Installation Manual

Aegis Industrial
Mild Steel Chlorine Scale
Model 3400-C

51693
Rev. 1 11/25

Disclaimer

Every effort has been made to provide complete and accurate information in this manual. However, although this manual may include a specifically identified warranty notice for the product, Fairbanks Scale makes no representations or warranties with respect to the contents of this manual and reserves the right to make changes to this manual without notice when and as improvements are made.

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Amendment Record

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1.0: GENERAL INFORMATION

1.1 INTRODUCTION

The **Aegis Industrial Mild Steel Chlorine Scale (Model 3400-C)** is a specialized weighing platform designed for chlorine cylinder applications in industrial and municipal environments. The scale is built from A36 painted mild steel and utilizes trunnions to cradle and secure chlorine cylinders during weighing. The unit uses a standard junction box and is compatible with most analog weight indicators.

- Standard platform size: 2’ x 4’
- Capacity: 5,000 lb.
- Trunnions are painted to prevent chemical interaction.
- Platform ships fully assembled and pre-wired with a 30-foot interface cable.

1.2 PLATFORM SPECIFICATIONS

Platform Deck Plate	*0.25” thick deck with safety tread*
Deck Construction	*Type A36 carbon steel*
Paint	*Gray acrylic enamel*
Platform Height	*3.0”*
Operating Temperature	*15° to 104°F*
Overload Capacity	*150% of rated scale capacity*
Endloading Capacity	*100% of rated scale capacity*
Humidity	*0 to 95% non-condensing*
NTEP	*5000 divisions*

1.3 LOAD CELL SPECIFICATIONS

Protection rating	*IP67K*
Load cell construction	*Alloy Tool Steel*
Sealing	*True Hermetic Seal*
Rated Output	*3 mV/V/ohm +/- .25%*
Output resistance	*350Ω or 1000Ω*
Overload Capacity	*150% of capacity*
Ultimate Overload	*300%*

1.4 MODELS

Part Number	Size	Capacity
185887	2’ x 4’	5,000 lb.

1.5 GENERAL SERVICE POLICY

Prior to installation, ***always*** verify that the equipment satisfies the customer's requirements as supplied, and as described in this manual.

ALL chlorine scale installations must comply with safety standards relevant to chlorine gas handling. The equipment must be protected from chemical damage, unauthorized modifications, or electrical miswiring.

If the equipment cannot satisfy the application and the application cannot be modified to meet the design parameters of the equipment, the installation should *NOT* be attempted.

It is the customer/operator's responsibility to ensure the equipment provided by Fairbanks is operated within the parameters of the equipment's specifications and protected from accidental or malicious damage.

W A R N I N G

Absolutely NO physical, electrical or program modifications, other than selection of standard options and accessories, can be made by customers to this equipment.

Repairs are performed by Fairbanks Scales Service Technicians and Authorized Distributor Personnel ONLY!

Failure to comply with this policy voids all implied and/or written warranties.

- Check all devices for proper operation. If any error messages occur, refer to Troubleshooting or the proper manual of that device.
- ***Only those charges which are incurred as a result of the equipment's inability to be adjusted to performance specifications may be charged to warranty.***
- No physical alterations (mounting holes, etc.) are allowed during installation.

The installing technician is responsible that all personnel are fully trained and familiar with the equipment's capabilities and limitations before the installation is considered complete.

- All electrical assemblies must be replaced in their entirety as a complete unit.
  - Replacement of individual components is not allowed.
  - These components must be returned intact for replacement credit per normal procedures.
- All electronic and mechanical adjustments are considered to be part of the installation and are included in the installation charge(s).
  - Included is any required computer programming or upgrades.
  - Included are any accuracy and/or operational specification changes.
- The AC receptacle / outlet shall be located near the instrument and easily accessible.
- Electrical connections other than those specified may not be performed.
- The technician must be prepared to recommend the arrangement of components which provide the most efficient layout, utilizing the equipment to the best possible advantage.
- The warranty policy must be explained and reviewed with the customer.

This equipment is designed specifically for weighing standard chlorine cylinders and must be used **only** in compliance with all applicable **chlorine handling regulations**, **safety standards**, and **industry best practices**, such as those established by the **Chlorine Institute**, **OSHA** and **local authorities**.

