CLS NextGen Series

Cargo Lift Scale

Installation Manual

RICE LAKE®
WEIGHING SYSTEMS

November 19, 2025

PN 231611 Rev A

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www.ricelake.com

Revision History

This section tracks and describes manual revisions for awareness of major updates.

Revision	Date	Description
A	November 19, 2025	Initial manual release with product launch

Table i. Revision Letter History

Contents

1.0 Introduction

The Cargo Lift Scale (CLS) is a rugged, dependable scale that can withstand many years of repeated use. When mounted on a forklift, the CLS saves time and money by allowing loads to be weighed immediately instead of carrying the load to a floor scale and then to its final destination.

This manual is intended for use by individuals responsible for installing the cargo lift scale. This includes information on the installation and maintenance of the scale carriage and signal cable installation (if applicable).

Manuals are available from Rice Lake Weighing Systems at www.ricelake.com/manuals

Warranty information is available at www.ricelake.com/warranties

1.1 Scale Carriage Features

- Compatible with Class II (16 inch high) forklift cleat type carriages
- 1 1/2 inch thick front and back painted steel plates coupled by four flexure's
- Top cleats are welded, pinned and bolted
- Field-replaceable centering pin
- Two 5,000 lb S-beam load cells
- CLS junction box
- Molded coiled cable, up to 15 feet uncoiled

1.2 Disposal

Product Disposal

The product must be brought to appropriate separate waste collection centers at the end of its life cycle.

Proper separate collection to recycle the product helps prevent possible negative effects on the environment and to health, and promotes the recycling of the materials. Users who dispose of the product illegally shall face administrative sanctions as provided by law.

Battery Disposal

Dispose of batteries at appropriate waste collection centers at the end of their life cycle in accordance with local laws and regulations. Batteries and rechargeable batteries may contain harmful substances that should not be disposed of in household waste. Batteries may contain harmful substances including but not limited to: cadmium (Cd), lithium (Li), mercury (Hg) or lead (Pb). Users who dispose of batteries illegally shall face administrative sanctions as provided by law.

WARNING: Risk of fire and explosion. Do not burn, crush, disassemble or short-circuit batteries. Do not replace battery with incorrect type.

1.3 Safety

Safety Definitions:

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. Includes hazards that are exposed when guards are removed.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death. Includes hazards that are exposed when guards are removed.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, could result in minor or moderate injury.

IMPORTANT: Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

General Safety

Do not operate or work on this equipment unless this manual has been read and all instructions are understood. Failure to follow the instructions or heed the warnings could result in injury or death. Contact any Rice Lake Weighing Systems dealer for replacement manuals.

WARNING

Failure to heed could result in serious injury or death.

Take all necessary safety precautions when installing the scale carriage including wearing safety shoes, protective eye wear and using the proper tools.

Ensure feet, legs and other body parts are not under the scale when lowering.

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not jump on the scale.

Do not use for purposes other then weight taking.

Do not place fingers into slots or possible pinch points.

Do not use any load bearing component that is worn beyond 5% of the original dimension.

Do not use this product if any of the components are cracked.

Do not exceed the rated load limit of the unit.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Keep hands, feet and loose clothing away from moving parts.

1.4 Considerations Before Installation

1.4.1 Forklift Derating

Capacity Reduction Calculation

While the CLS will fit most typical forklifts, there are considerations that must be taken into account prior to installation. Due to the extra weight from the scale, the net lifting capacity of the forklift is reduced by approximately 10%. Use the formula below to calculate the amount to down-rate the lifting capacity and determine the net capacity of the forklift.

$$\text{Net Capacity} = \frac{A(B + C) - D(E - F)}{E + G + H}$$

A = Truck Basic Capacity in pounds	B = Inches from front wheel center line to fork face
C = Inches from face to truck rating point (usually 24)	D = Weight of scale in pounds
E = Inches from front wheel center line to carriage face	F = Inches from carriage face to scale horizontal center of gravity (HCG)
G = J + K (inches from carriage face to rear face of load	H = Inches from fork face to new truck rating point
J = Thickness of fork	K = Thickness of scale

CLS Classes and ID Plates

During the initial sale or installation, remind the customer that they must have an updated ID plate on the forklift stating the new lifting capacity and center of gravity information. This is required per OSHA rules and regulations.

		36 inch
Vertical enter of gravity (VCG) of scale	=	10.03 in
Horizontal center of gravity (HCG) of scale	=	2.18 in
Effective thickness (ET) of scale	=	4.55 in
Weight of scale	=	402 lb
Max Capacity at 24 inch Load Center	=	5000 lb

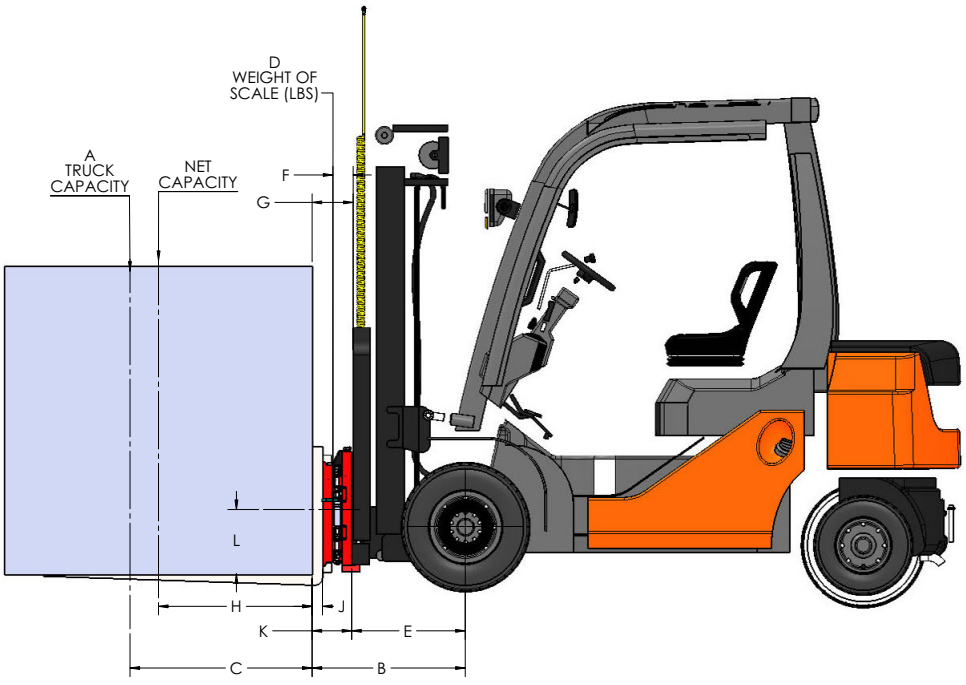


Figure 1-1. Forklift Capacity

2.0 Installation

This section describes procedures for installing the CLS to a forklift.

