CLS-M

Cargo Lift Scale

Installation/Service Manual

RICE LAKE®
WEIGHING SYSTEMS

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PN 126179 Rev L

An ISO 9001 registered company

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www.ricelake.com

Contents

1.0 Introduction

This manual is for trained and qualified personnel responsible for installing and servicing the CLS-M. This manual covers information on the installation and service of the scale carriage, coiled interface cable and the power/communication box.

Manuals are available for viewing and/or downloading from the Rice Lake Weighing Systems website at www.ricelake.com/manuals

Warranty information can be found on the website at www.ricelake.com/warranties

1.1 Safety

Safety Signal 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.

Some procedures described in this manual require work inside the power/communication box. These procedures are to be performed by qualified service personnel only.

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

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.

Do not use near water.

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

1.2 Considerations Before Installation

1.2.1 Forklift Derating

1.2.1.1 Capacity Reduction Calculation

The CLS fits most typical forklifts, but there are considerations that must be taken into account prior to installation. Due to the extra weight of the CLS, 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.

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

Figure 1-1. CLS Capacity Formula

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

Table 1-1. CLS Capacity Formula Key

1.2.1.2 CLS Classes and ID Plates

An updated ID plate on the forklift stating the new lifting capacity and center of gravity information is required per OSHA rules and regulations.

	28"	34"	38"
Vertical enter of gravity (VCG) of scale	8.06	8.06	10.15
Horizontal center of gravity (HCG) of scale	2.09	2.09	2.83
Effective thickness (ET) of scale	4.55	4.55	6.06
Effective thickness (ET) of scale	392	420	987

Table 1-2. CLS Forklift ID Plate Dimensions

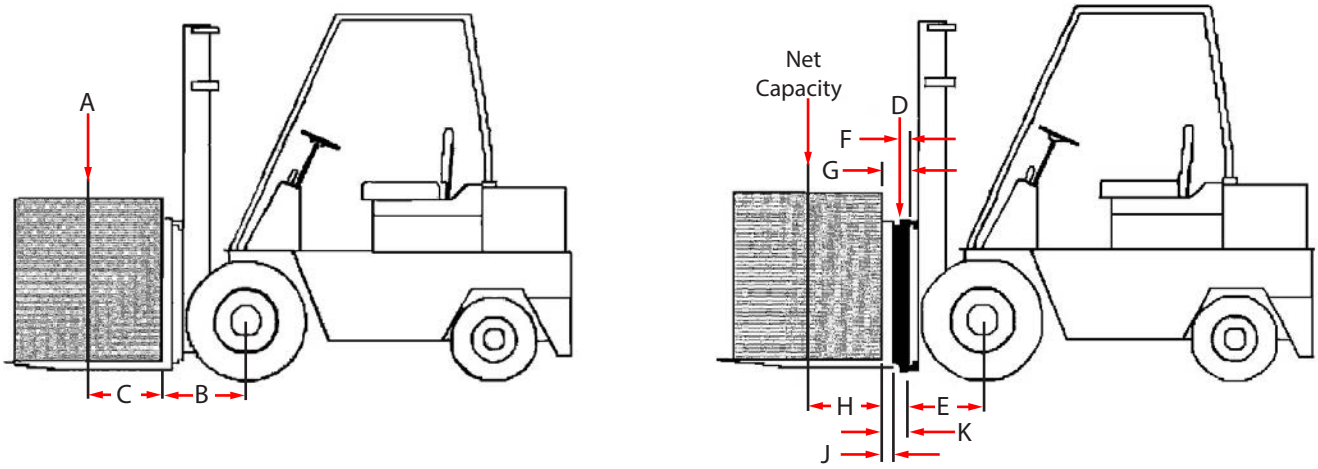


Figure 1-2. Forklift CLS Reference

1.2.2 Forklift Battery and CLS Installation

CAUTION

Take into consideration that the indicator power source is connected directly to the battery of the forklift. Most typical is 12 volts for propane, gas and diesel forklifts.