Failure to follow proper procedures for storage, handling, or use of chlorine containers can result in **severe injury**, **death** or **environmental damage** due to chlorine gas exposure or equipment failure.

- **Do not attempt to modify** the scale, frame, trunnion supports, or load cell assemblies in any way.
- **Do not substitute** parts or components unless they are explicitly approved by the manufacturer.
- **Inspect** the system regularly for signs of corrosion, mechanical wear, or load cell drift.
- **Ensure all personnel** are trained in hazardous material (HAZMAT) handling and emergency response.

Improper installation or use of this scale may compromise its structural integrity, invalidate warranties, and create life-threatening risks.

Always follow your facility's **chlorine emergency action plan** and wear appropriate **personal protective equipment (PPE)** when working near pressurized chlorine containers.

1.6 USERS' RESPONSIBILITY

- All electronic and mechanical calibrations and/or adjustments required for making this equipment perform to accuracy and operational specifications are part of the installation.
  - They are included in the installation charge.
  - Only those charges which are incurred because of the equipment's inability to be adjusted or calibrated to performance specifications may be charged to warranty.

It is the owner's responsibility to document, notify, and follow-up regarding shipping damage with the carrier.

- Absolutely no physical, electrical or program modifications other than selection of standard options and accessories are to be made to this equipment.
- The equipment consists of printed circuit assemblies which must be handled using ESD handling procedures and must be replaced as units.
  - Replacement of individual components is not allowed.
  - The assemblies must be properly packaged in ESD protective material and returned intact for replacement credit per normal procedures.
  - It is the user's responsibility to: Ensure proper installation and regular inspection – Prevent water or chemical ingress – Avoid high-pressure washing or exposure to chlorine vapor – Train all operators on safety procedures and scale limitations.

2.0: SCALE INSTALLATION

2.1 PRE-INSTALLATION

2.1.1 CHECKLIST

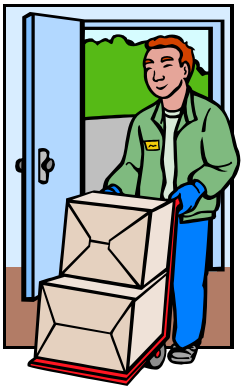
*The following points should be checked and discussed with the **Area Sales Manager and/or customer**, if necessary, before the technician goes to the site and installs the equipment.*

- ✓ Check the customer's application to make certain it is within the capabilities and design parameters of the equipment.
- ✓ If the installation process might disrupt normal business operations, tell the customer and ask that they make ample arrangements.
- ✓ Be sure that the equipment operator(s) are available for training.
- ✓ The service technician reviews the recommended setup with the Area Sales Manager or Area Service Manager, and together they identify all necessary variations to satisfy the customer's particular application.

2.1.2 UNPACKING

Follow these guidelines when unpacking all equipment.

- ✓ Check in all components and accessories according to the customer's order.
- ✓ Remove all components from their packing material, checking against the invoice that they are accounted for and not damaged.
  - *Advise the shipper immediately, if damage has occurred.*
  - *Order any parts necessary to replace those which have been damaged.*
  - *Keep the shipping container and packing material for future use.*
  - *Check the packing list.*
- ✓ Collect all necessary installation manuals for the equipment and accessories.
- ✓ Open the equipment and perform an inspection, making certain that all hardware, electrical connections and printed circuit assemblies are secure.
- ✓ Do not reinstall the cover if the final installation is to be performed after the pre-installation checkout.



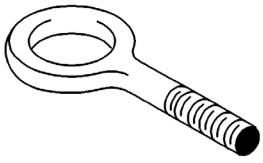
2.1.3 EQUIPMENT CHECKOUT

Position the equipment with these points in mind:

- ✓ Intense direct sunlight can harm the display.
- ✓ Do not locate near magnetic material or equipment/instruments which use magnets in their design.
- ✓ Avoid areas which have extreme variations in room temperatures. Temperatures outside the instrument's specifications will affect the weighing accuracy of this product.
- ✓ Do not load the platform if there is any evidence of damage to the platform or supporting structure.

