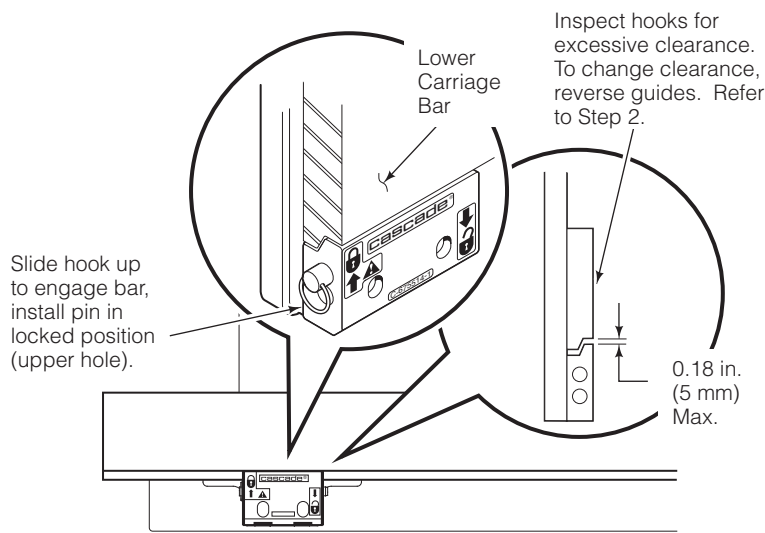
BOLT-ON TYPE



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Tighten capscrews to 122 ft.-lbs. (165 Nm)

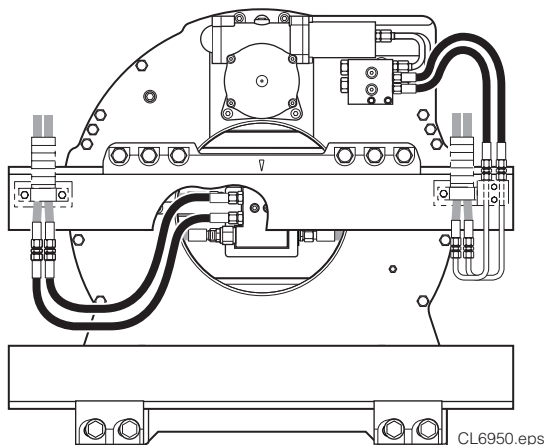
QUICK-CHANGE TYPE



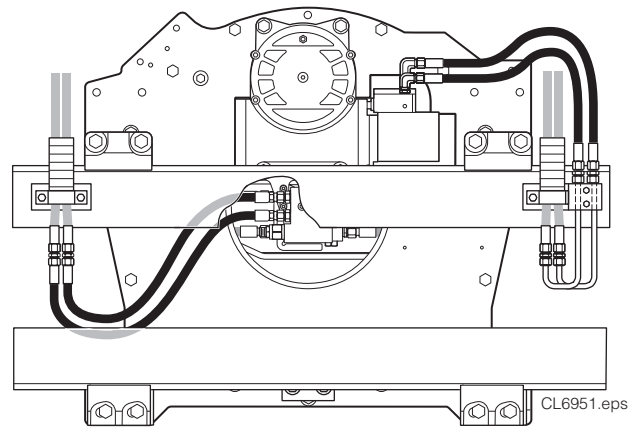
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8 Connect hoses prepared in Step 3 to hose terminals

