

INSTALLATION INSTRUCTIONS

and PERIODIC MAINTENANCE



A-Series

Hang-On Weighing

- Carriage***
- Sideshifter***
- Sideshifting Fork Positioner***

Manual Number 6998617-R1

cascade[®]
corporation

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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: The attachment can present a hazard when serviced. This equipment must be serviced by qualified personnel only.

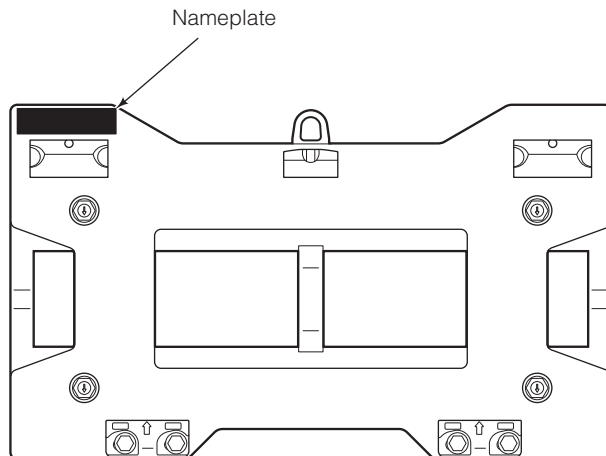
IMPORTANT: Field alterations may impair performance or capability and could result in loss of warranty. Consult Cascade for any required modifications.

INTRODUCTION

This manual is for the Cascade ActivWeigh hang-on attachments. Contents include safety, operation, installation and periodic maintenance.

IMPORTANT: The addition of hang-on attachments to ActivWeigh carriage or slip-on attachments on the forks installed on ActivWeigh requires evaluation and testing for validating accuracy. Hydraulic connections may influence weight measurement.

Weighing Carriage

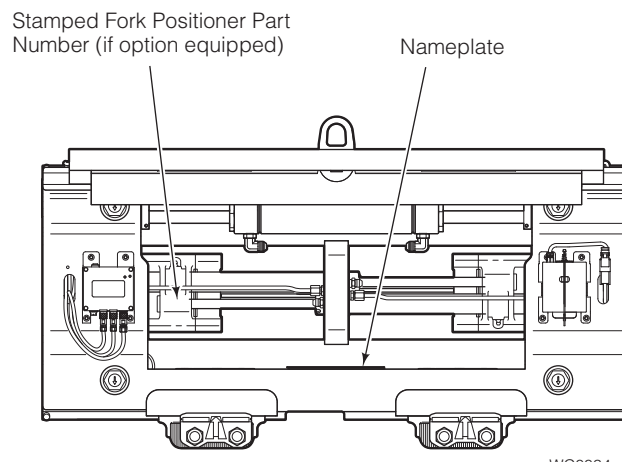


Back (Driver's) Views

IMPORTANT: These attachments are metric. Supply fittings adapted as required for application.

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

Weighing Frame with Sideshift / Fork Position (if equipped)



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.

Terminology

Legal for Trade or Legal for Commerce or Trade Approved scales are intended for commercial applications where product is sold by weight and meets legal requirements in the region of sale for design, accuracy, manufacturing quality and labeling. They are certified and secured by local metrology agencies or an approved qualifier. Examples include NTEP, OIML, MC, etc.

WIM – Weigh In Motion

Scale Resolution – The tolerance range that the weigh system is calibrated. On the display indicator, it is smallest increment that can be shown of the load being weighed.

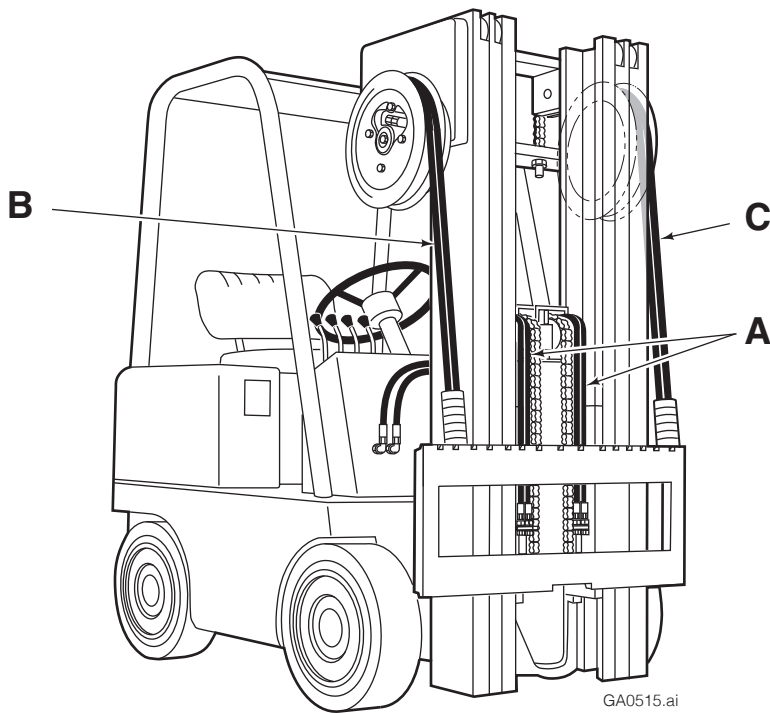
RECOMMENDED HYDRAULIC SUPPLY

Sideshift & Fork Positioner Equipped

Cascade ActivWeigh hang-on 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 Position function: No. 3 hose/No. 4 fittings with 5/32 in. (4 mm) minimum ID.

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



Sideshifting

A Mast Single Internal Reaving

OR

B or C

RH or LH THINLINE™ 2-Port Hose Reel Supply Group

Sideshifting/Fork Positioning

A Mast Double Internal Reaving

OR

B and C

RH and LH THINLINE™ 2-Port Hose Reel Supply Groups

TRUCK REQUIREMENTS

Sideshift & Fork Positioner Equipped

Truck Relief Setting

2250 psi (155 bar) Recommended
3500 psi (240 bar) Maximum

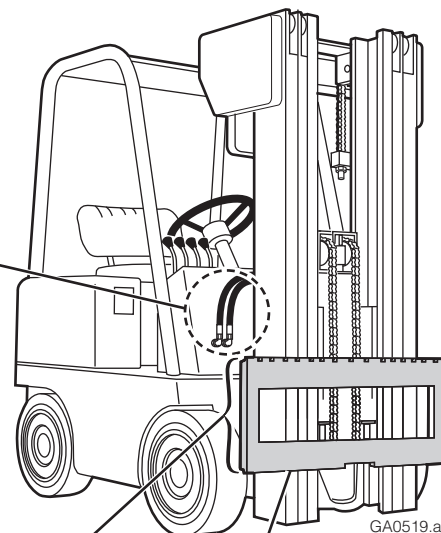
Truck Flow Volume ^①

	Min. ^②	Recommended	Max. ^③
25A, 30A	1 GPM 4 L/min.	2 GPM 8 L/min.	3 GPM 12 L/min.
50A, 55A	1 GPM 4 L/min.	4 GPM 16 L/min.	5 GPM 20 L/min.

- ① Cascade Sideshifting / Fork Positioning 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.



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GA0028.eps

Carriage Mount Dimension (A) ANSI (ISO)

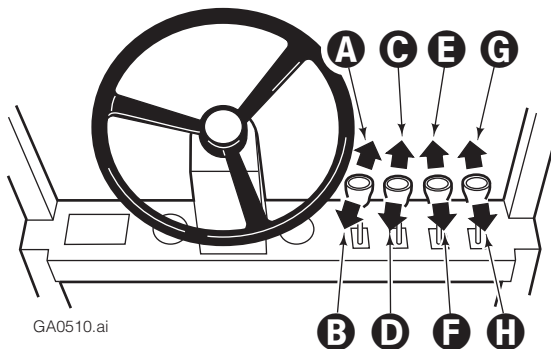
	Minimum	Maximum
Class II	14.94 in. (380.0 mm)	15.00 in. (381.0 mm)
Class III	18.68 in. (474.5 mm)	18.74 in. (476.0 mm)
Class IV	23.44 in. (595.5 mm)	23.50 in. (597.0 mm)

Carriage

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

Auxiliary Valve Functions

Check for compliance with ANSI (ISO) standards:



GA0510.ai

Main Functions

- A** Hoist Down
- B** Hoist Up

- C** Tilt Forward
- D** Tilt Back

Auxiliary Functions

- E** Sideshift Left
- F** Sideshift Right

- G** Open/Spread Forks
- H** Close Forks

INSTALLATION

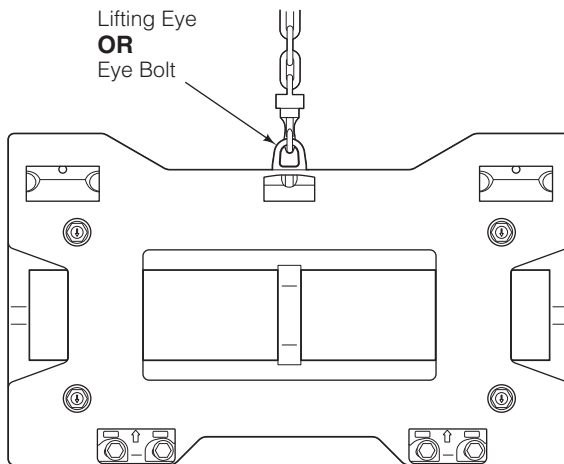
Follow the steps shown to install the attachment on the truck.
Read and understand all **WARNING** and **CAUTION** statements.
If a procedure is not understood, ask a supervisor, or call the
nearest Cascade Service Department for assistance.