12 volt systems must have a negative ground, ensure the forklift has a negative ground electrical system. The CLS cannot operate on a positive ground forklift. Refer to the forklift manual to verify grounding requirements.

Standard CLS scales use 9-36 V power supply for use on 12 V batteries. Install the following for electric system forklifts:

PN 166162 – DC-DC Converter, CLS

PN 166161 – Power Line Filter, CLS (for static protection)

1.3 Power/Communication Box Introduction

The Power/Communication box transmits data between the scale and the hand-held device. The Mac ID label is used to pair the CLS Bluetooth® interface with the hand-held device supplied by the customer.

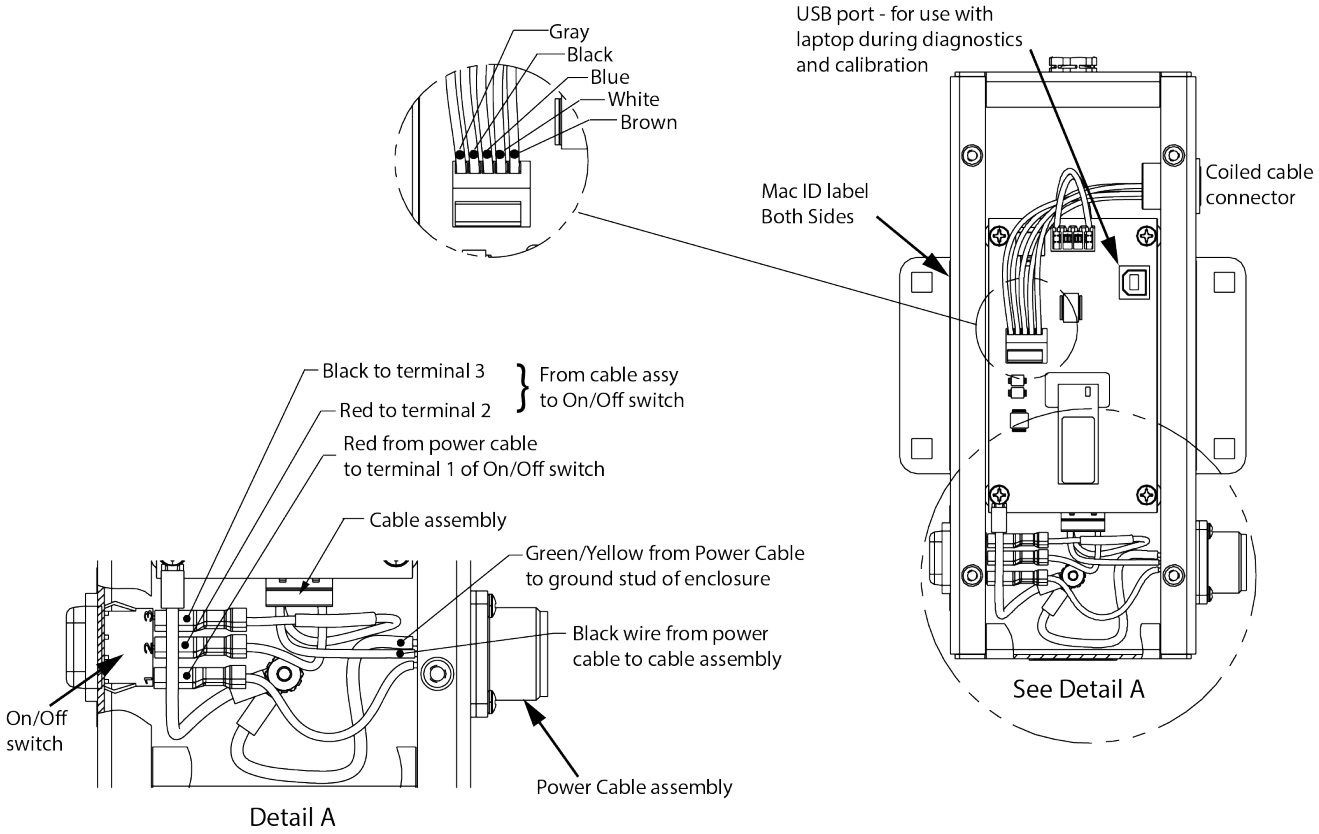


Figure 1-3. Power/Communication Box Schematic (PN 153616)

1.4 Power/Communication Connection to Junction Box

The Power/Communication box receives data from the junction box through the Interface Cable.