WARNING: Take all necessary safety precautions when installing the scale carriage, including wearing safety shoes and protective eyewear and using the proper tools which are listed in Section 2.3 on page 11.

2.1 Unpacking

The CLS is shipped upright on a sealed pallet with one or two scales per pallet.

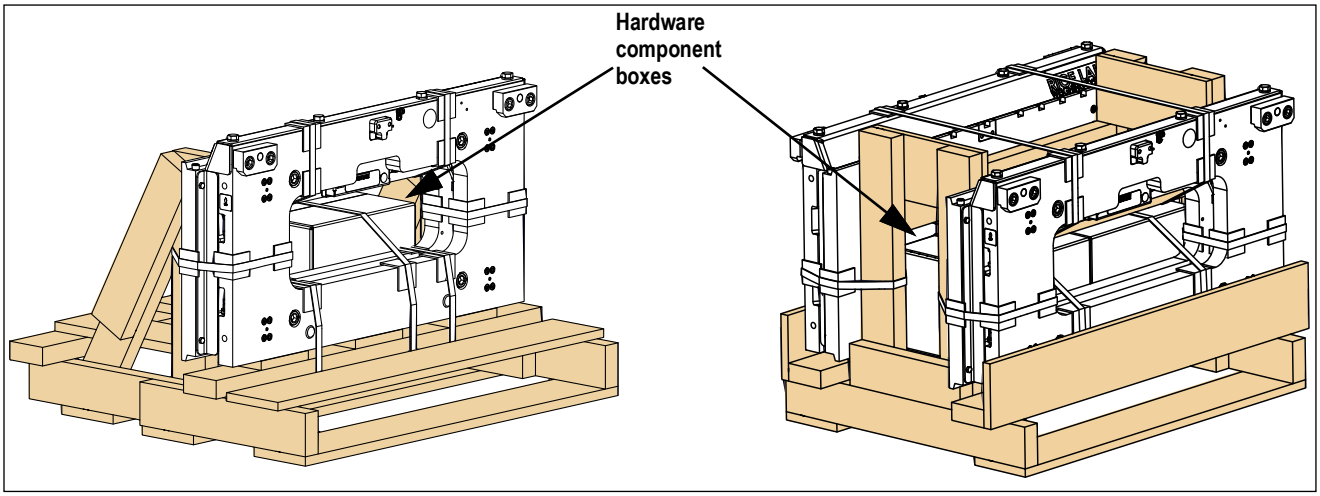


Figure 2-1. CLS Packaging

Upon receipt of the shipping pallet, inspect it for any visible signs of damage. Immediately after unpacking, visually inspect the contents to ensure all components are included and undamaged. The shipping pallet should contain the following:

- One or two scale carriage assembly with cover plate
- Hardware Component Box which includes:
  - Two cleats with four bolts
  - Cage clamp mounting assembly and hardware
  - One coiled interface cable
  - One power cable
  - Feeler gauge

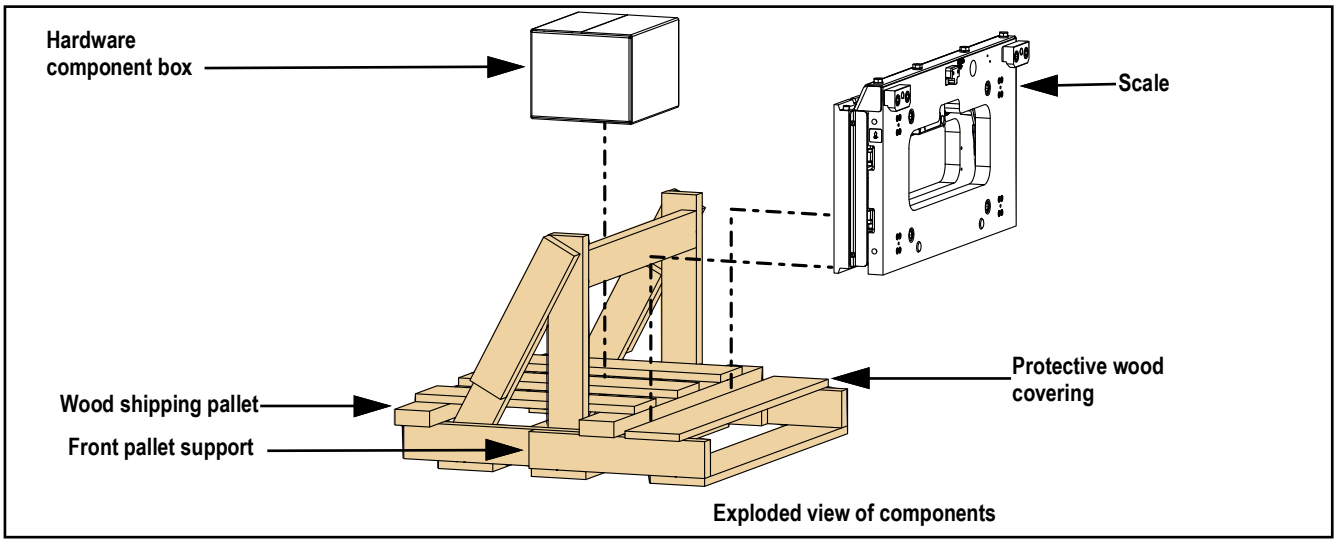
NOTE: To ensure that all products received from the manufacturer are in good shape upon arrival, it is recommended to fully inspect all contents and properly fill out the bill of lading.

If any parts were damaged in shipment, notify the shipper and Rice Lake Weighing Systems immediately.

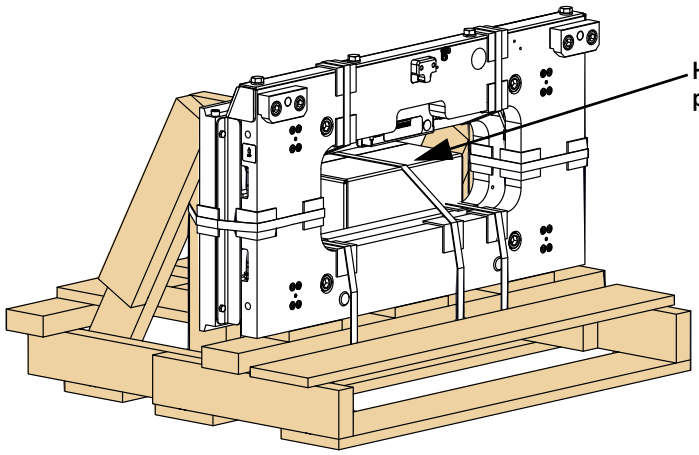
The scales are shipped in an upright position, to allow for ease of installation. The accessories are located in a hardware component box.