1 Attach overhead hoist

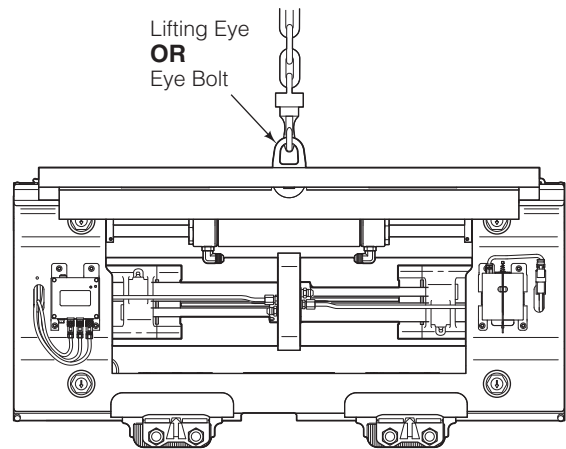


WARNING: Check the attachment weight (located on the nameplate) to make sure the overhead hoist and chains or straps are at least the rated capacity of the attachment.

Carriage



Sideshifting Fork Positioner



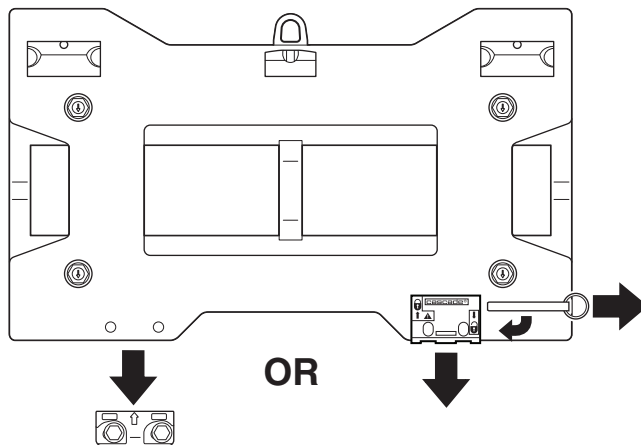
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Back (Driver's) Views

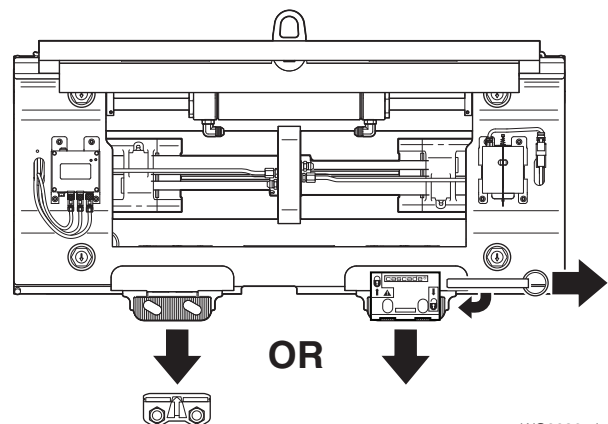
2 Remove bolt-on or unlock quick-change lower mounting hooks

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

Carriage

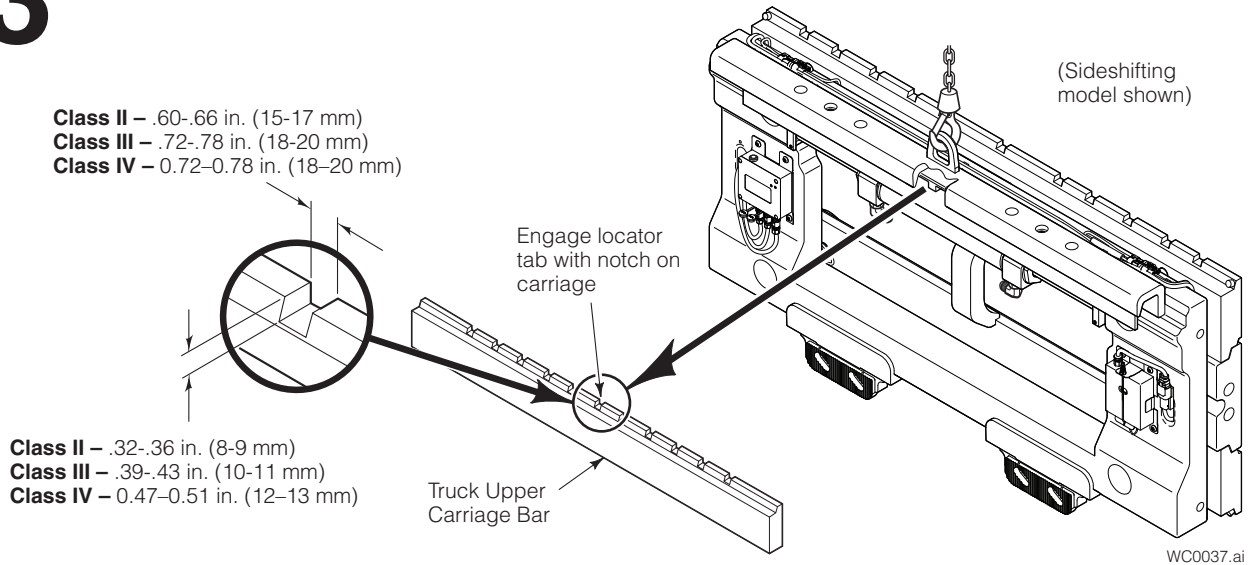


Sideshifting Fork Positioner



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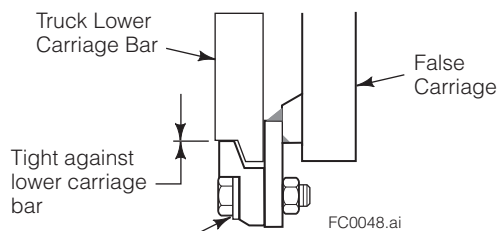
3 Mount attachment on truck carriage



4 Install or engage lower hooks

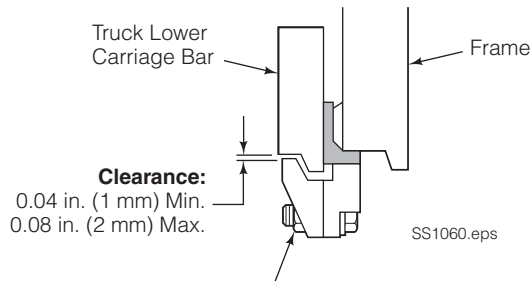
BOLT-ON HOOKS

Carriage



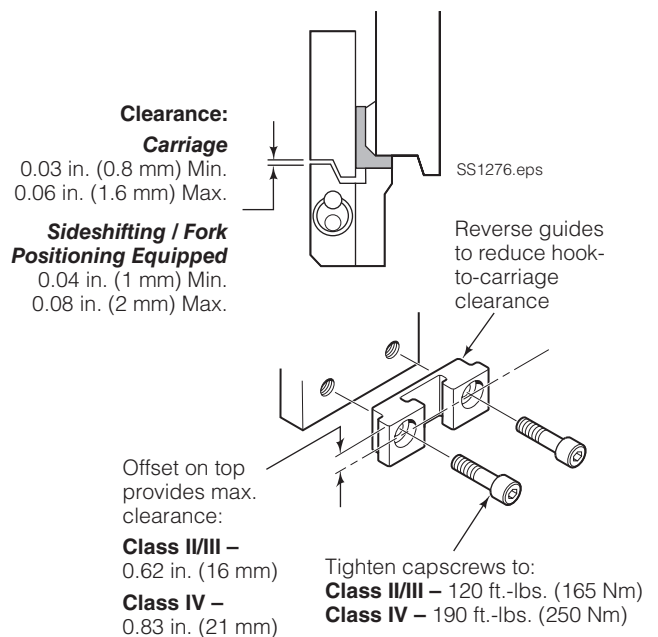
Tighten capscrews to:
Class II/III – 120 ft.-lbs. (165 Nm)
Class IV – 235 ft.-lbs. (320 Nm)