Figure 1-4. Interface Cable – Power/Communication Box to Junction Box

1.5 iQube2™ CLS Junction Box

The latest CLS Series scales includes an updated version of the iQube2 junction box. This design is built to allow service technicians to easily service the unit in the field. Below is an overview of the new features and functions.

It also replaces the older style junction boxes, originally used in the CLS Series scales.

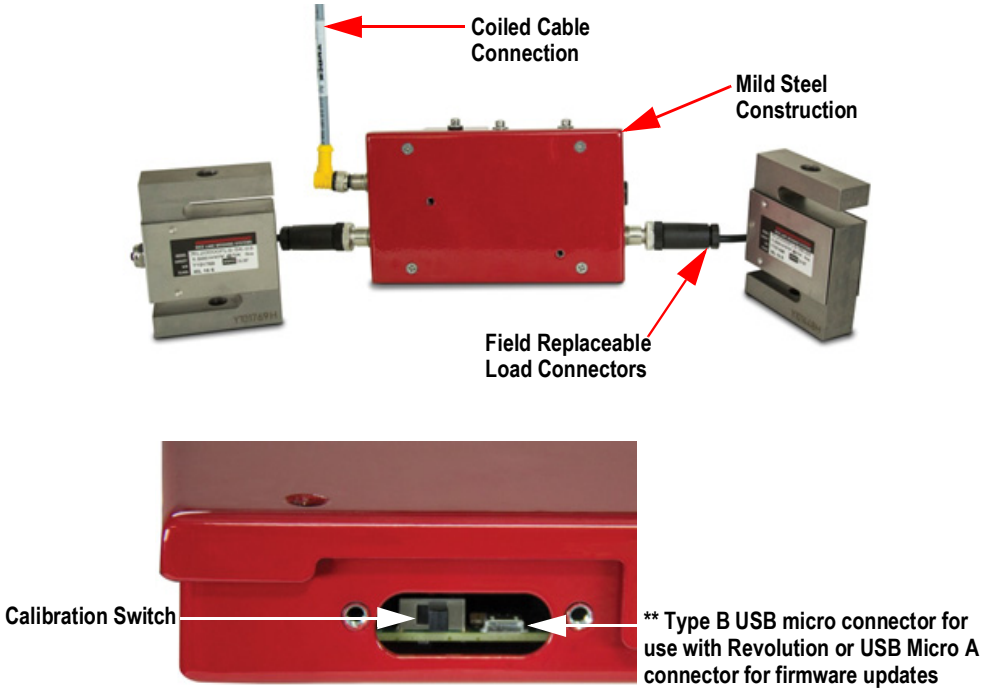


Figure 1-5. iQube2 Junction Box

** Allows for connection to Revolution from the front of the forklift, using Type B USB micro connector. A built-in USB driver allows easy interface capabilities. Simply connect to Revolution and select the new USB COM port generated. This can help eliminate the coiled cable and communication/power box. If updating firmware, switch to a USB Micro A connector.