2.2 LOADING AND UNLOADING

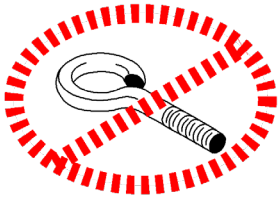
1. Select a location that is flat, solid, level, and one that fully supports the weight of the platform plus a full capacity load.
2. Remove the top of the crate and all packing material.
3. Screw **two (2) eyebolts** into the threaded adapters in the platform top. The eyebolts are not included but may be ordered. See Appendix I: Accessories
4. Use a forklift or other lifting means, along with chains, cables, or nylon straps to remove the scale from the crate bottom.



TWO TYPES of EYE BOLTS

Closed Gap Eyebolts

- Open Gap Eyebolts (***NOT USED***)
- Lifting Hooks (***NOT USED***)



C A U T I O N

DO NOT use hooks or unclosed eyebolts.

Failure to use proper lifting tools may result in personal injury.

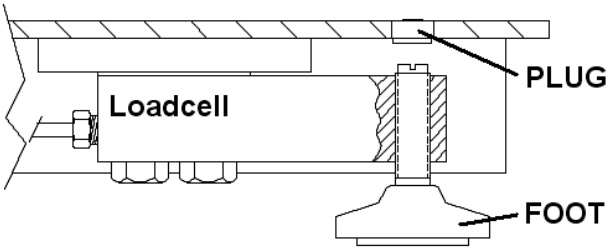
5. Set the scale so that the interface cable exits in a direction where it can be protected.

- If possible, use a cable protector to reduce 'trip' hazards and to protect the interface cable from being damaged.
- The scale is shipped with the threaded legs of the feet up tight against the load cells.

6. Remove the plugs at the corners of the scale.

2.3 SCALE INSTALLATION

1. Insert and turn the feet clockwise a minimum of four (4) complete turns with a large screwdriver.
2. Level the scale by turning the foot pads into place.



2.3.1 SCALE WIRING

1. Wire the scale cable to the proper instrument, as shown in the chart below.

Analog Interface with **Junction Box** (**67171**)

WIRE COLOR	FUNCTION
Black	(–) Excitation
Red	(+) Excitation
Yellow	Shield
Green	(+) Signal
White	(–)Signal

2. Once the scale platform is completely wired to the instrument, calibrate the unit.

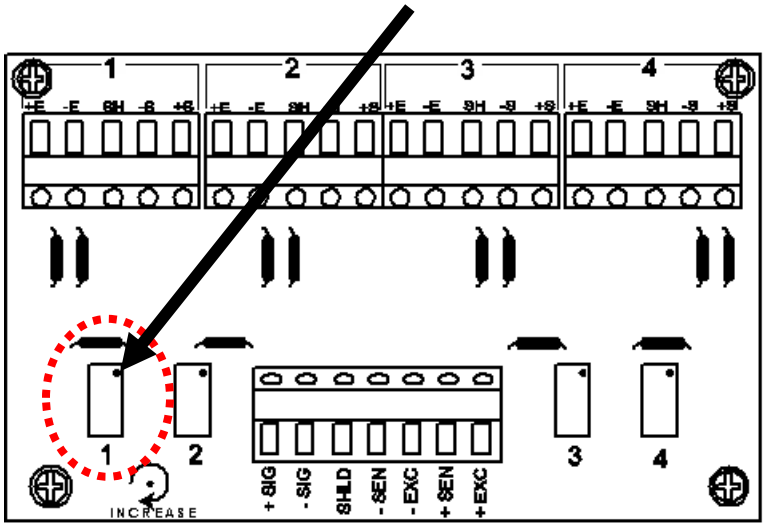
- Follow the appropriate instrument service manual to ensure a good calibration.

2.4 CALIBRATION STEPS

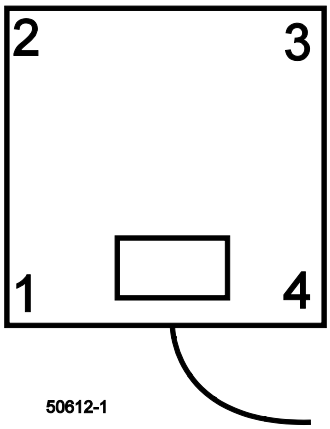
Adjust the analog interface instrument to the platform.