14J



18J, 22J, 26J

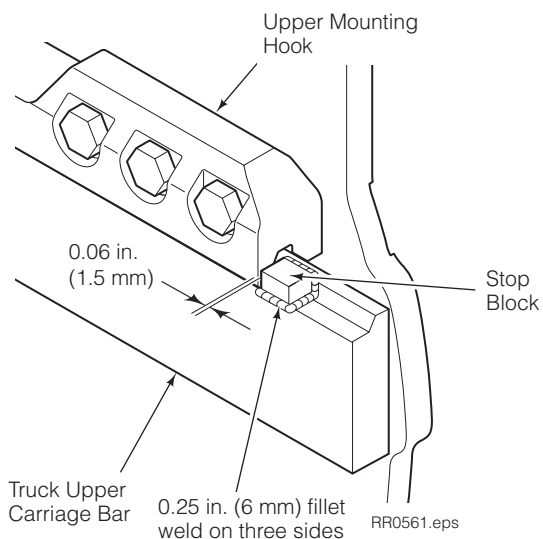


9 Install stop block kit

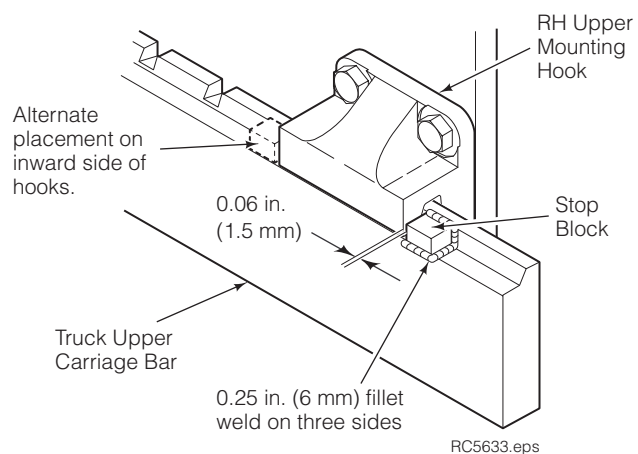
- Locate a stop block on the outward side of each upper hook. Preheat each stop block and carriage bar weld area to 325° F (180° C).
- Use AWS E-7018 low hydrogen rod and weld a 0.25 in. (6 mm) fillet full length on three sides of each stop block.

NOTE: Stop blocks can be welded on the inward side of the upper hooks if carriage width is too narrow for outward placement.

14J



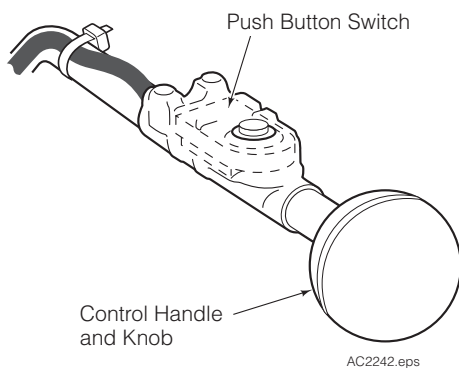
18J, 22J, 26J



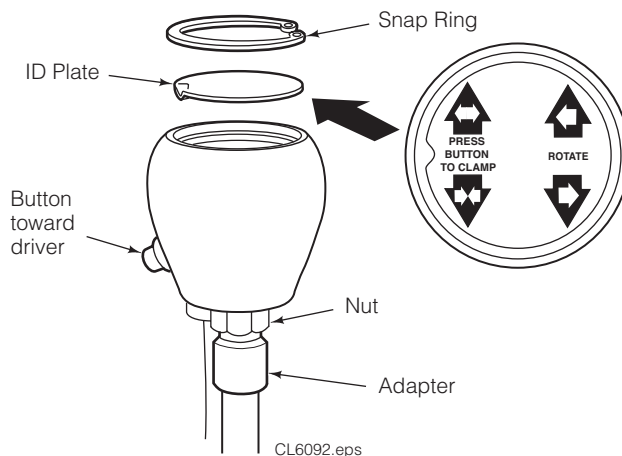
10 Install solenoid control knob or push button switch (solenoid equipped)

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.

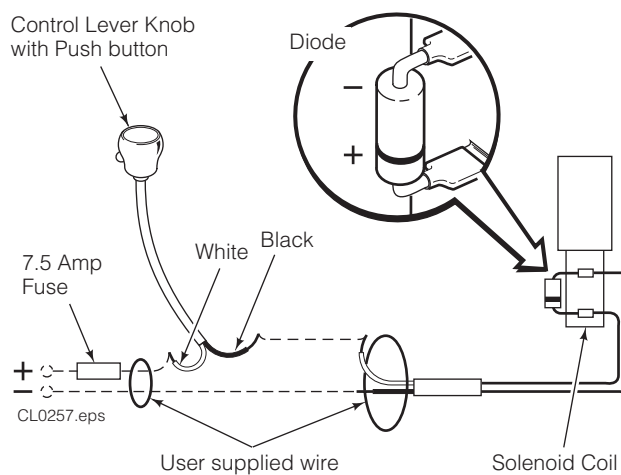
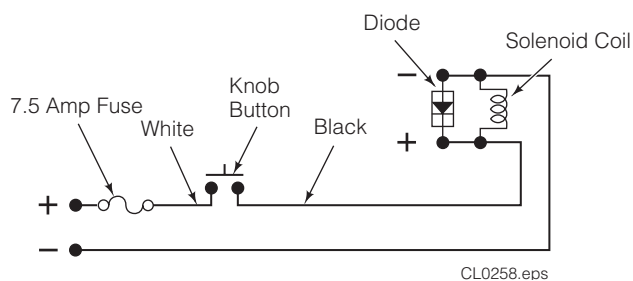


Install the push button switch to the control lever. Refer to Installation Instructions 6822725, included with switch, for complete installation procedure.