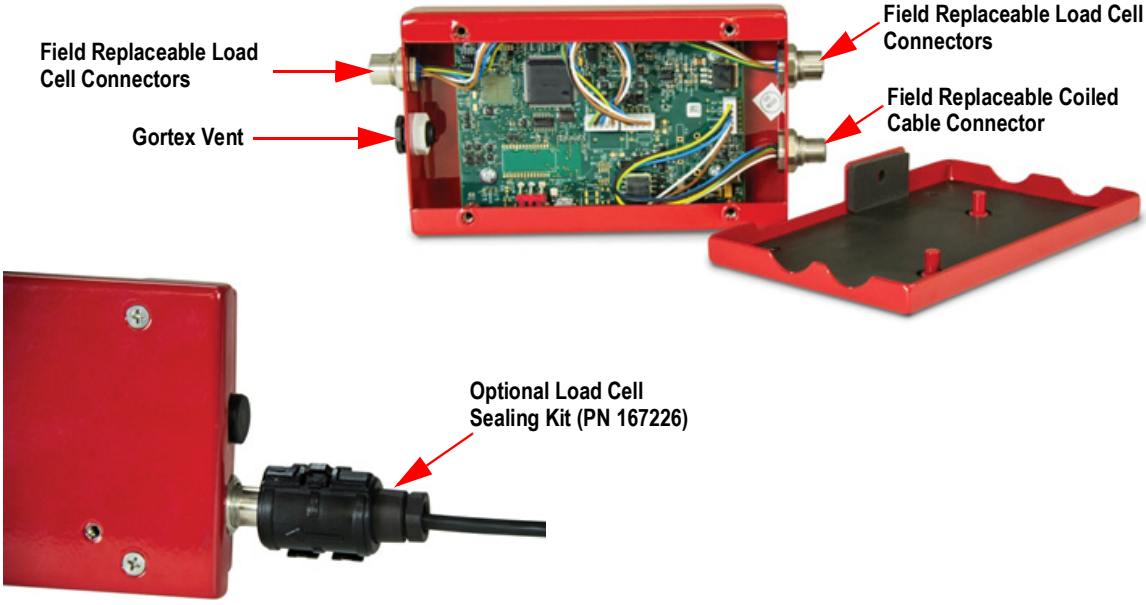


Figure 1-6. iQube2 Junction Box Component Parts

2.0 Scale Base Installation

This section describes procedures for installing the Cargo Lift Scale base.

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 2.4.***

The Cargo Lift scale is shipped from the factory with the scale already calibrated and all settings stored in the junction box. Minimal adjustments and calibration might be necessary once the scale is installed onto the forklift. Those calibration steps are contained in Section 5.3 on page 39.

2.1 Before Installation

Before installing the CLS on a forklift, the forklift should be in good operating condition for optimal weighing accuracy. Look for the following items prior to installing the CLS onto a forklift:

- Inspect the forks for any 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 to 1 inch 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's performance

The power/communication box will be connected directly to the battery of the forklift. The CLS scale works with 9-36 VDC power source.

CAUTION ***All systems must have a negative ground.***

2.2 Recommended Tools for Installation

Ensure the forklift meets the qualifications specified in Section 1.2 on page 2. Use the following tools to install onto the forklift:

Tool	Size	Purpose of Tool
Allen wrench	4 mm	For service only, to remove junction box
Crescent wrench	2" adjustable	For adjusting the shim bolts and jam nuts
Tin snips or band cutters	NA	To cut the plastic banding surrounding the CLS while on the pallet
Torque wrench w/ 1/2" Allen	1/2"	To tighten the cleats to 125 ft-lb
Electric grinder		For grinding the center pin if necessary and the mounting bolts
Wrench	7/16"	To connect power/communication box to mounting plates
Wrench & socket	9/16"	To connect mounting plates to forklift carriage
USB Type A to Type B Cable	6'	Use with laptop for access to Revolution software for diagnostics, calibration and displayed weight
Level	NA	To perform angle zero calibration
Fish tape	6'	Route power cable to forklift battery
Crimping tool	NA	Battery connections