- Install all the corners to within **one (1) division of each other at 25% of rated capacity.**
- Follow the appropriate instrument service manual to ensure a proper calibration.

1. Center the four **Junction Box Potentiometers** by turning the adjustment screw **counter-clock-wise position** until a clicking sound is heard, then turning each of them back **clock-wise ten (10) turns**.
   - Total number of turns is **twenty.**



2. Identify the platform corner numbers.
3. Place a concentrated weight (**25%** of platform capacity) onto **corner #1**, then move it to **#2, #3** and **#4**, noting the displayed reading on each corner.
4. Identify the lowest reading, and then place the concentrated weight on this corner.



CORNER ADJUSTMENTS

If corners require adjustment, follow these steps.

1. Place the concentrated weight on the corner displaying the lowest weight.
2. Turn the adjustment on the potentiometer clockwise (**CW**) to the displayed weight so it reads the same as the highest reading.
3. Repeat this procedure while rechecking all corners until they are equal.

IMPORTANT NOTE: *When moving the weight(s) from corner to corner, **DO NOT** zero the scale. The purpose is to adjust the corners to be the same, and not to perform a correct calibration.*

4. Perform a zero-reference check with an unloaded platform.
5. Repeat the corner test to ensure all readings are the same before proceeding.

NO CORNER ADJUSTMENTS

If corners do not require adjustment, follow these steps.

1. Remove all weights.
2. Zero the instrument.
3. Perform a final calibration with test weights.
4. Follow the appropriate instrument service manual to ensure a proper calibration.

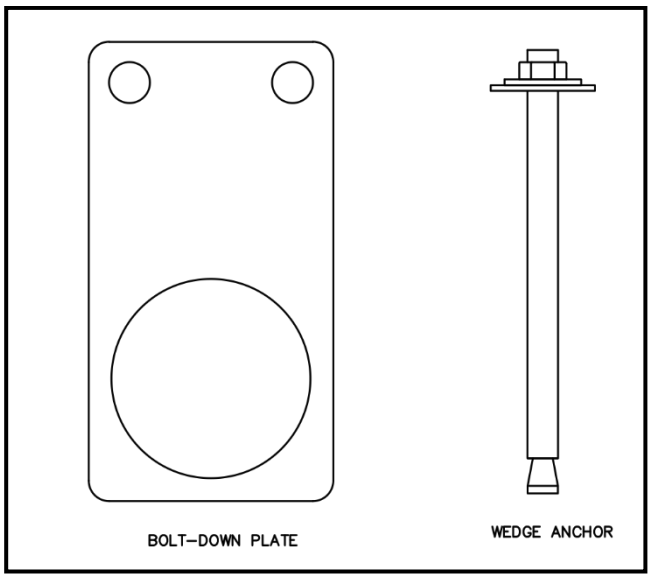
3.0: INSTALLING ACCESSORIES

3.1 INSTALLING BOLT-DOWN PLATES

Bolt down plates keep the scale from sliding or moving when loads are applied. The plates are bolted using anchors at each of the scale's feet.

1. Place the platform into the correct position.
2. Place the bolt-down plate under the foot.
   - The plate edge extends out from under the scale.
   - Ensure the thru holes for the bolts are outside the frame of the scale
3. Drill **two (2) 7/16"** attachment holes using a hammer drill.
4. Insert anchors with the nut and washer already on them.
5. Tap the anchor into the hole, then tighten the nuts securely.
6. Repeat this process for each plate.

NOTE: *If ramps are **not** installed and bolt-down plates are needed, then a full set of four bolt-down plates are required.*