2.1.1 Unpacking One Scale Configuration

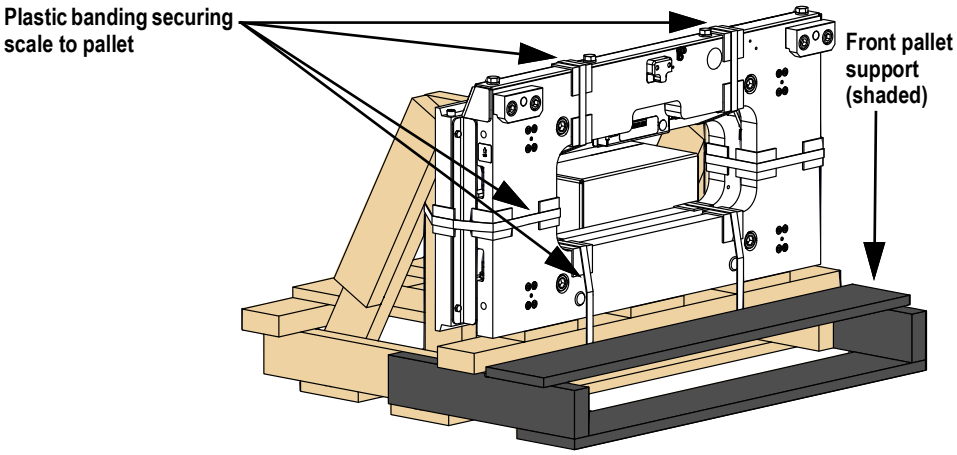
Follow these instructions to unpack one scale.



Exploded view of components



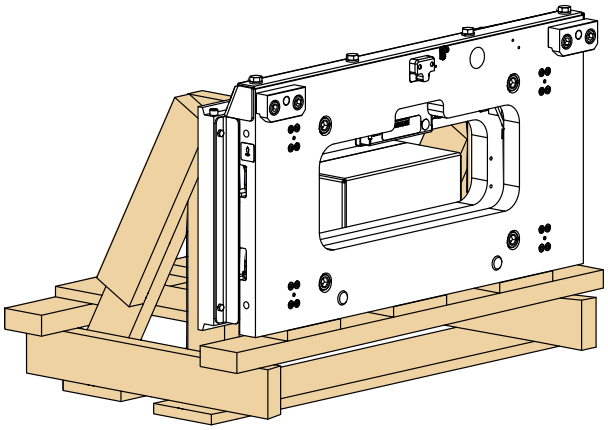
Step 1: Clip plastic band securing hardware component box



Step 3: Remove the front pallet support

Step 4: Clip all remaining plastic bands

Figure 2-2. Shipping Pallet for One Scale



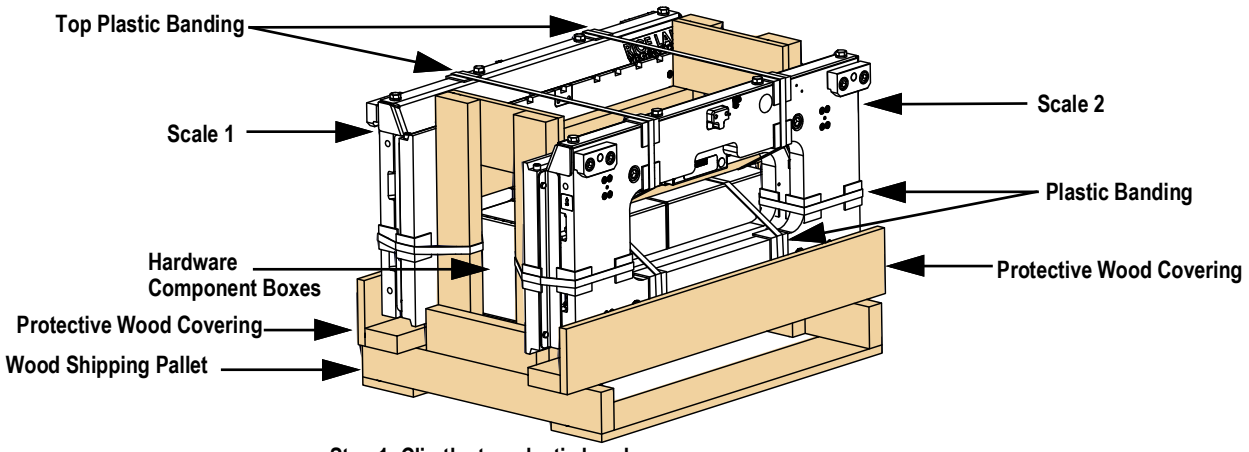
Scale is now ready for installation. Drive forklift up to the scale.

Figure 2-3. Shipping Pallet for One Scale (continued)

2.1.2 Unpacking Two Scale Configuration

Follow these instructions to unpack a two scale configuration.

WARNING: When installing from a two scale configuration, complete all of steps for scale one before clipping plastic bands securing second scale to the shipping pallet.



Step 1: Clip the top plastic bands

Step 2: Clip the inner plastic band to release the hardware component boxes

Step 3: Remove hardware component boxes

Step 4: Clip plastic bands from scale #1

Step 5: Remove protective wooden covering from scale 1

Scale 1 is ready for installation

NOTE: Do not clip the plastic band from scale 2 until scale 1 is installed.

Step 6: Clip the plastic bands from scale 2

Step 7: Remove the protective wood covering from scale 2

Scale 2 is ready for installation

Figure 2-4. Shipping Pallets for Two Scales (continued)

2.2 Before Installation

Before installing the CLS, the forklift should be in good operating condition in order to get optimal weighing accuracy. Review following items prior to installing.

- Inspect the forklift tines for damage
- Check the locking pin on the forks for proper function
- Check and adjust the lift chain so the heel of the forks have 1/2 in to 1in of clearance from the floor when the carriage is down and the mast is vertical
- The slot for the center pin should be clear of grease and debris
- The top cleats of the forklift rest on the top of the scale and should remain clear of grease and debris that could alter the scale performance
- The forklift carriage should be flat. A bent or bowed carriage will affect the performance of the scale
- Check the width of the forklift carriage and ensure the scale is installed with clearance

The CLS fits most typical forklifts, however, the following considerations must be noted: the height of the carriage, the width of the carriage inside of the guards (if applicable) and the voltage of the forklift.

The optional indicator connects directly to the battery of the forklift. The CLS is compatible with most forklifts, however, ensure the type and style of forklift and the type of power it provides is compatible with the indicator.

IMPORTANT: The scale will not operate on a positive ground. All systems must have a negative ground.

2.3 Tools Required for Installation

The following tools are required to remove the scale from its shipping pallet and install onto the forklift.