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

11 Install wiring – (Solenoid equipped units)



12

Cycle attachment functions

- With no load, cycle CLAMP (or FORK POSITION), SIDESHIFT (if equipped) and ROTATE functions several times.
- Check functions for operation in accordance with ANSI/ITSDF (ISO) standards.
- Clamp and rotate a maximum load, check for equal arm movement and normal rotation.
- Check for leaks at fittings, revolving connection and cylinders.

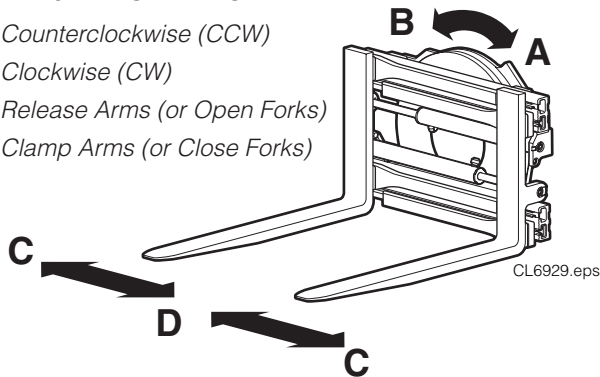


WARNING: Make sure all personnel are clear of the attachment during testing.

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.

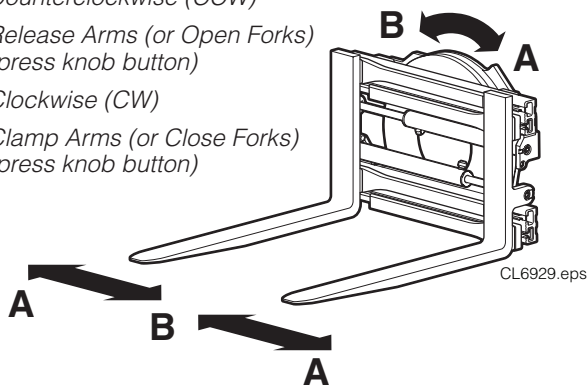
REVOLVING ATTACHMENTS

- A** Counterclockwise (CCW)
- B** Clockwise (CW)
- C** Release Arms (or Open Forks)
- D** Clamp Arms (or Close Forks)



REVOLVING ATTACHMENTS WITH SOLENOID ADAPTION

- A** Counterclockwise (CCW)
- A** Release Arms (or Open Forks) (press knob button)
- B** Clockwise (CW)
- B** Clamp Arms (or Close Forks) (press knob button)



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GA0513.ai

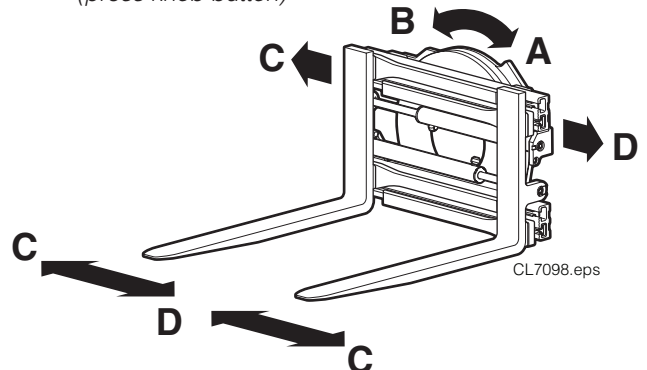
Main Valve Functions

① Hoist Down	③ Tilt Forward
② Hoist Up	④ Tilt Back

Auxiliary Valve Functions: A – D

REVOLVING ATTACHMENTS WITH SIDESHIFT (SOLENOID EQUIPPED)

- A** Sideshift Left
- B** Sideshift Right
- C** Counterclockwise (CCW)
- C** Release Arms (or Open Forks) (press knob button)
- D** Clockwise (CW)
- D** Clamp Arms (or Close Forks) (press knob button)



13 Adjust Relief Cartridge

NOTE: The attachment revolving connection end block is fitted with an adjustable relief cartridge for the CLAMP circuit. For correct settings and to avoid overclamping, the relief cartridge should be adjusted. Check the nameplate for hydraulic pressure settings.

- A** Confirm that the **TRUCK** pressure delivered to the attachment revolving connection is within the range shown on the attachment nameplate:

Low Pressure	High Pressure	
2245 psi (155 bar, 15.5 MPa)	2755 psi (190 bar, 19.0 MPa)	Rec.
2740 psi (189 bar, 18.9 MPa)	3625 psi (250 bar, 25.0 MPa)	Max.