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4.0: MAINTENANCE

Routine Maintenance & Chlorine Exposure Safeguards

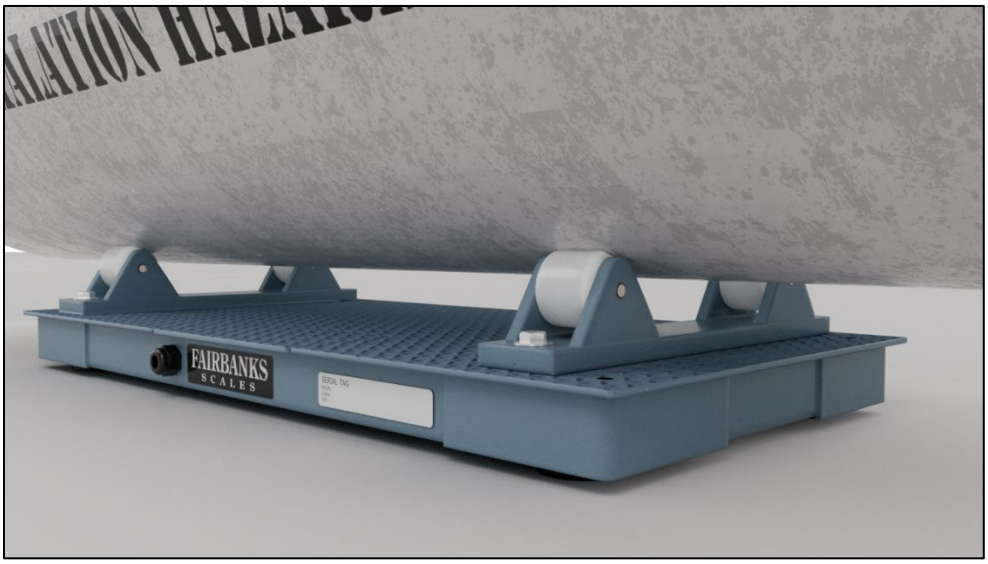
This product is specifically designed for weighing standard 1-ton chlorine cylinders in industrial environments where chlorine gas is present. Improper use or maintenance may result in serious injury, environmental damage, or equipment failure. Routine inspections and safe handling practices are essential for the continued safe operation of the Model 3400-C Chlorine Scale.

1. Inspection Schedule

- **Monthly**: Visual inspection of all structural, mechanical, and electrical components.
- **Quarterly**: Detailed review of the trunnion assembly, load cell performance, coatings, and environmental conditions.
- **After each cylinder changeout**: Quick check of trunnion alignment, fastener security, and any signs of scale movement or damage.

2. Structural Inspection

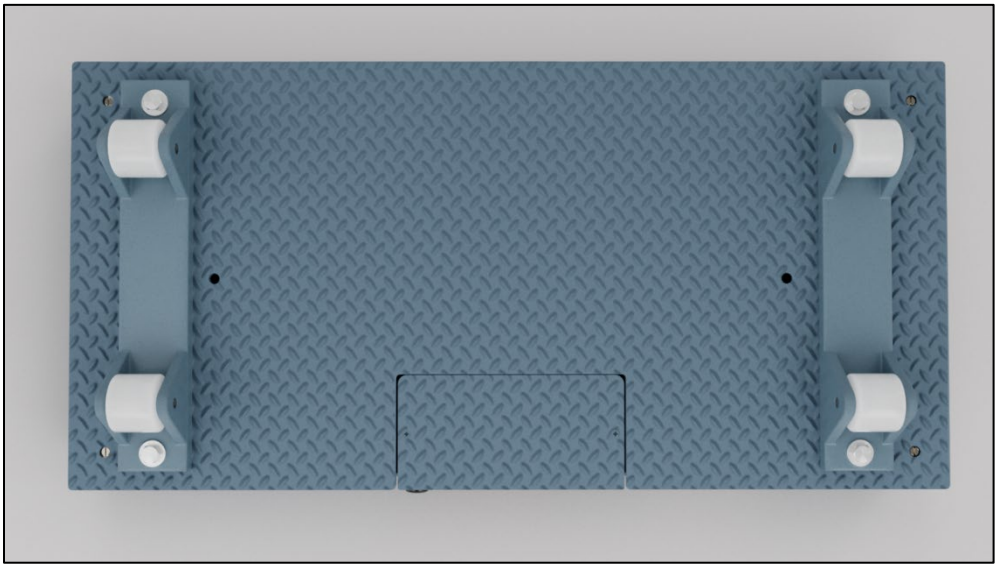
- Examine the mild steel frame, trunnion supports, welds, and fasteners for **corrosion**, **cracking**, or **deformation**.
- Look for **flaking paint**, **pitting**, or **discoloration**, which may indicate chlorine-related corrosion.
- Promptly address minor corrosion with appropriate surface prep and factory-approved touch-up coatings. Replace severely corroded parts.