Sideshifting / Fork Positioning Equipped



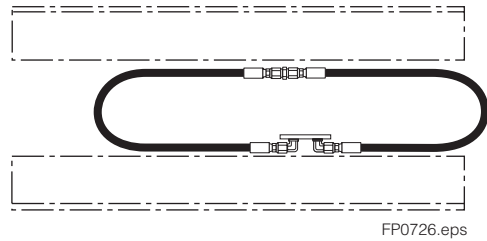
Tighten capscrews to:
Class II/III – 120 ft.-lbs. (165 Nm)
Class IV – 235 ft.-lbs. (320 Nm)

QUICK-DISCONNECT



5 Sideshift / Fork Positioner – Flush supply hoses

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

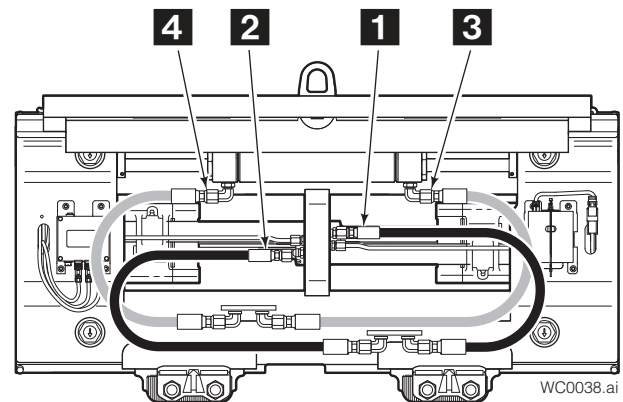


6 Sideshift / Fork Positioner – Install hoses

CAUTION: Allow for 4.0 in. (100 mm) sideshifting movement in each direction ('rolling' hose arrangement recommended).

CAUTION: Make sure supply hoses do not become caught or pinched between the junction box battery and/or the truck carriage during sideshift operation.

INTERNAL REEVING TERMINATION



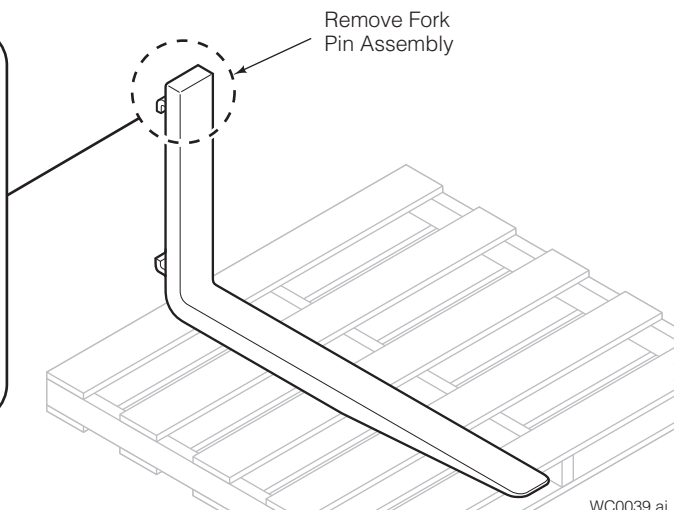
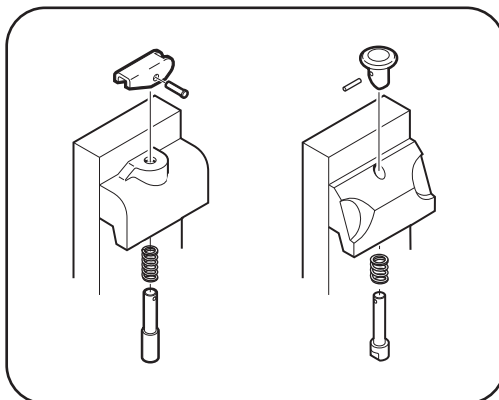
- | | |
|----------------------|--------------------------|
| 1 Open Forks | 3 Sideshift Left |
| 2 Close Forks | 4 Sideshift Right |

Back (Driver's) View

7 Fork Positioner – Remove fork locking pins



WARNING: Remove locking pins from forks. Make sure that forks slide freely on carriage bars.



8

Install forks

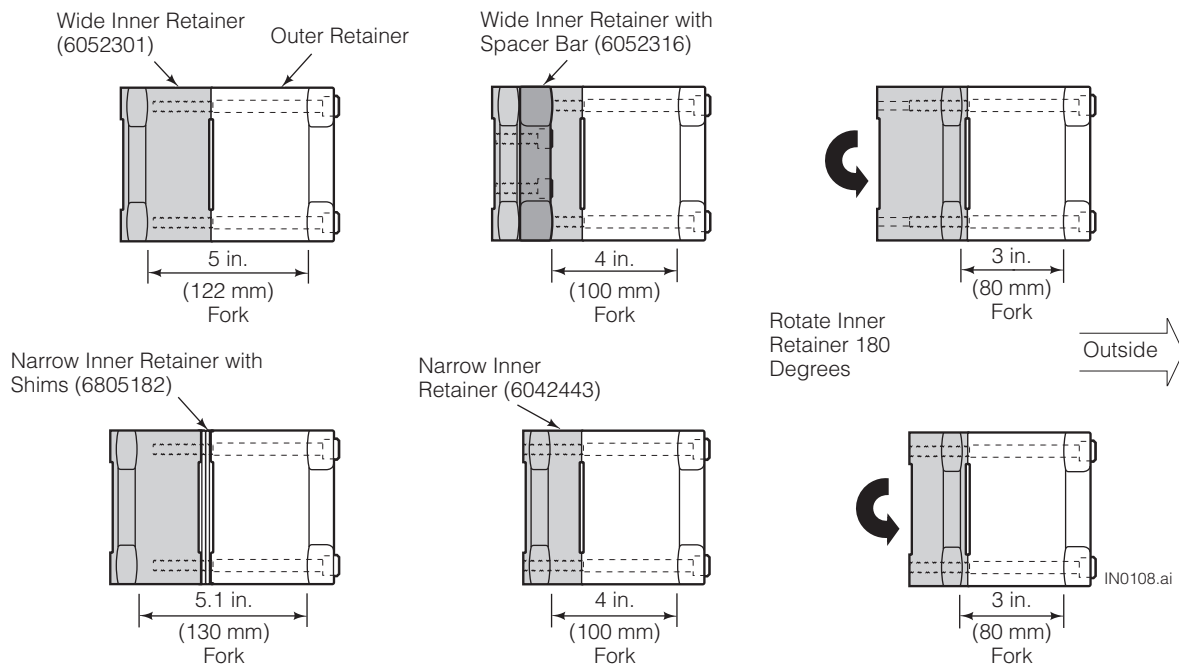
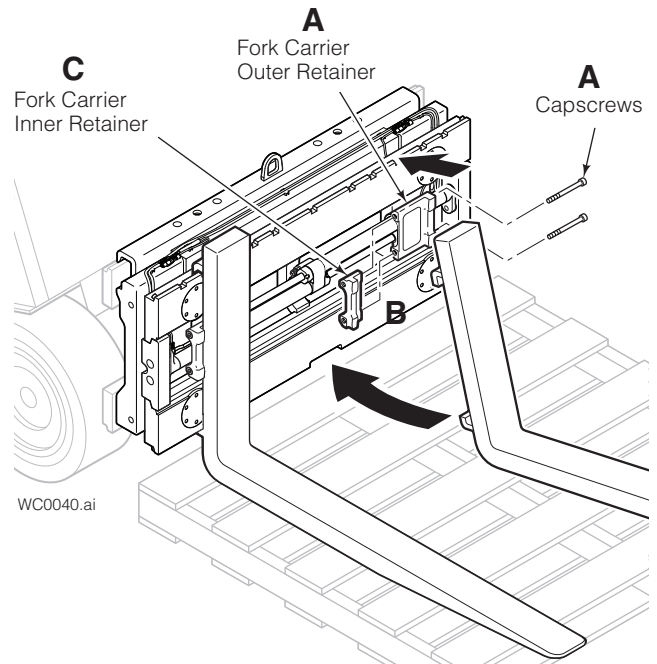
Fork Positioner equipped –

- A** Remove capscrews from outer retainer section to remove inner retainer section.
- B** Install forks using a pallet or blocks. Keep feet clear of forks.
- C** Reinstall fork carrier inner retainer section and tighten capscrews to 50 ft.-lbs. (65 Nm).