Tool	Size	Purpose of Tool
Wrench or socket wrench	3/4 in	To unbolt the top cover plate
Allen wrench	1/2 in	To bolt and unbolt the bottom cleats of the scale
Wrench	1-1/2 in	For adjusting the shim bolts and jam nuts
Tin snips or band cutters	--	To cut the metal banding surrounding the CLS on the pallet
Torque wrench w/ 1/2 in Allen	1/2 in	To tighten the cleats to 125 ft-lb

Table 2-1. Recommended Tools for Unpacking the CLS

2.4 Scale Base Installation

Use the following steps to install the scale base to the fork lift.

IMPORTANT: Consider the following during installation.

* ***The scale's centering pin should be aligned with the middle notch of the forklift carriage.***
* ***Verify that the scale base is adjusted so that the pin is located well within the center notch area of the carriage.***
* ***The centering pin should not touch the bottom of the notch on the original carriage, as this will cause side to side tilting of the scale.***
* ***The outside top cleats provide support to the scale assembly and the centering pin only helps to position the scale on the forklift carriage.***

WARNING: The safety bolt should never be removed or adjusted during installation (see Figure 2-5).

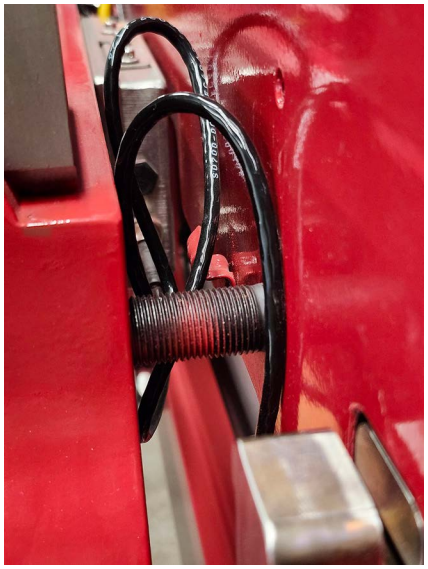


Figure 2-5. Safety Bolt

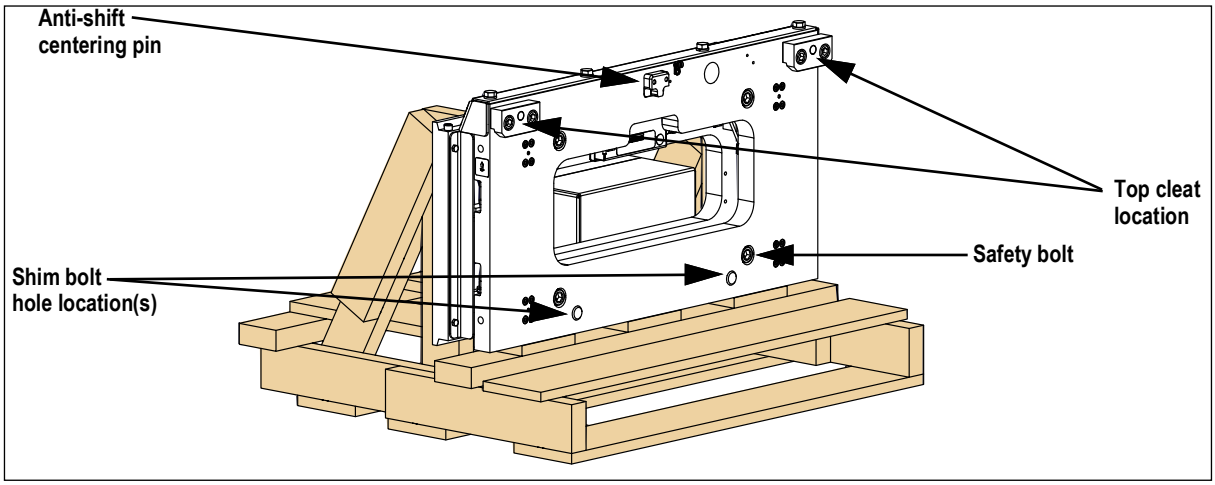


Figure 2-6. Anti-shift Centering Pin, Shim Bolts and Top Cleat Locations

IMPORTANT: Verify that the shim bolts are flush with the back plate of the scale. If they are not flush, the entire scale will be out of alignment when attaching it the forklift. This will make it difficult to make final adjustments once the scale is mounted to the forklift.

1. Remove fork tines from forklift and set aside.
2. Position forklift to the backside of the CLS Scale Assembly.
3. Lower forklift carriage below the top cleat on scale.
4. Align centering pin on the scale with the center notch on the forklift carriage.
5. Tilt mast slightly forward.
6. Carefully raise the scale carriage a couple inches so that the top cleats hook into the forklift carriage.

CAUTION: Ensure fingers and hands are away from the top cleats to avoid pinching and bodily harm.

IMPORTANT: Ensure the centering pin and both top cleats are fully seated. If not, realign and look for interference.

7. Tilt mast back until it is parallel with the scale.
8. Remove remaining banding straps to release the scale from the pallet.
9. Lift carriage a few inches to more easily access the bottom of the scale.
10. Attach bottom cleats to the scale carriage.

IMPORTANT: Ensure lip of cleat is behind the forklift carriage.

11. Torque the bottom cleat retaining bolts to 125 lb-ft.

WARNING: Failure to properly torque the bottom plate retaining bolts may result in bodily harm or damage to equipment.

12. Using the feeler gauge (included), adjust the shim bolts so there is a minimal clearance between the bottom cleats and the scale carriage of 0.020 inch thickness.

IMPORTANT: Failure to adjust shim bolts to proper clearance of 0.020 inch may result in binding, poor accuracy or improper fit of attachment to forklift.