- B** Install a 5000 psi (345 bar) pressure gauge to the valve body **TEST** ports (No. 4 O-ring fitting required).

NOTE: Some valve bodies have two test ports. Install the pressure gauge in either one.



WARNING: Before removing hydraulic lines or components, relieve pressure in the hydraulic system. With the truck off and move the truck auxiliary control valve (valves) several times in both directions.

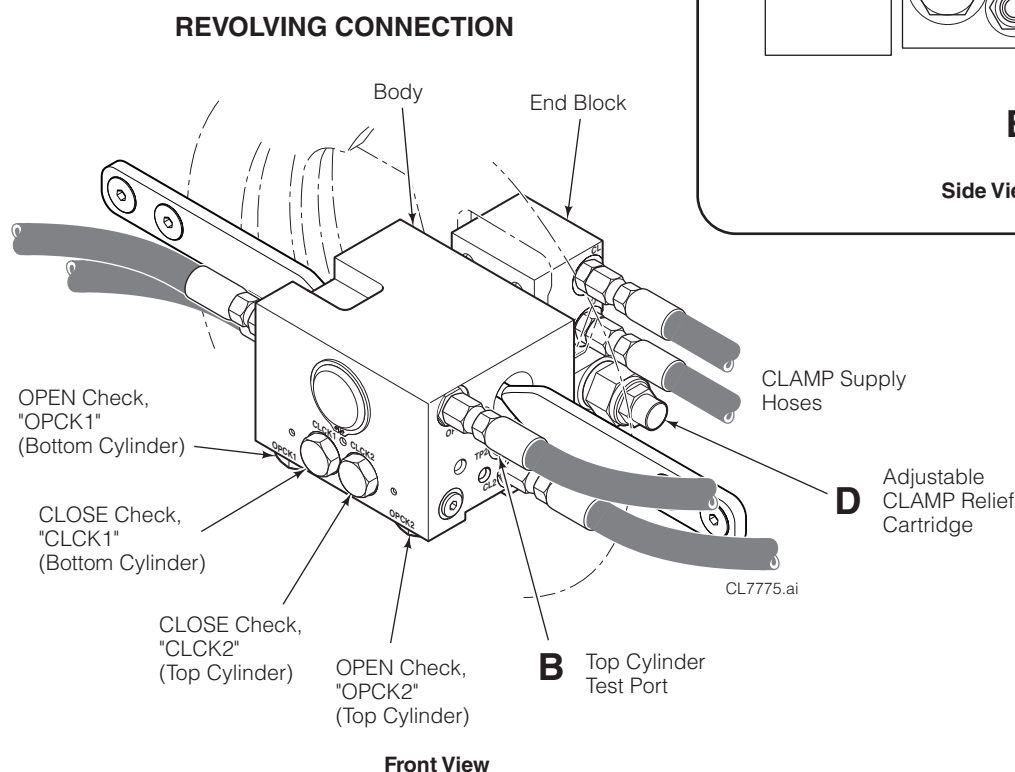
- C** Fully open arms. Clamp a rigid load or Clamp Force Indicator at normal speed. Release control lever and note pressure gauge reading.

- D** Adjust the attachment relief cartridge on the end block to show a **maximum** setting of:

Low Pressure	High Pressure	
2740 psi (189 bar, 18.9 MPa)	3625 psi (250 bar, 25.0 MPa)	Max.

Turn clockwise (CW) to increase pressure, counterclockwise (CCW) to decrease pressure. Tighten jam nut.

- E** Repeat Steps **C** and **D** to confirm setting.



CUSTOM ARM INSTALLATION

Attachments without arms are supplied with two arm bases. Special forks can be welded directly to them or they can be used as a base to fabricate custom built arms.



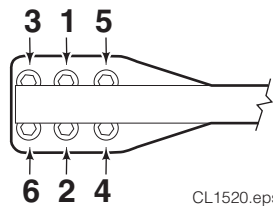
WARNING: Cascade requires that a qualified or certified welder experienced in this type of fabrication be used for best quality.

CAUTION: Weld fabricated arms to the **arm bases** only. Do not weld or bolt special built arms or forks directly to the **arm bars**.

The arm base material is AISI C-1020 HR with the following specifications:

- TENSILE STRENGTH – 61,000 PSI (420 mPa min.)
- YIELD STRENGTH – 43,000 PSI (300 mPa min.)
- CARBON CONTENT – 23% max.

CAUTION: The surface flatness of the arm base must remain within 0.01 in. (0.25 mm) in capscrew area and arm must slide manually.