NOTE: See illustration below to position inner retainers for various fork widths.

IMPORTANT: Do not lube the fork carrier grease fittings during initial installation. See Periodic Maintenance for lube schedule.

IMPORTANT: The system is calibrated for forks 48 in. (1220 mm) length. After installing the display indicator (Step 15), if the system does not zero, a Zero Calibration may need to be performed. Refer to the service manual.



FORK CARRIER CONFIGURATIONS

RH Front Views

NOTE: Recommended gap between sides of fork and fork retainer should be 0.08 – 0.38 in. (2 mm – 10 mm).

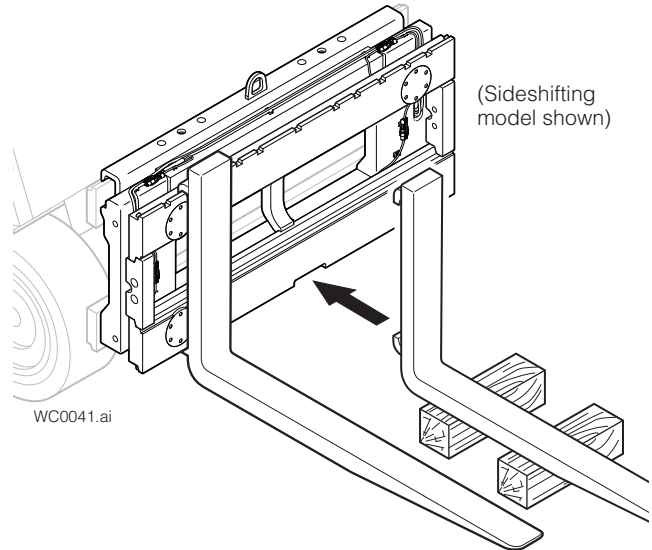
8 Install forks (continued)

Carriage and Sideshifter only –

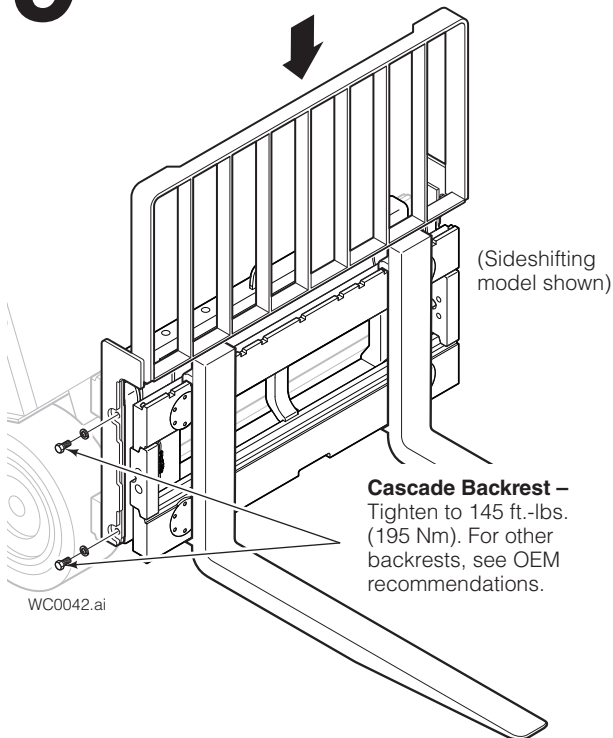
Place forks on blocks at carriage (or frame) height for ease of installation. Install fork through fork loading slot.



WARNING: If the fork locking pin is not fully engaged, the fork could become disengaged from the carriage.



9 Install backrest



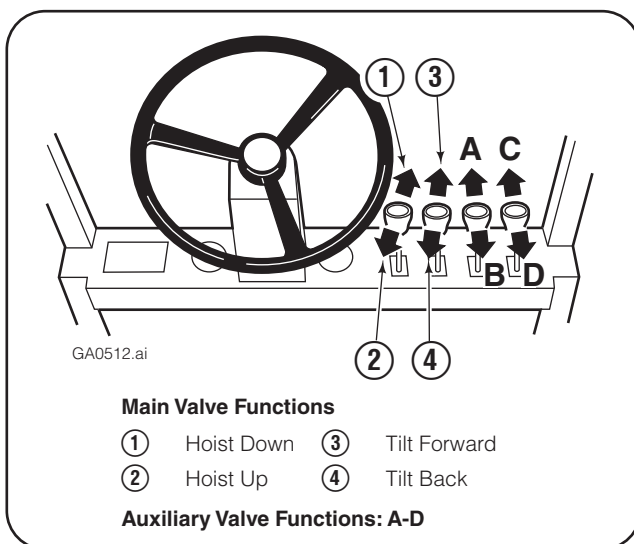
10 Sideshift / Fork Positioner – Lubricate lower bearings

Fork Positioner/Sideshifter is prelubed at the Factory and requires no lubrication for installation. Use graphite dry lube for fork bars as required ('Slip Plate Aerosol', 'GraphoKote' or equivalent).

After use, lubricate fork positioner and sideshifter as described in Periodic Maintenance Section in this manual.

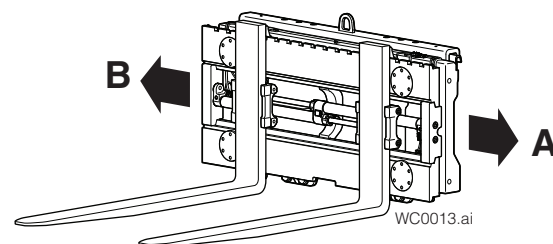
11 Sideshift / Fork Positioner – Cycle attachment functions

- 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.
- Check for leaks at fittings, valve, cylinders.
- Check that rolling hoses supplying fork position are not pinched.



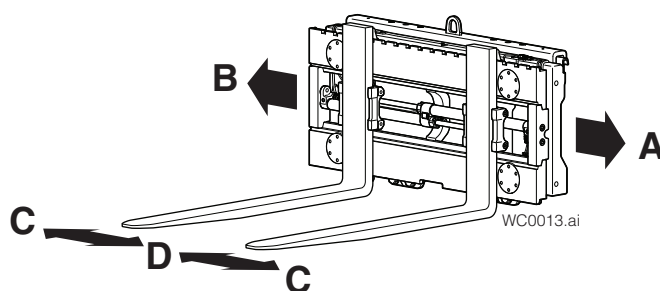
SIDESHIFTING

- | | |
|--------------------------|-------------------|
| A Sideshift Left | C Not used |
| B Sideshift Right | D Not used |



SIDESHIFTING & FORK POSITIONING

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

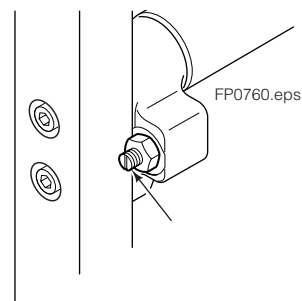


WARNING: Truck control handle and attachment function activation shown here conforms to ANSI/ITSDF B56.1 (ISO 3691) recommended practices. Failure to follow these practices may lead to serious bodily injury or property damage. End user, dealer and OEMs should review any deviation from the practices for safe operation.

12 Fork Positioner equipped – 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 flow restrictors at each end. Loosen jam nuts and screw both flow restrictors in until they bottom. Screw each restrictor out (CCW) 1/2 turn.
- Open forks fully, then close. Look for unequal fork movement.
- On faster fork (one that bottoms first), screw flow restrictor in (CW) 1/4 turn.
- Repeat Steps B and C until fork movement is equal. Tighten jam nuts.