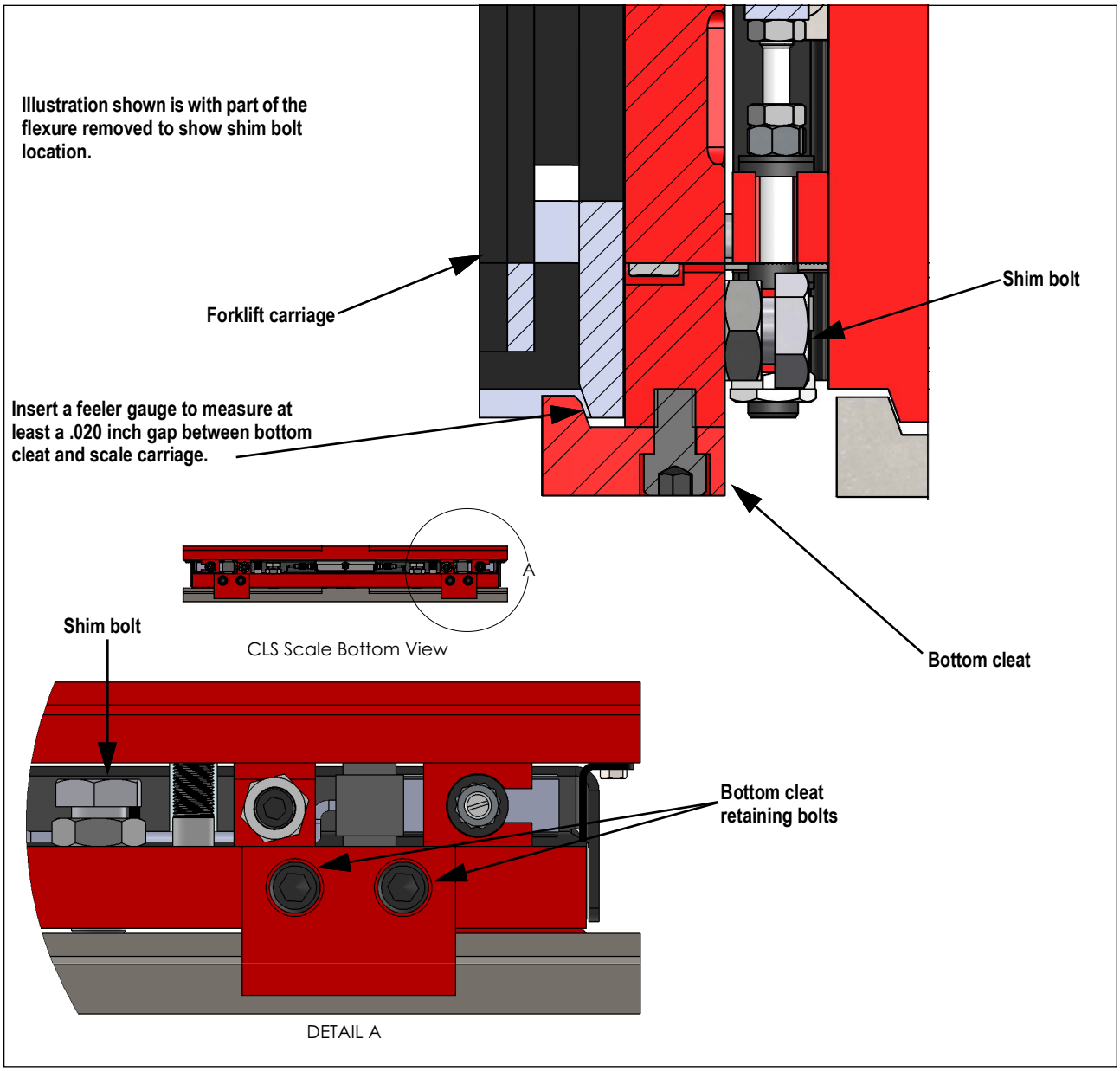


Figure 2-7. Bottom Cleat Location and Assembly

2.5 Install Forks

Once the scale is properly installed, the forks must be installed onto the scale assembly.

1. Align a fork to the center of the scale assembly, ensuring it is over the top of the assembly.
2. Lift the carriage slightly to set the fork, and then slide the fork to the side of the scale.
3. Repeat steps one and two for the other fork, sliding it the opposite direction on the scale.

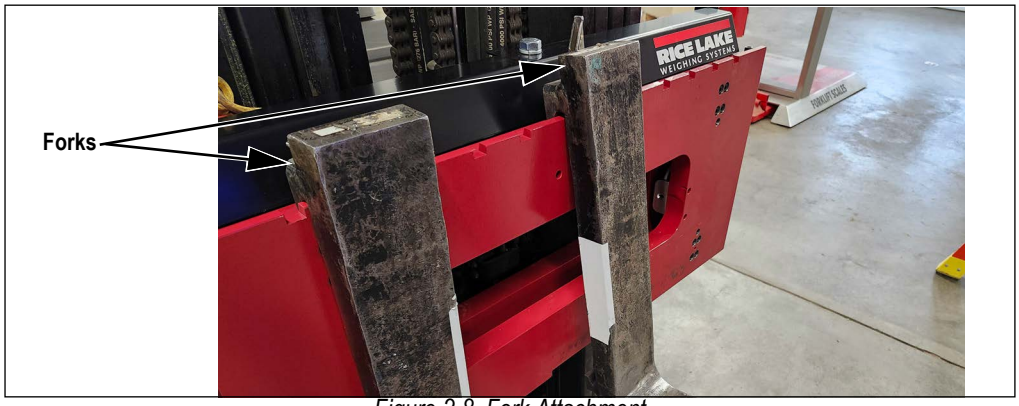


Figure 2-8. Fork Attachment

2.6 Connect Coiled Interface Cable to Junction Box

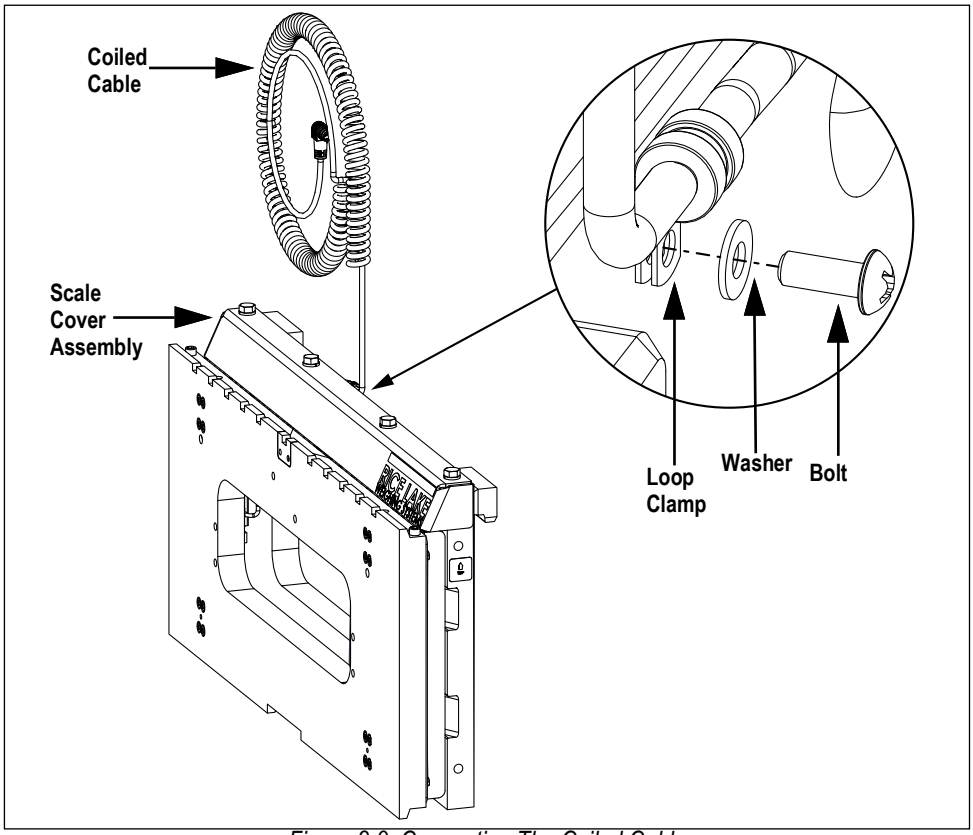


Figure 2-9. Connecting The Coiled Cable

1. Loosen the bolt securing the cover to the scale assembly and remove cover.
2. Assemble loop clamp kit to the coiled interface cable.