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A Fasten the arm bases to the arm bars. Use drive extension tool, Cascade part no. 6040284 (14 mm) or 6040285 (17 mm), to clear arm bars and tighten capscrews to torque of:

14J – 202 ft.-lbs. (274 Nm)

18J- 26J – 394 ft.-lbs. (534 Nm)

IMPORTANT: Be careful not to damage the arm bar. Premature bearing failure will occur.

Drive extension dimensions are provided to make the tool from the allen wrench. Do not use mild steel hex stock.

B Lubricate the cylinder rod threads, nut threads and spherical portion of the nut with wheel bearing grease.

C Install the hex washer on the rod end with the beveled side facing the arm base lug.

D Engage the rod end into the lug. Align the washer flats with the pins (if equipped) on the back side of the arm base lug.

E Tighten the rod end nut to a torque of:

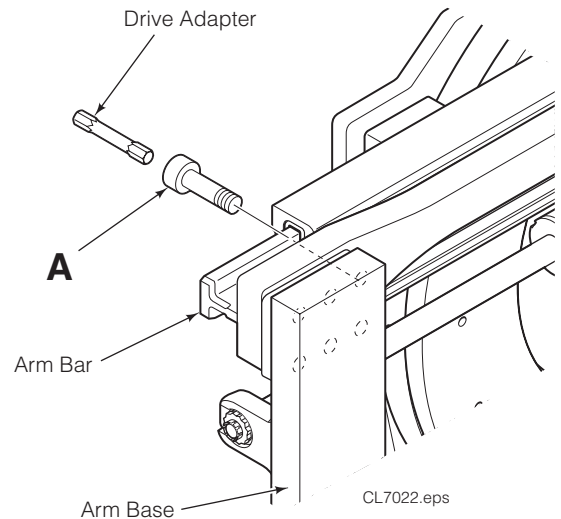
14J- 22J – 85 ft.-lbs. (115 Nm)

26J – 173 ft.-lbs. (235 Nm)

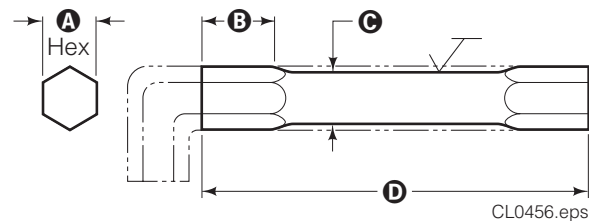
Prevent rod turning by using wrench on hex washer.

NOTE: The rod nut is being tightened against the hex washer. The nut will not be tight against the arm base lug. This looseness allows for cylinder alignment during clamping.

F Install the locking cap and cotter pin.

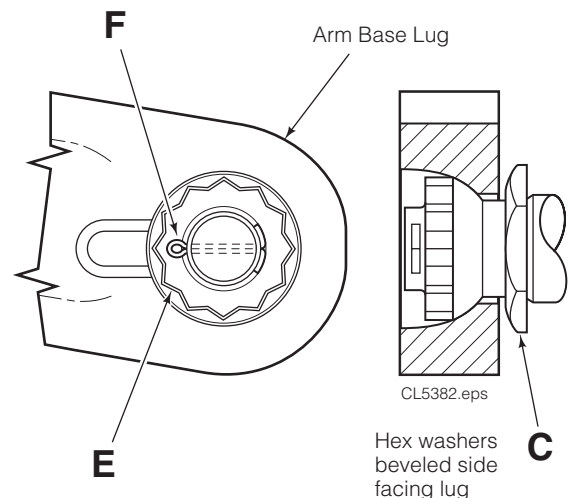


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CL0456.eps

Model	A	B	C	D
14J	14 mm	13 mm	11.3 mm	90 mm
18J				
22J	17 mm	13 mm	14.5 mm	90 mm
26J				