3. Trunnion Assembly Maintenance

- Ensure trunnion rollers or saddles rotate smoothly and are securely fastened.
- Confirm that roller alignment allows for even support of the chlorine cylinder.
- Check that mechanical stops are not bent, loose, or missing.

- **Do not lubricate** the rollers unless specifically instructed by the manufacturer. Chlorine environments may degrade standard lubricants or create chemical hazards.



4. Load Cell and Junction Box Maintenance

- Inspect load cell cables and connectors for **wear, cracking, or corrosion** at entry points and junctions.
- Ensure junction box seals are intact and free from moisture or chlorine ingress.
- Do not open the junction box unless necessary. If opened, reseal using chlorine-compatible gaskets or sealants.
- Confirm that all wiring is secure, dry, and free from contamination.

5. Cleaning Procedures

WARNING: Do **not** use ammonia-based or bleach-based cleaners on or around the scale. These substances can react with residual chlorine gas or vapor to produce **toxic chloramines** or **explosive compounds**. Only use pH-neutral, chlorine-compatible cleaners approved for use in hazardous chemical environments.

- Clean the scale using a **damp cloth** and **mild, non-reactive detergent**.
- Avoid any cleaner that contains oxidizers, acids, or reactive agents.
- Do not spray water or cleaner directly onto load cells, wiring, or the junction box.
- Never use high-pressure washdowns.

6. Environmental and Site Safety

- Ensure the scale is installed in a **well-ventilated area**, free from chlorine accumulation.

- Conduct regular checks for **chlorine gas leaks**, especially near valves, regulators, and trunnion supports.
- All personnel performing maintenance must be **trained in chlorine safety procedures** and should wear appropriate **PPE** (e.g., gloves, goggles, respirators).
- Ensure an **emergency action plan** and chlorine gas response procedures are in place and understood.

7. Modification and Repair Restrictions

WARNING: Do **not** modify the scale structure, electronics, trunnion system, or mounting hardware.
Use only **genuine, manufacturer-approved replacement parts**. Unauthorized modifications or substitutions can:

- Compromise structural integrity
- Create safety hazards in chlorine environments
- Void the product warranty
- Expose the user to liability and regulatory violations

5.0: PARTS REPLACEMENT

5.1 LOAD CELL REPLACEMENT

1. **Cycle-down the power** to the instrument, then unplug the unit.
2. Remove the platform and junction box access covers.
3. Disconnect the failed load cell cable(s) at the junction box.
4. Loosen the gland bushing and tie a string or wire to the end of the cable to act as a pull wire.
5. Place wire markers on the cable ends.
   - Masking tape is an effective alternative
6. Disconnect the faulty load cells wires from the terminal block.
7. Lift the platform end with a forklift or heavy pry bar, using wood blocks for safety.
8. Remove the load cell mounting bolts with a **3/4" socket**.
9. Remove the load cell, pulling the cable through the scale while leaving the pull string/wire in the scale.
10. Remove the foot assembly from the old cell, then install it onto the new load cell.
    - Use anti-seize on the threads.
11. Disconnect the pull string/wire from the old cell's cable, then attach to the new cell's cable end.
12. Pull the cable from the new cell through to the junction box.
13. Mount the cell to the scale platform.
    - Torque it to **90 ft/lbs**, using anti-seize on the mounting bolts.
14. Lower the scale to the surface removing the safety blocks.
15. Distribute the scale's weight evenly by all four (4) feet.
16. Connect the load cell wires into the junction box, then tighten the box gland bushing(s).
17. Replace the box cover and torque all screws to **18-20 in/lbs**.
18. Replace the platform access cover.
19. Recalibrate the unit as necessary.

IMPORTANT NOTE: *See Appendix I for specific load cell color code and wiring information.*

5.2 JUNCTION BOX REPLACEMENT STEPS

1. **Cycle-down the power** to the instrument, then unplug the unit.
2. Open the platform access cover.
3. Open the junction box cover.
4. Loosen all gland bushing nuts.
5. Place wire markers on all the load cell cable ends.
6. Disconnect the load cells' wires from the terminal blocks.
7. Disconnect the homerun wires.
8. Remove the PCB, clean the junction box, then install the new PCB.
9. Reconnect all load cell and home-run wires to the new PCB.
10. Tighten all gland bushing nuts.