3. Route the coiled cable through the clips on backside of carriage toward middle. For proper coiled cable routing, tighten the clips. Set the other end of the cable aside until the power/communication box is installed. See Section 2.6.1 on page 16.
4. Push the coiled interface cable through the hole in the scale and connect it to the junction box.
5. Position the scale cover assembly and the loop clamp assembly to the scale and secure with the bolt and washer.

NOTE: After successful installation and calibration, replace the cover on the scale assembly and secure with bolts and washers.

2.6.1 Route the Load Cell Coiled Interface Cable

CAUTION: Do not plug the coiled interface cable into the instrumentation until the power hookup is completed.

1. Route the cable connected to the load cell junction box to the indicator from the forklift scale. Routing of the cable varies depending on the forklift style. The preferred route for a single stage forklift is through the center of the mast, up the front/right upright, across the top of the overhead guard and down the rear-right pillar to the power/communication box.

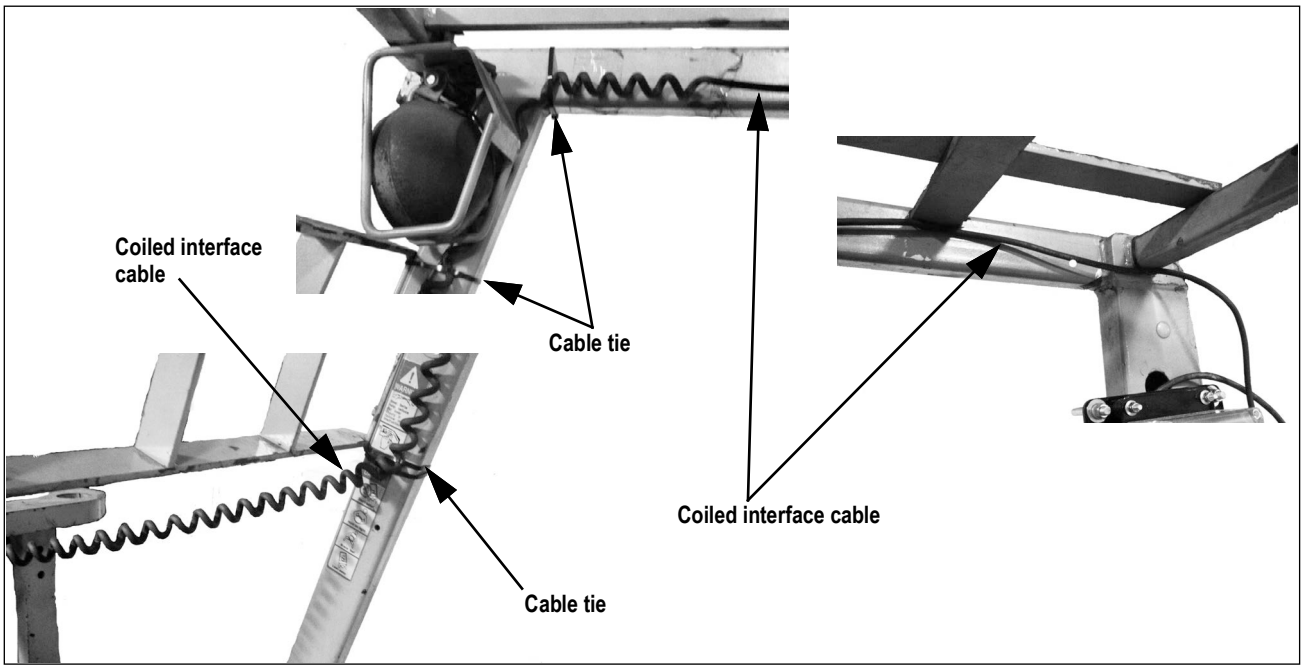


Figure 2-10. Signal Cable Located Between the Scale and the Power/Communication Box

2. Secure with cable ties at the scale, at the top of the mast and several other locations to keep it securely in place.
3. Slowly and carefully extend the mast to all positions to confirm that the cable isn't pulled too tight and that there are no pinch points along the cable route.
4. Check for proper signal cable clearance as the side shifter (if used), is moved back and forth.
5. After the power hook-up is completed, plug the power connector into the instrumentation.

NOTE: Do not obstruct the view of OSHA labels on the forklift when routing cables.

3.0 Parts and Service

3.1 Daily Inspection Checklist

- ☐ Check scale carriage for loose, worn, bent or broken components.
- ☐ Inspect fork tines for damage.
- ☐ Check locking pins on fork tines.
- ☐ Inspect coiled cable for pinched, rubbed, stretched or damaged areas.
- ☐ Inspect power cable from indicator to battery for nicks or cuts.
- ☐ Make sure power cable is routed out of harms way, fasten periodically to eliminate potential problems.
- ☐ Tighten cable connections at indicator junction box if necessary.
- ☐ Inspect coiled cable clamps and cable ties to ensure all cable attachments are secure.
- ☐ Inspect indicator mounting bracket, isolation mounts and hardware for loose or cracked parts.
- ☐ Check both bottom cleats are in place and secured on scale carriage, as necessary. Raise carriage and visually inspect.
- ☐ Check the lift chain so the heel of the forks have 1/2 in to 1 in of clearance from floor when the carriage is down and the mast is vertical. Service as needed.