CL5382.eps

Hex washers beveled side facing lug

PERIODIC MAINTENANCE

14J Clamps

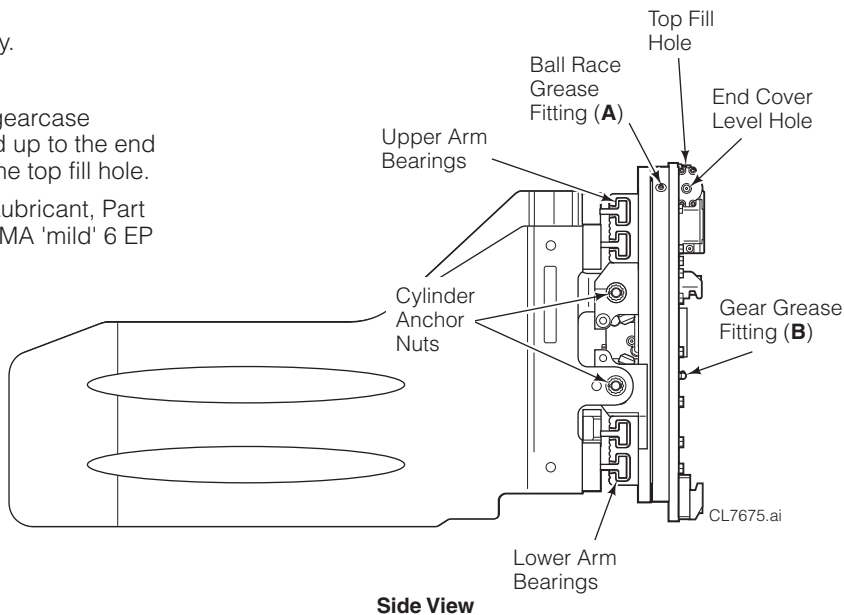
Daily Inspection

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

- Check for the following:
 - Loose or missing hardware,
 - Worn or damaged hoses,
 - Hydraulic leaks
- Inspect cylinder rod anchors for wear. The anchors operate loose and require no lubrication.
- Check for equal arm movement.
- Check decals and nameplate for legibility.
- **Initial 500 Hours** – Check rotator drive gearcase lubricant level. Lubricant should be filled up to the end cover level hole. Add lubricant through the top fill hole. If necessary, fill Cascade Rotator Drive Lubricant, Part No. 656300 or SAE 90 wt. gear lube (AGMA 'mild' 6 EP Gear Oil). Replace 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.



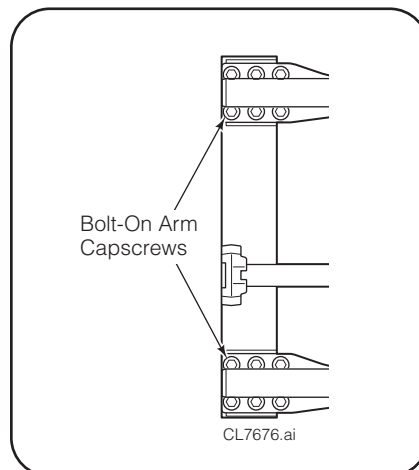
1000-Hour Maintenance

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

- Check sample of baseplate capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6983115 for inspection and replacement procedures.
- Check sample of bearing capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6983115 for inspection and replacement procedure.
- Tighten upper hook capscrews to a torque of 165 ft.-lbs. (225 Nm).
- Tighten frame capscrews to a torque of 195 ft.-lbs. (270 Nm).
- **Bolt-On Arms** – Tighten bolt-on arm capscrews to 202 ft.-lbs. (274 Nm).



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.



PERIODIC MAINTENANCE

14J Clamps

1000-Hour Maintenance (Continued)

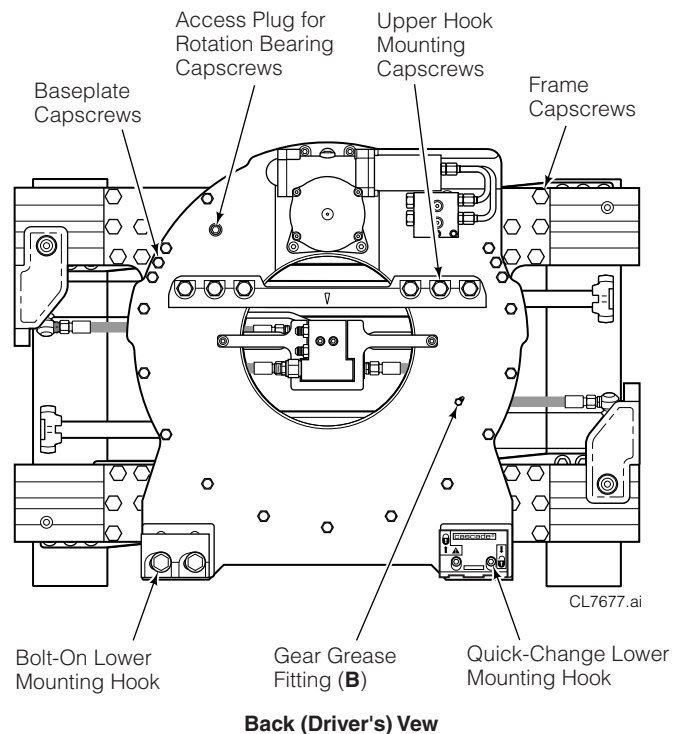
- Check clearance between lower mounting hooks and truck carriage bar:

Quick-Change Hooks – 0.18 in. (5 mm) max.