A Flow Restrictor (each side)

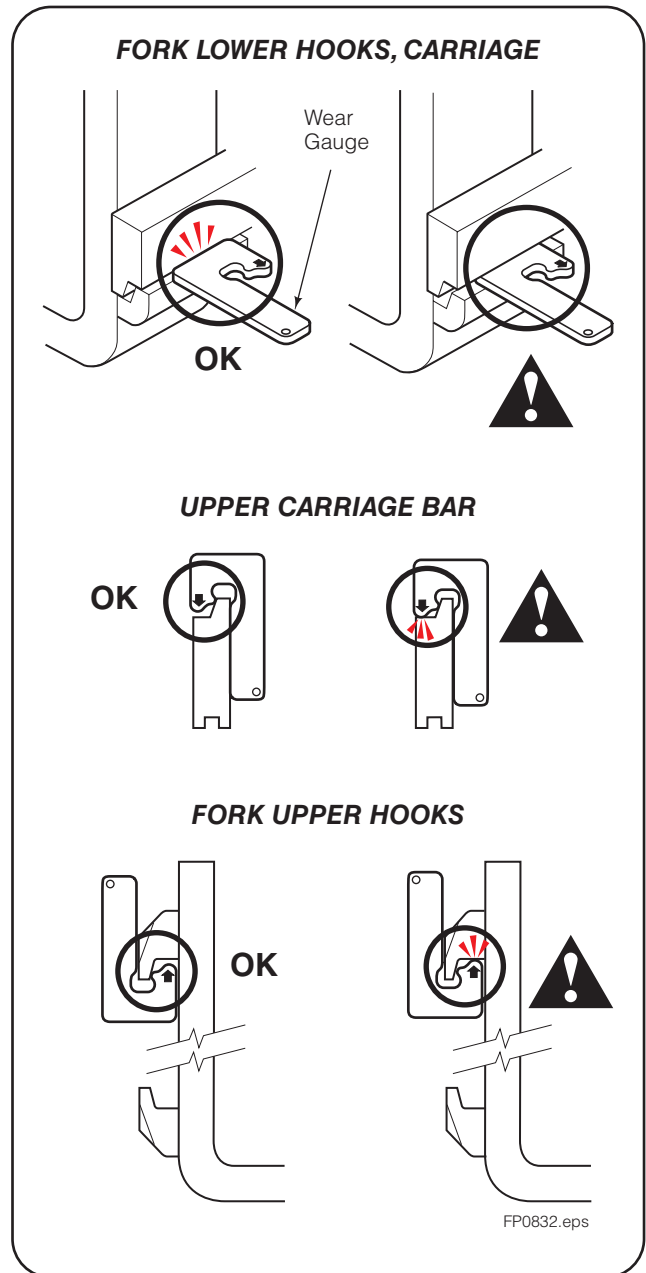
Back (Driver's) View

13

Inspect fork hooks, carriage bar clearance

NOTE: Use go/no-go Wear Gauge Part No. 209560 (Class II) or 209561 (Class III).

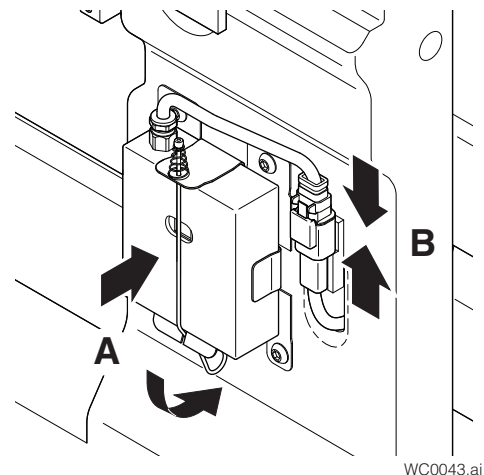
- A** Inspect the fork lower hooks and carriage bar. If the gauge fits between the carriage bar and lower hook, repair or replacement is needed.
- B** Inspect the upper carriage bar. If the gauge arrow touches the carriage bar, repair or replacement is needed.
- C** Inspect the fork upper hooks. If the gauge arrow touches the hook, repair or replacement is needed.



14

Electrical Connections

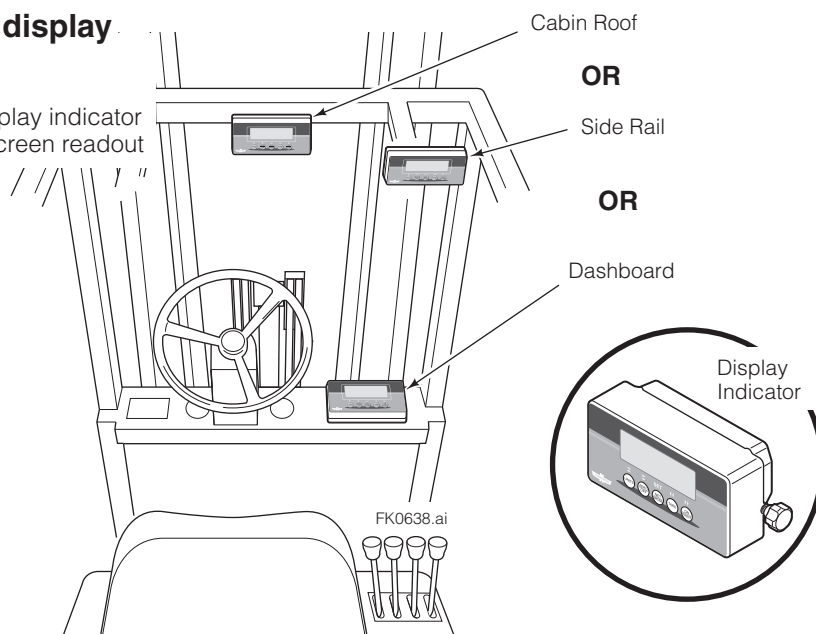
- A** Pull latch on battery clip. Install battery into battery clip and secure latch.
- NOTE:** Before operating for the first time, the battery pack should be charged at full capacity.
- B** Connect the battery plug to the power cable connector.



15

Locate and mount the display indicator

Determine a location for the display indicator that is within arms length and screen readout is visible.

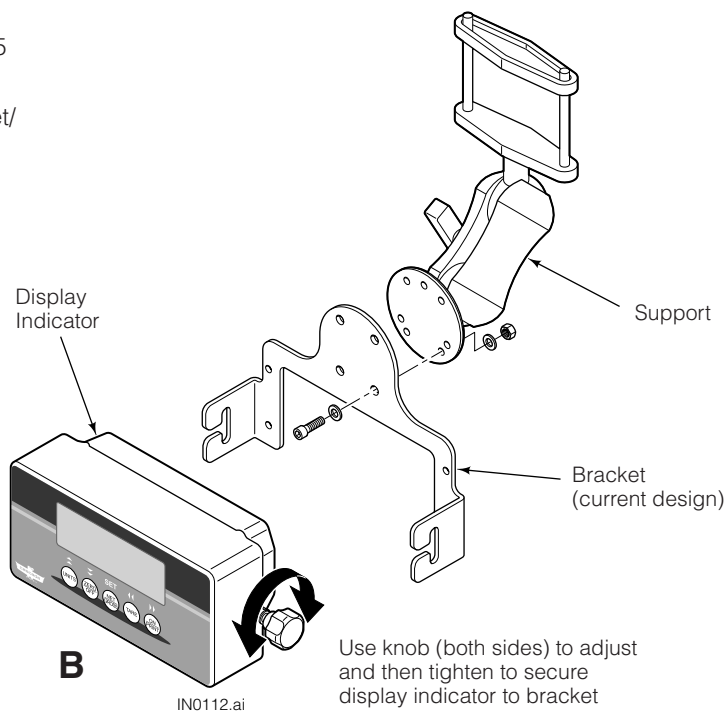
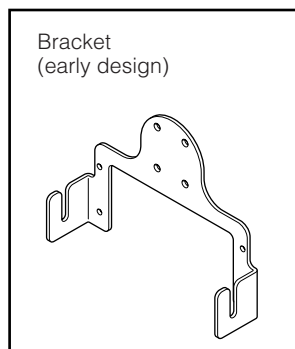


16

Install display indicator bracket and support, if required

A Install bracket to the support, using a M5 allen wrench.