3.2 Cargo Lift Scale Assembly

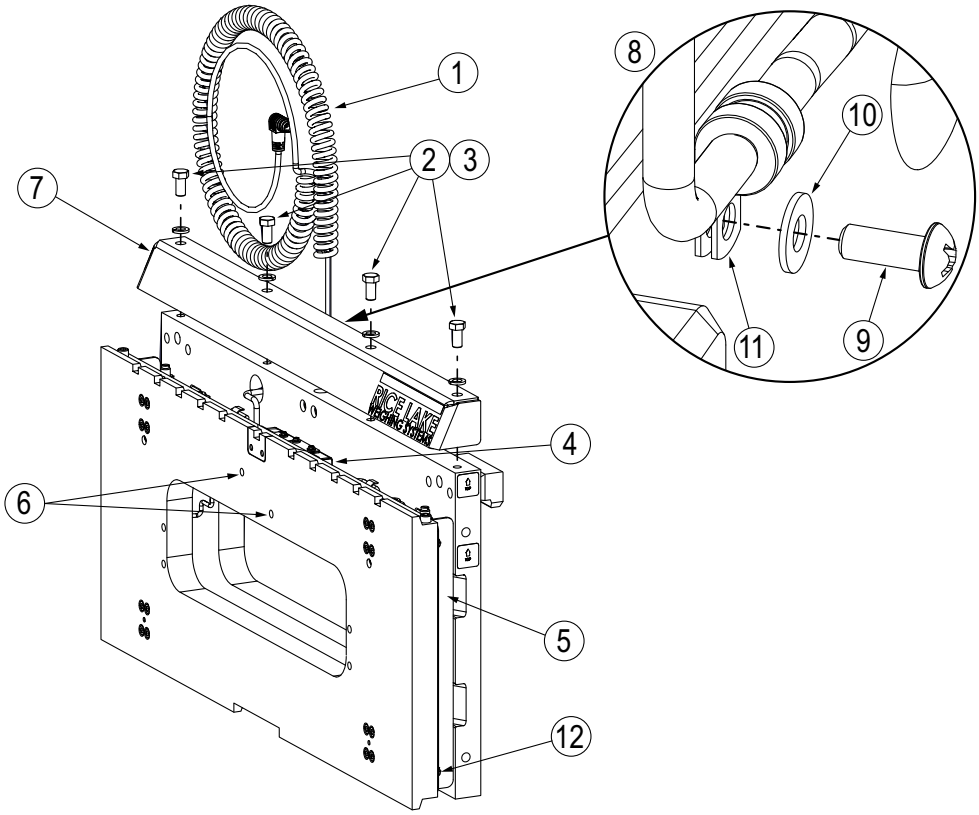


Figure 3-1. Cargo Lift Scale Assembly Parts Illustration (PN 226802)

Item No.	Part No.	Description	Qty
1	125395	Cable Assembly, Coiled 5x18AWG	1
2	114012	Screw, Cap 1/2-13NC x 1 Hex Head Grade 8 Steel Zinc Plated	4
3	15167	Washer, Split Lock 1/2 Steel Zinc Plated	4
4	191642	J-Box Assembly, CLS Series	1
5	230967	Side Cover	2
6	125649	Hex Socket Cap Screw 10-32 x 1 SST	2
7	230731	Angle, Protective, 34 in	1
8	150720	Kit, Loop Clamp, Coiled Cable Assembly (Inc 9-11)	1
9	126980	Screw, Machine 10-32 x 1/2	1
10	15141	Washer, Plain STD No 10	1
11	150719	Clamp, Loop One Hole 1/4 in	1
12	14955	Side Cover Bolts	4
NS	226803	Lower Cleat, CLS-NX Bottom Mounted	2
	92829	Screw, Cap	4
NS	53308	Label,1.25 x 1.25 8000T	2

Table 3-1. Cargo Lift Scale Assembly Parts List (PN 226802)

3.2.1 Load Cell Assembly

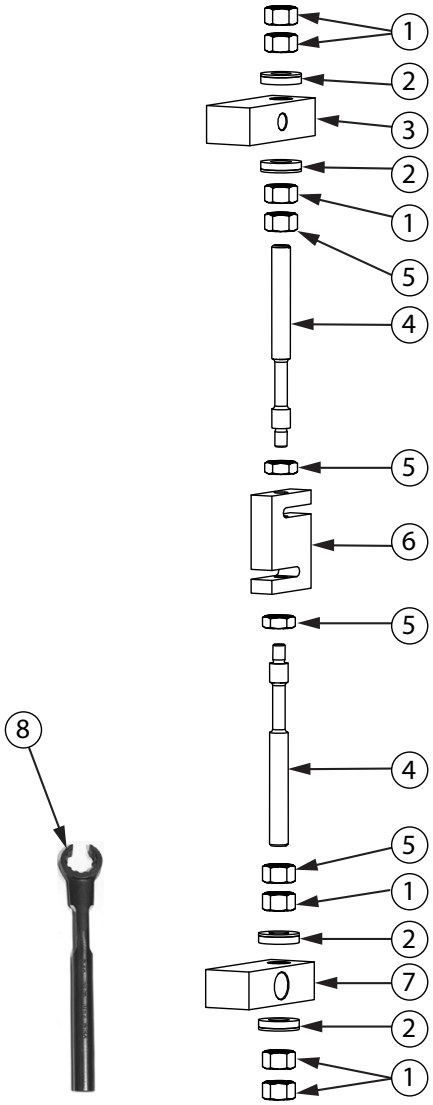


Figure 3-2. Load Cell Replacement Kit Parts Illustration

Item No.	Part No.	Description	Qty
	203139	**Load Cell Replacement kit (inc items 1, 2, 4, 5, 6 & 8)**	**Ref**
1	109958	Hex Nut, 1/2-20	6
2	15198	Spherical Washer Set	4
3	--	Upper Block	Ref
4	92827	Flexure Rod	2
5	14665	Jam Nut, 1/2-20	4
6	215390	Load Cell with w/M12 Connection	1
7	--	Lower Block	Ref
8	96196	Wrench, Load Cell	1