Bolt-On Hooks – Tight against lower carriage bar.

If adjustment is necessary, refer to Installation Step 7. Tighten lower hook capscrews to a torque of 122 ft.-lbs. (165 Nm).

- Lubricate rotation bearing assembly ball race (**A**) and gear (**B**) with EP-2 grease (Whitmore 'OmniTask' or equivalent). Rotate the attachment in 90° increments and grease.
- Change rotator drive gearcase lubricant. Drain oil out the bottom case hole. Refer to Service Manual 6983115 for service. Fill through top fill hole up to the end cover level hole. Use Cascade Rotator Drive Lubricant, Part No. 656300, or SAE 90 wt. gear lube (AGMA 'mild' 6 EP Gear Oil). Replace plug.
- Inspect top and bottom bearings of each arm for wear or damage. Replace bearings if any area is worn less than 0.06 in. (1.5 mm).
- Check that the load holding hydraulic system is functioning properly. Test using a Cascade Clamp Force Indicator.
- Check rotation performance using a typical load. See Technical Bulletin TB 365 or Service Manual 6983115 for *Rotate Function Evaluation* procedure.



2000-Hour Maintenance

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

- Check **all** rotation bearing capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6983115 for checking and replacement procedures.

4000-Hour Maintenance

After each 4000 hours of truck operation, in addition to the 1000-hour 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.

Cascade Clamp Force Indicators

Digital

55G-DFI-8RF ② – Test **up to** 5,500 lbs. clamp force
300G-DFI-824F ① – Test **over** 5,500 lbs. and **up to** 30,000 lbs. clamp force

Analog

55G-CFI-824F ① – Test **up to** 5,500 lbs. clamp force
55G-CFI-8RF ② – Test **up to** 5,500 lbs. clamp force
300G-CFI-824F ① – Test **over** 5,500 lbs. and **up to** 30,000 lbs. clamp force.

- ① Stand
② Hang-On

PERIODIC MAINTENANCE

18J, 22J & 26J Clamps

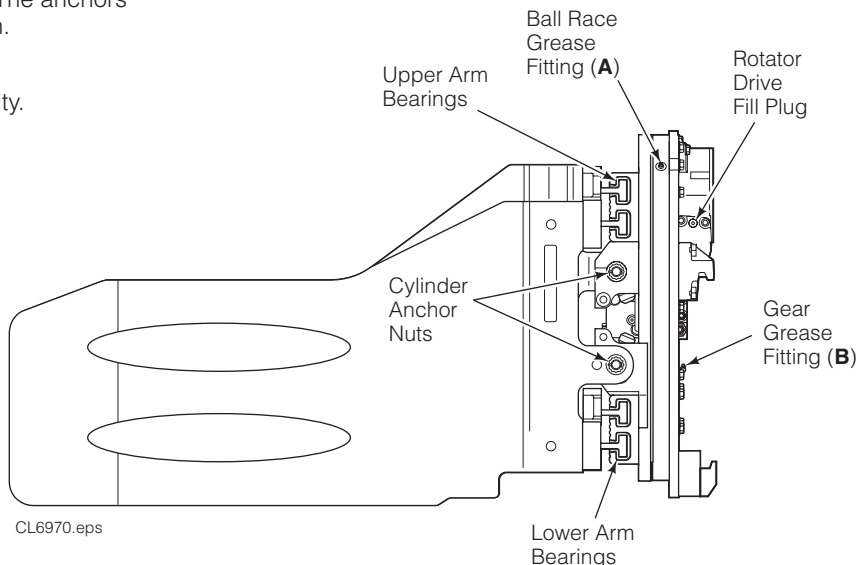
Daily Inspection

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

- Check for the following:
 - Loose or missing hardware,
 - Worn or damaged hoses,
 - Hydraulic leaks
- Inspect cylinder rod anchors for wear. The anchors operate loose and require no lubrication.
- Check for equal arm movement.
- Check decals and nameplate for legibility.



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.