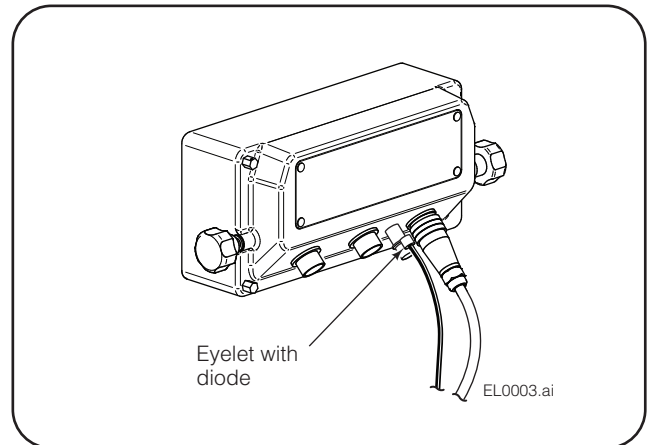
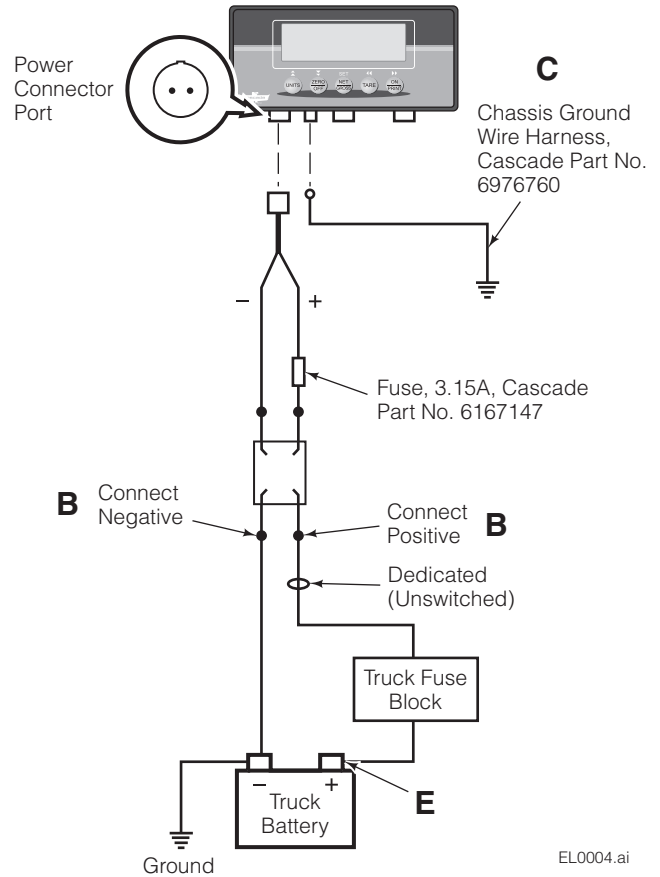
B Install the display indicator to the bracket/support assembly.



17 If equipped with a truck power option display indicator, connect display indicator to truck power.

CAUTION: Verify the voltage of the display indicator is rated for the truck's power. Refer to the label on the display indicator.

- A** Disconnect the cable from the negative battery terminal or as directed by OEM truck manual.
- B** Connect cable ends to the components, as shown. Connect the fused positive wire to the positive voltage switched power source. Connect the ground wire. Check the cable routing for pinch points and clearance. Use wire ties as needed
- C** Connect the ground post to the truck chassis. Prepare the wire harness as follows:
Determine the length required for the wire harness, from the grounding post to the truck chassis. Cut the free end to length and crimp the loose eyelet in place.
IMPORTANT: Do not cut the end with the diode. Connect the end eyelet end to the truck chassis. Connect the shrink-wrapped end (with diode) of the wire harness to the display indicator grounding post.
- D** Connect the power cable to the display indicator.
- E** Connect battery cable (or cables) to proper terminal (or terminals).



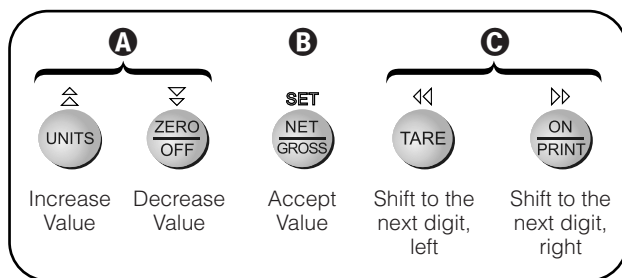
18 Check the zero function

When powered on, the display indicator will automatically zero (parameter F14 = yes) or press the "ZERO/OFF" button to zero the scale. If the display indicator does not zero, the system requires calibration.

IMPORTANT: Cascade recommends performing the Zero Calibration procedure prior to use, as described on the following page. This procedure is required when the display indicator is set to **not** zero when powered on (parameter F14 = no) or if the fork/pallet combination is unable to zero. For all other situations this is optional.

Zero Calibration

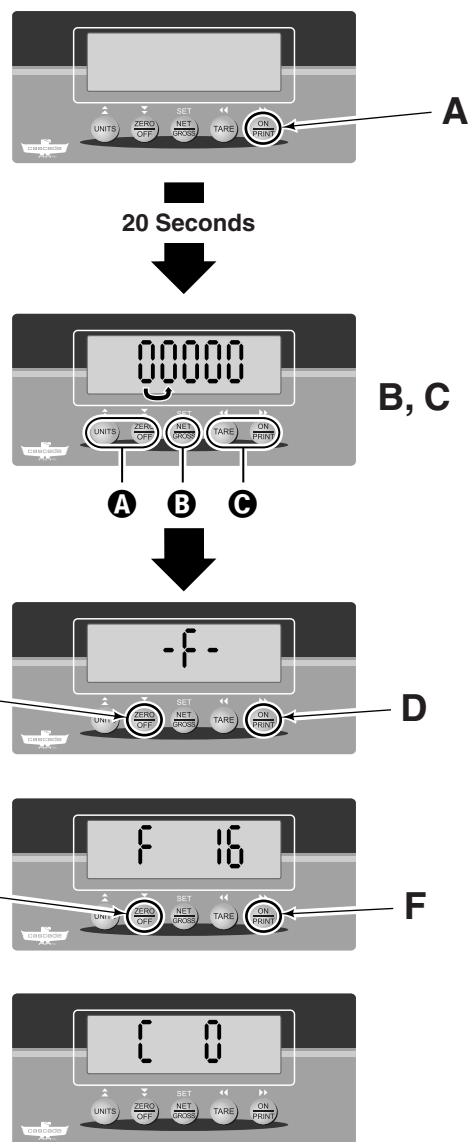
- A** With the display indicator powered off, press and hold the "ON/ PRINT" button for approximately 20 seconds.
- B** The screen will show 5 zeros with left most digit blinking. Refer to the button detail (shown below) to enter in the passcode "02201".



FK1024.ai

- C** After the passcode is entered, press the "NET/ GROSS" button to accept.
- D** The display indicator will show "-F-".
- E** Press the "ZERO/OFF" button.
- F** Press the "ON/PRINT" button to until "F 16" shows.
- G** Press the "ZERO/OFF" button.
- H** The display indicator will show "C 0" and then a A/D count value (example 3672). Verify that the weighing system is clear of any loads or objects.