IMPORTANT NOTE: *Leave the junction box cover **off** until all corner adjustments are completed.*

11. Replace the junction box cover, and torque all screws to **18-20 in/lbs**.
12. Replace the platform access cover.
13. Recalibrate the unit as necessary.

5.3 FOOT ASSEMBLY REPLACEMENT STEPS

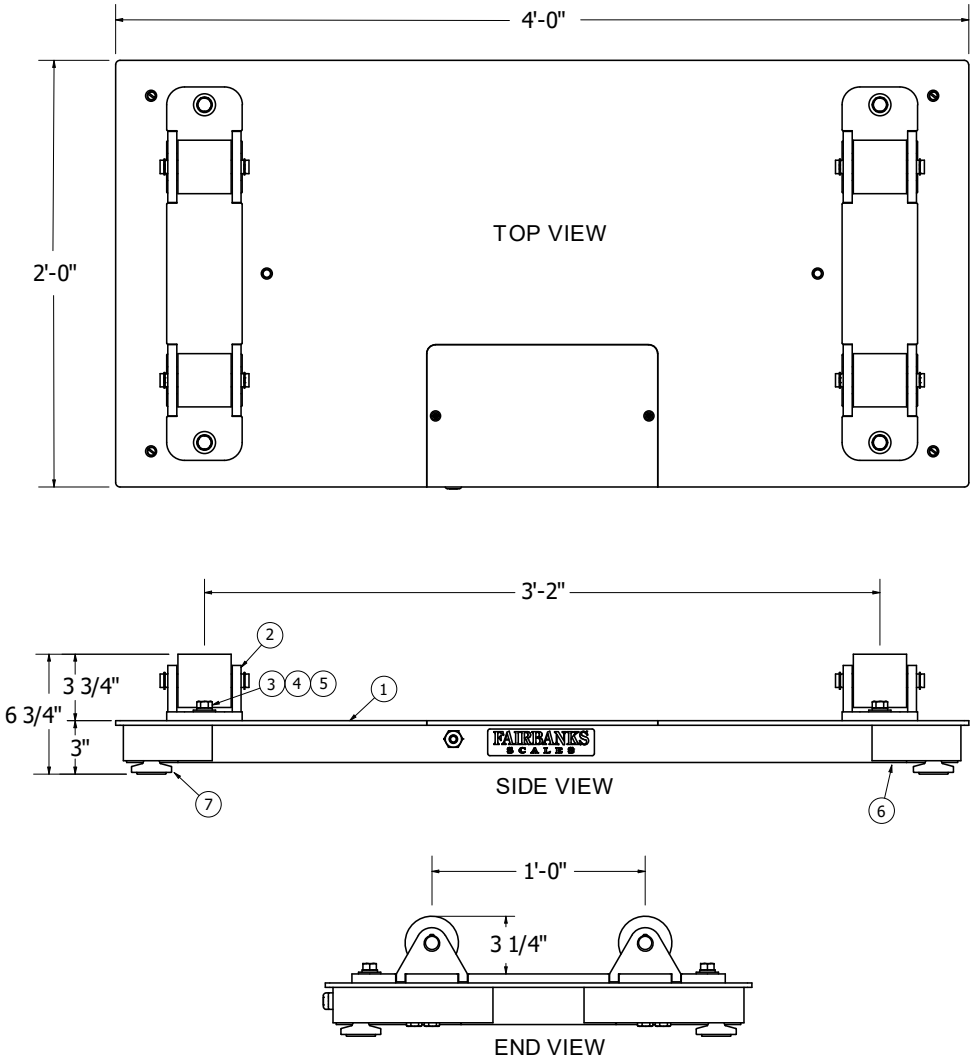
1. Lift the platform end with a forklift or heavy pry bar using wood blocks for safety.
2. Remove the hole plug over the foot to be replaced.
3. Using a standard screwdriver, unscrew the foot assembly.
4. Replace the Foot Assembly, using anti-seize on the screws attaching to the load cell.
5. Lower the scale to the surface removing the safety blocks.
6. Distribute the scale’s weight evenly by all four (4) feet.
7. Replace the hole plug in the access hole.