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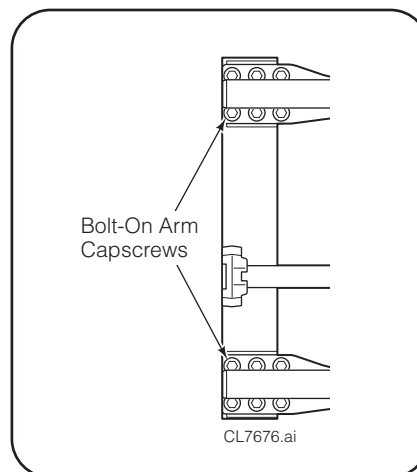
1000-Hour Maintenance

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

- Check sample of baseplate capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6928202 for checking and replacement procedures.
- Check sample of bearing capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6928202 for checking and replacement procedure.
- Tighten upper hook capscrews to a torque of 121 ft.-lbs. (165 Nm)
- Tighten frame capscrews to a torque of:
 - 16J, 22J** – 195 ft.-lbs. (270 Nm)
 - 26J, Hex Head** – 320 ft.-lbs. (435 Nm)
 - 26J, Socket Head** – 394 ft.-lbs. (534 Nm)
- **Bolt-On Arms** – Tighten bolt-on arm capscrews to 394 ft.-lbs. (534 Nm).



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.



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PERIODIC MAINTENANCE

18J, 22J & 26J Clamps

1000-Hour Maintenance (Continued)

- Check clearance between lower mounting hooks and truck carriage bar:

Quick-Change Hooks – 0.18 in. (5 mm) max.

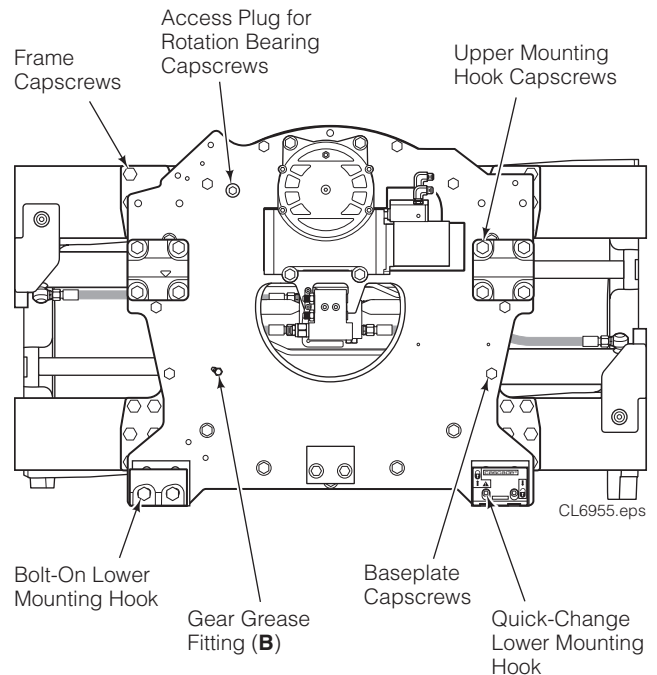
Bolt-On Hooks – Tight against lower carriage bar.

If adjustment is necessary, refer to Installation Step 7. Tighten lower hook capscrews to a torque of 122 ft.-lbs. (165 Nm).

- Lubricate rotation bearing assembly ball race (**A**) and gear (**B**) with EP-2 grease (Whitmore 'OmniTask' or equivalent). Rotate the attachment in 90° increments and grease.
- Check that rotator drive gearcase lubricant level is up to fill plug hole. Lubricant should be filled up to end cover level 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.

- Inspect top and bottom bearings of each arm for wear or damage. Replace bearings if any area is worn less than 0.06 in. (1.5 mm).
- Check that the load holding hydraulic system is functioning properly. Test using a Cascade Clamp Force Indicator.
- Check rotation performance using a typical load. See Technical Bulletin TB 365 or Service Manual 6983115 for *Rotate Function Evaluation* procedure.



Back (Driver's) View

2000-Hour Maintenance

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

- Check **all** rotation bearing capscrews for proper torque value. See Technical Bulletin TB183 or Service Manual 6983115 for checking and replacement procedures.

4000-Hour Maintenance

After each 4000 hours of truck operation, in addition to the 1000-hour 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.

Cascade Clamp Force Indicators

Digital

55G-DFI-8RF ② – Test **up to** 5,500 lbs. clamp force

300G-DFI-824F ① – Test **over** 5,500 lbs. and **up to** 30,000 lbs. clamp force

Analog

55G-CFI-824F ① – Test **up to** 5,500 lbs. clamp force

55G-CFI-8RF ② – Test **up to** 5,500 lbs. clamp force

300G-CFI-824F ① – Test **over** 5,500 lbs. and **up to** 30,000 lbs. clamp force.

① Stand

② Hang-On

PERIODIC MAINTENANCE

Clamps with Forks

2000-Hour Maintenance

After 2000 hours of truck operation, in addition to the Daily 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 (ISO 5057).

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).

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Do you have questions you need answered right now?

Call your nearest Cascade Service Department.

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