Procedure continued on the following page

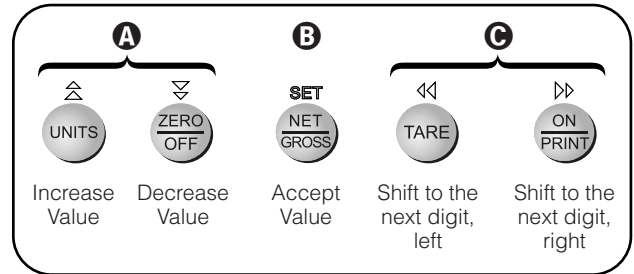


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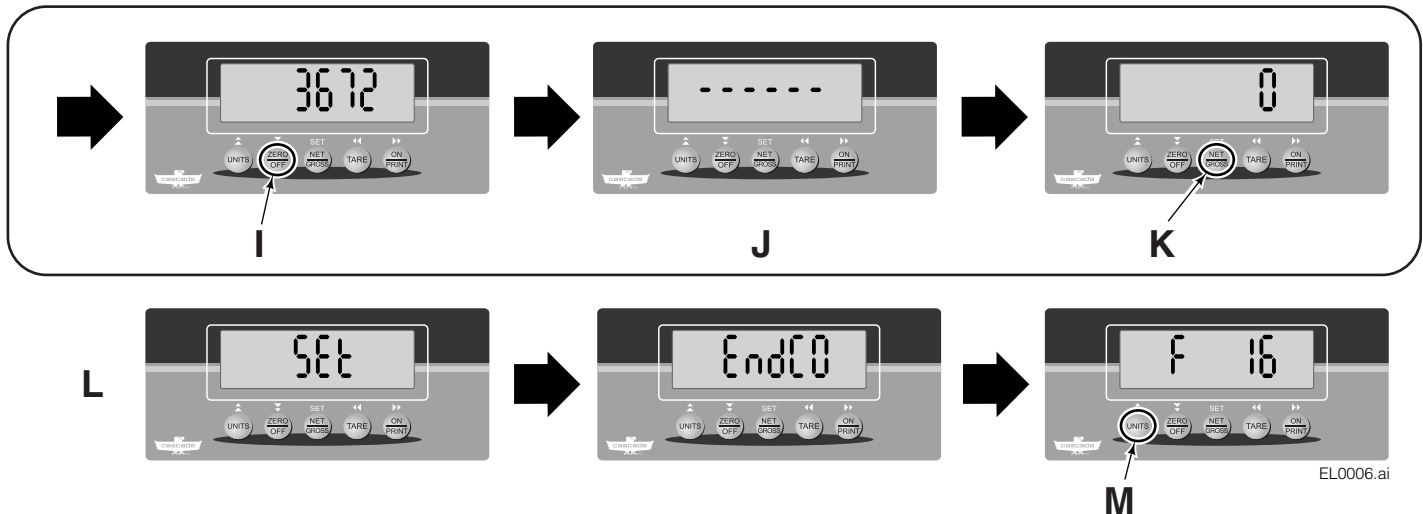
18 Check the zero function (continued)

Zero Calibration (continued)

- I** Press the "ZERO/OFF" button to zero the displayed value.
- J** The display indicator will count down to ending in "-----" and then a zeroed A/D count value.
- K** Press the "NET/GROSS" button to accept the new zero point.
- L** The display indicator will show "SEt", then "EndC0" and then revert to parameters, showing "F 16".
- M** Press the "Units" button twice to exit the parameters menu and accept the calibration. The indicator will show "SET" before powering off.



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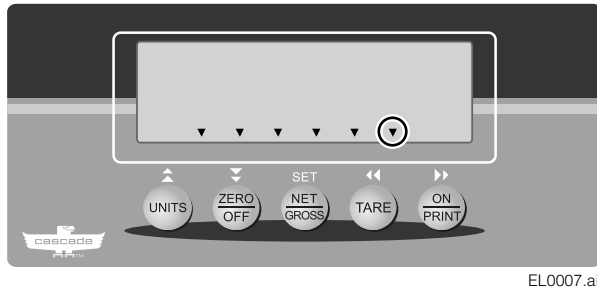


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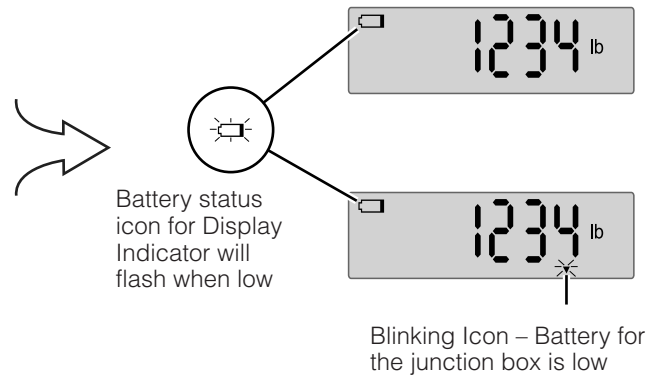
BATTERIES

Status Indication

When any low battery icon blinks, replace or recharge batteries.



EL0007.ai



Display Indicator Batteries (if equipped)

NOTE: Based on usage, display indicator battery life is variable.

The display indicator is equipped with four AA batteries.

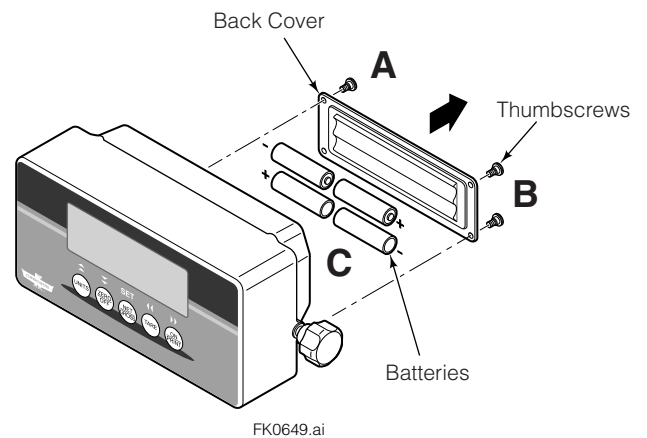
1 Remove depleted batteries

A Loosen back cover thumbscrews.

B Remove back cover.

C Remove depleted batteries.

NOTE: Take note of the position and polarity of batteries.



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2 Replace alkaline batteries or charge rechargeable batteries

To recharge batteries:

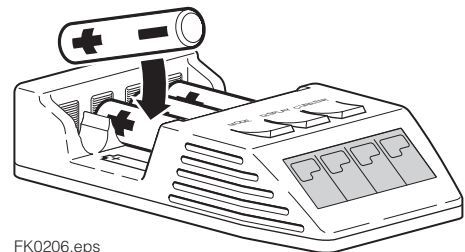
A Place the batteries on the charger noting the position and polarity.

B Plug the charger into a 110V source.



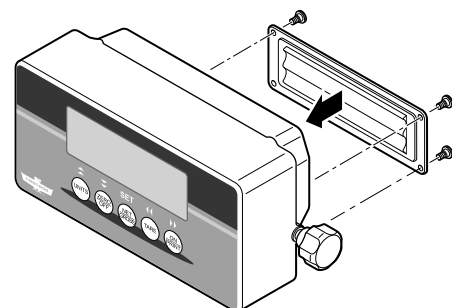
WARNING: Alkaline batteries are **not** rechargeable and can cause damage to the charger.

NOTE: Rechargeable batteries are NiMH with a charge capacity of 2,000 mAh.



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3 Install cover and tighten thumbscrews



FK0650.ai

BATTERIES

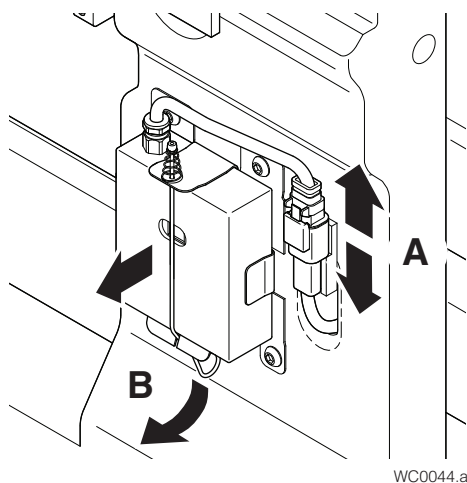
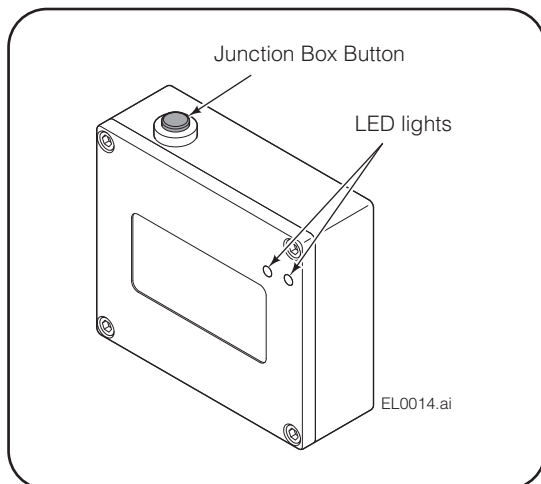
Weigh Frame Battery

1 Remove depleted battery.

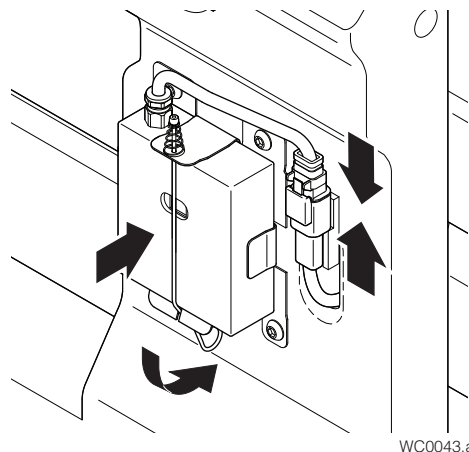
NOTE: If the junction box is powered on, first press and hold the button located on the top until both LED lights are solid. Then release the button to power the junction box off.