6.0: PARTS

6.1 PARTS LIST – CHLORINE SCALE

ITEM	QTY	PART NO.	DESCRIPTION
1	1	175763	2'X4' Platform Weldment w/ Trunnions
2	2	185506	Assembly, Roller Trunnion
3	4	54376	½-13 UNC – 1.75 – Std. Thr
4	4	54769	½" Spring Lock Washer, Zinc
5	4	54220	Flat Washer, ½ - Regular – Type B
6	4	128965	Load Cell, Shear Beam, 2.5K, 10' Cable
7	4	63913	Foot Assembly

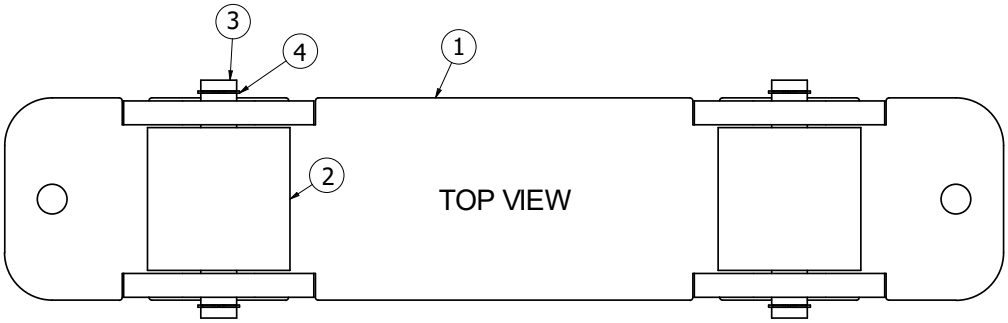
6.2 PARTS DIAGRAM – CHLORINE SCALE

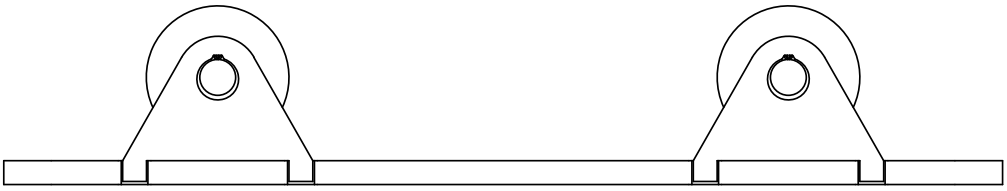


6.3 PARTS LIST - TRUNNION

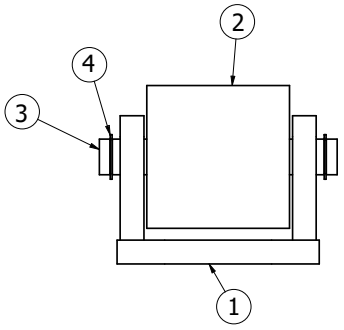
ITEM	QTY	PART NO.	DESCRIPTION
-	1	185506	Assembly, Roller Trunnion
1	1	185505	Weldment, Roller Trunnion
2	2	185502	Roller, 3” x 3”, Ultra-high Molecular Weight (UHMW) Polyethylene
3	2	185500	Shaft, ¾” x 5”
4	4	185498	Retaining Ring, ¾” O.D.

6.4 PARTS DIAGRAM – TRUNNION





SIDE VIEW



END VIEW

APPENDIX I: ACCESSORIES

A. BOLT-DOWN PLATES, EYEBOLTS AND HOLE PLUGS

SIZE	CAPACITY	BOLT-DOWN PLATES	EYEBOLTS	EYEBOLT HOLE PLUGS
ALL	ALL	63777 (Set of 4)	70895 (Set of 2)	70896 (Set of 2)
		63779 (Set of 2)		

APPENDIX II: SCALE MODIFICATIONS

A. AVAILABLE MODIFICATIONS LIST

PRODUCT: 3001-02
Floor Scales with Smooth deck

PRODUCT: 3012-03
Floor Scale with Lower Capacity Load Cells

Aegis Industrial Chlorine Scale

Installation Manual
Document 51693

Manufactured by Fairbanks Scales Inc.

www.fairbanks.com