Table 3-2. Load Cell Replacement Kit Parts List

3.2.2 CLS-IM Junction Box Assembly

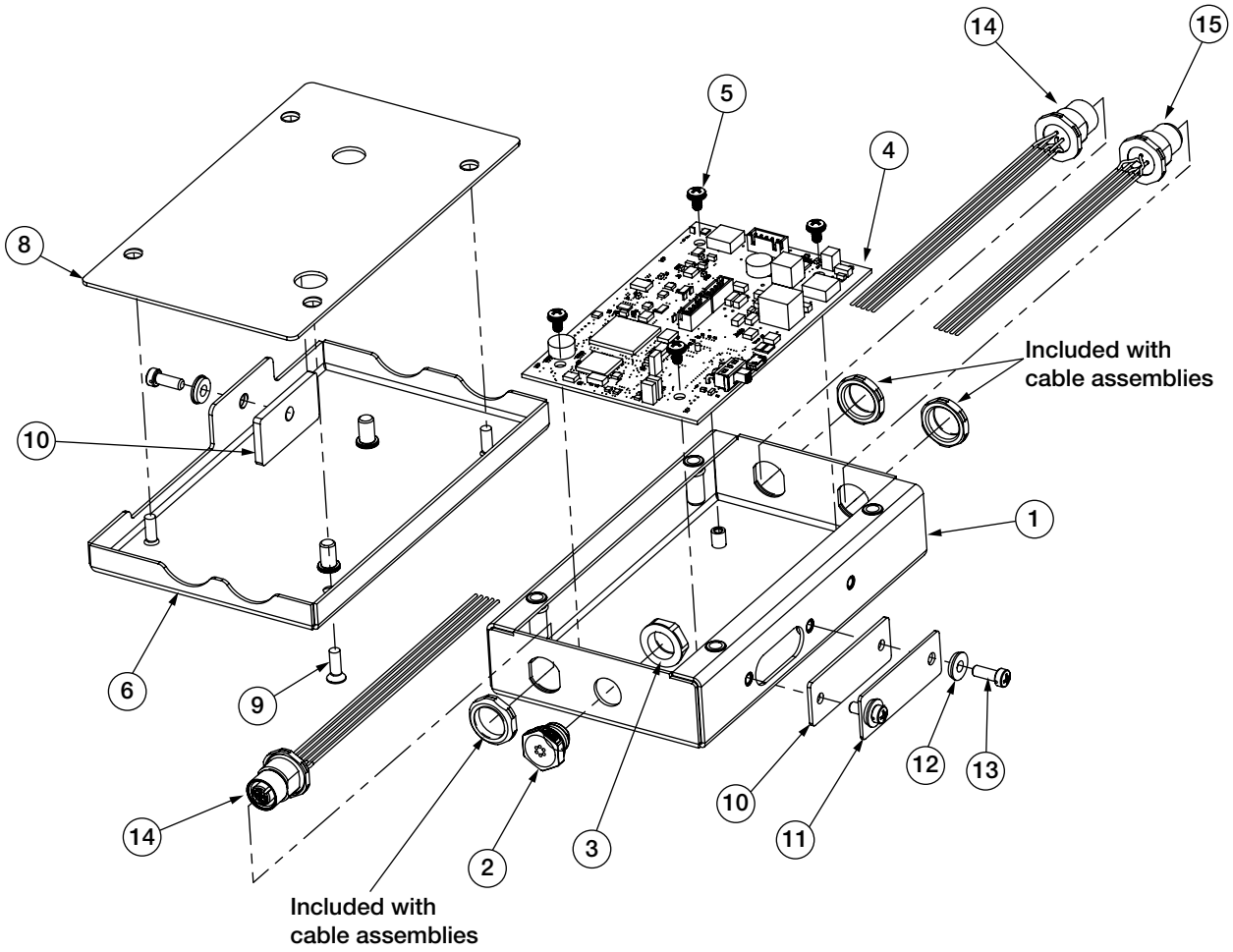


Figure 3-3. CLS-IM Junction Box Assembly (PN 191642)

Item No.	Part No.	Item Description	Qty.
1	197711	Enclosure Assembly	1
2	164598	Breather Vent	1
3	88734	Nut, Breather Vent Thread	1
4	191673	Junction Box PCB Assembly	1
5	14839	Screw, 6-32NC x 1/4	4
6	197713	Cover Assembly	1
7	163764	Gasket, Assembly Cover	1
8	164070	Gasket, Access Cover	1
9	100968	CR-FHMS 0.164-32 x 0.5 x 0.5-N-SST	4
10	163765	Gasket, Access Cover	1
11	162384	Cover Plate, Access Hole	1
12	75062	Sealing Washer, #8	3
13	30623	Screw, 8-32NC x 7/16	3
14	163766	M12 Cable Assembly, Female, Load Cell	2
15	163767	M12 Cable Assembly, Male, Power/Comm	1
NS	52342	Label	1

Table 3-3. CLS-IM Junction Box Assembly (PN 191642)

4.0 Troubleshooting

4.1 Troubleshooting Chart

Symptom	Possible Cause	Action
Scale reading high against test weight	Debris between the scale and the forklift carriage	Remove debris
	Debris between the front and back scale plates	Remove debris
	Centering pin touching the forklift carriage, causing it to teeter back and forth	Adjust scale carriage, centering pin should not touch on sides and bottom
	Bottom cleats not adjusted properly or loose	Adjust to proper gap using jam nuts, 0.02”
	If all of these steps do not resolve the issue, check the following	
	Junction box error	Open junction box and look for obvious damage
	Load cell errors	Test mV/v levels, at 1.5 mV per 1,000 lb, test at 350 ohms
Scale reading low against test weight	Zero key has been pressed with a negative weight reading, whiles forks are on the floor	Lift forks off the ground, press the Zero key
	Debris between the scale and the forklift carriage	Remove debris
	Debris between the front and back scale plates	Remove debris
	Centering pin touching the forklift carriage, causing it to teeter back and forth	Adjust scale carriage, centering pin should not touch on sides and bottom
	Bottom cleats not adjusted properly or loose	Adjust to proper gap using jam nuts, 0.02”
	If all these steps do not resolve the issue, check the following	
	Junction box error	Open junction box and look for obvious damage
	Load cell error	Test mV/v levels, at 1.5 mV per 1,000 lb, test at 350 ohms
Weight inaccurate	Tare key has been activated	At a stable zero weight, press Tare to return scale to normal weighing mode
Scale not returning to zero (0)	Forks are touching the ground	Lift forks off ground and press the zero key
	Debris between the scale and the forklift carriage	Remove debris
	Debris between the front and back scale plates	Remove debris
	Bottom cleats not adjusted properly or loose	Adjust to proper gap using jam nuts, 0.02”
	If all these steps do not resolve the issue, check the following	
	Junction box error	Open junction box and look for obvious damage
	Load cell error	Test mV/v levels, at 1.5 mV per 1,000 lb, test at 350 ohms
Will not display small weight values	Digital filter sensitivity is too high	Using Revolution: Scales menu/scales #1/filtering Change the digital filtering sensitivity to light and change digital filter threshold to 10
Unstable weight	Power connections faulty, low battery	Check battery power cable Check for low battery voltage
No weight being displayed on the handheld device	Power switch is off	Turn on power switch
	Coiled cable has loose connections or wear	Fasten coiled cable connections. Replace coiled cable if damaged
	If all these steps do not resolve the issue, check the following,	
	Junction box sealing switch is in calibration mode	Move switch to weighing mode
	Junction box load cell connections loose	Securely fasten connections
	Junction box error	Open junction box and look for obvious damage
	Load cell errors	Test mV/v levels, at 1.5 mV per 1,000 lb, test at 350 ohms

Table 4-1. CLS Troubleshooting

5.0 Specifications

Scale Capacity:

5,000 lb x 5 lb NTEP Certified

Scale Power:

Supplied by indicator through coiled interface cable

Scale Material/Finish:

Painted steel

Warranty:

Two-year limited warranty

Certifications and Approvals

CoC Number	06-074 (5,000 lb only) per H-44 at 1,000 divisions
Accuracy Class	III/III L
n_{max}: 10 000	

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WEIGHING SYSTEMS

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