A Disconnect battery connector from power cable.

B Pull latch on battery clip and remove depleted battery pack.



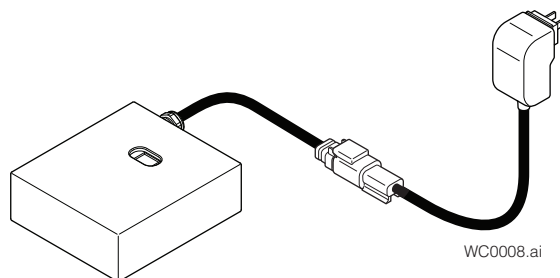
2 Install and secure spare battery pack. Connect battery to power cable.



3 Charge depleted battery pack.

NOTE: Rechargeable batteries are lithium-ion with a charge capacity of 7,800 mAh (28 Wh). Expected battery life is approximately 100 hours before charging is required.

CAUTION: Low or depleted batteries can cause unstable weight readings. Make sure the battery is at least above 10% charge prior to weighing.



PERIODIC MAINTENANCE

Weighing System

IMPORTANT: Only trained and authorized personnel are allowed to service the weighing system. Other maintenance procedures are the sole responsibility of the purchaser. Legal for Trade scale components and display indicator should be serviced and calibrated by authorized scale personnel only or Legal for Trade certification may be voided.

IMPORTANT: To prevent weighing inaccuracies, the end user is responsible to check accuracy on a regular basis at intervals that best fit their application and requirements. Development of a periodic schedule will prevent faulty readings. Cascade recommends a minimum interval of every 12 months or 2000 hours, whichever comes first.

NOTE: For cleaning, as require, use a mild cleanser and wipe down the weighing system with a towel. Rinse the unit with a non-pressurized stream of water.



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

Daily Inspection

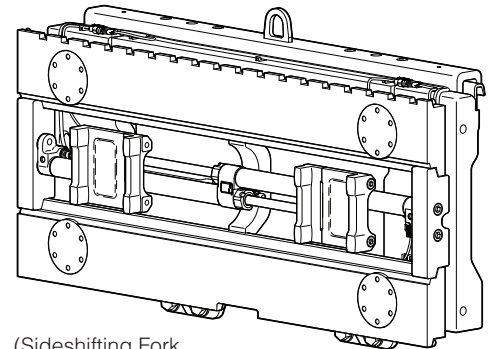
Prior to each shift of truck operation, complete the following procedures:

- Inspect electrical wiring for pinching, damage or wear.
- Inspect battery pack for damage.
- When the battery pack is changed, inspect the battery holder for damage and debris. Remove any debris found.
- Check for debris of the upper and lower areas between the weighing frame and sideshift (or carriage) frame. Remove any debris found.

IMPORTANT: Any object or debris found between the frames can affect weight reading.

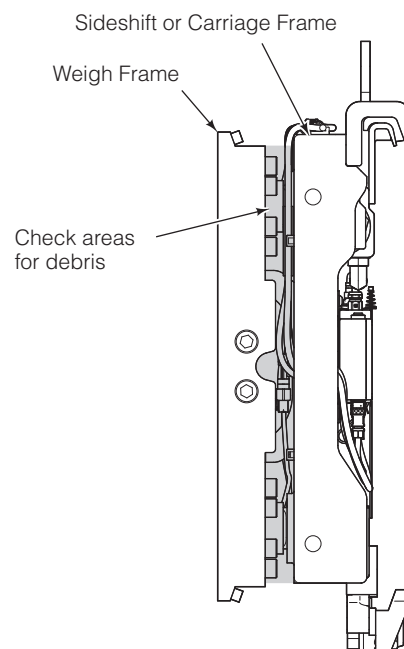


No Pressure Wash/Steam



(Sideshifting Fork Positioner model shown)

WC0046.ai



Left Side Shown

PERIODIC MAINTENANCE

Hydraulic System



WARNING: After completing any service procedure, always test the attachment through five complete cycles 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 the following:
 - Loose or missing hardware,
 - Damaged or missing fork stops,
 - Worn or damaged hoses,
 - Hydraulic leaks
- Check decals and nameplate for legibility.

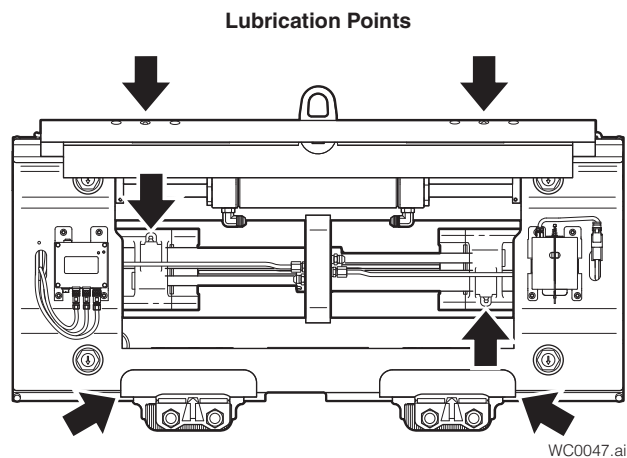
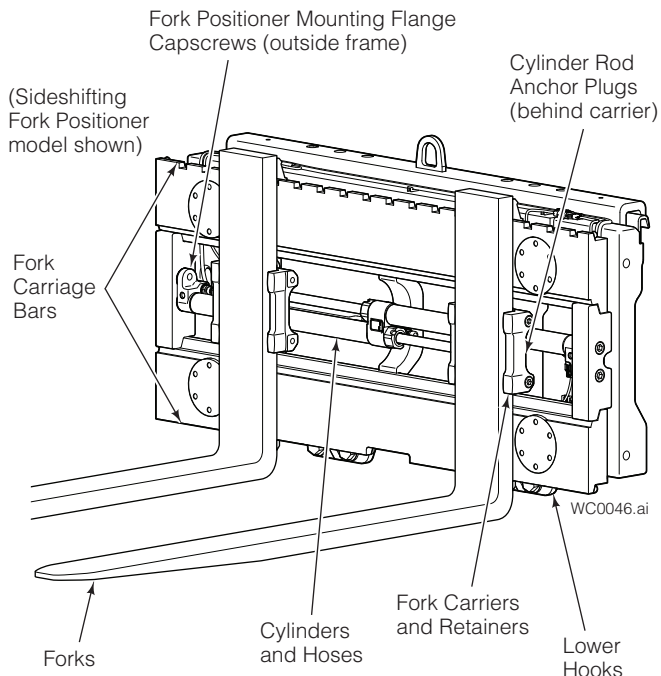
1000-Hour

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

- Inspect sideshifter lower hooks for wear and proper clearance. Adjust if necessary. Refer to Installation Section, Step 2. Tighten lower hooks to:
 - Class II/III** – 120 ft.-lbs. (165 Nm)
 - Class IV** – 235 ft.-lbs. (320 Nm)
- Tighten fork positioner mounting flange capscrews 50 ft.-lbs. (65 Nm).
- Tighten fork carrier capscrews to 25 ft.-lbs. (35 Nm).
- Tighten fork positioner cylinder rod anchor plugs to 50 ft.-lbs. (65 Nm).
- If equipped, tighten backrest capscrews (Cascade only) to 145 ft.-lbs. (195 Nm).
- Apply general-purpose lithium-based chassis grease to sideshifter upper bearing grease fittings and sideshifter lower bearings, as shown. Apply a single pump of grease for the fork carrier grease fittings.
- Apply graphite dry-lube to fork carriage bars as required ('Slip Plate Aerosol' - Cascade Part No. 599489, 'GraphoKote', or equivalent).
- Inspect fork carriers for looseness on bearing tubes, and cylinder rod anchors for excessive end play. Refer to service manual for repair procedures.

NOTE: Cylinder rod anchors operate with a loose clearance.

- Inspect Sideshifter upper and lower bearings for wear. If any bearing is worn to less than 3/32 in. (2.5 mm) thickness replace the entire bearing set. Refer to service manual for repair procedures.



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

PERIODIC MAINTENANCE

Hydraulic System

2000-Hour

After 2000 hours of truck operation, in addition to the 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).

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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