Table 2-1. Recommended Tools for Installation

2.3 Unpacking

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

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

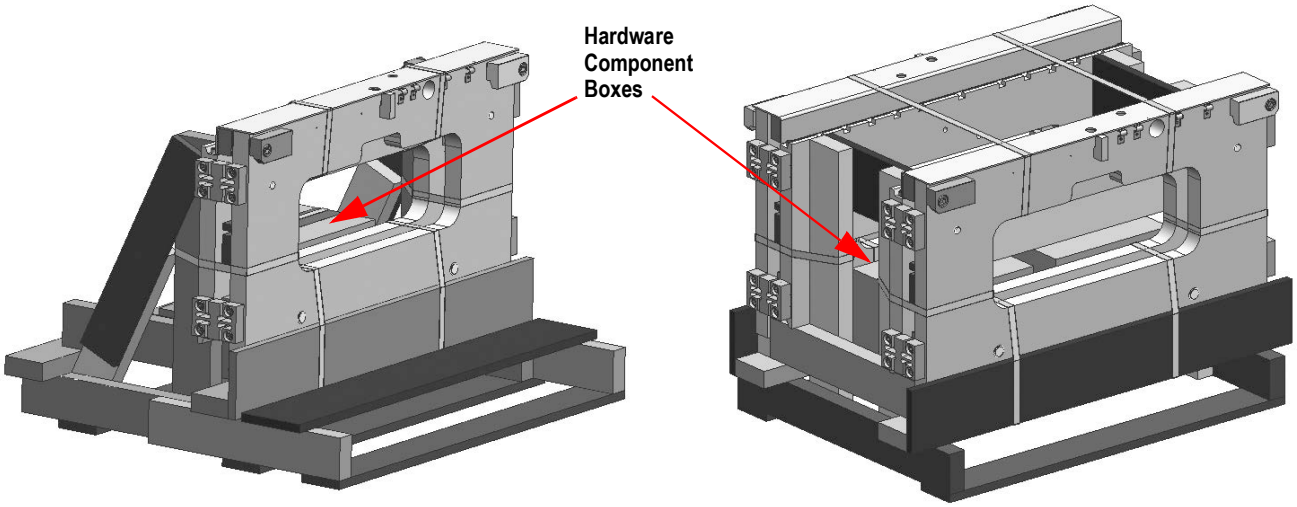


Figure 2-1. CLS-M Packaging

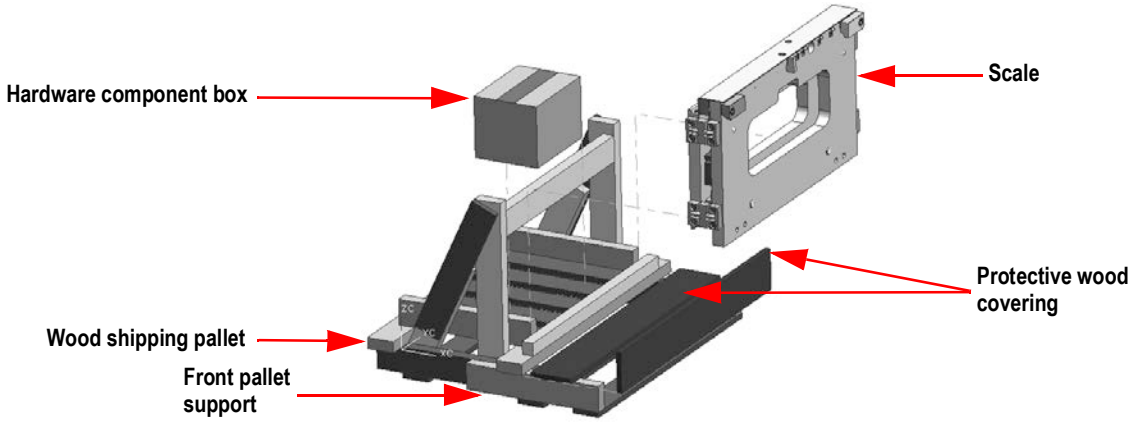
Upon receipt of the shipping pallet, inspect it for any visible signs of damage. Immediately after unpacking, visually inspect the contents to ensure all components are included and undamaged. The shipping pallet should contain the following:

1. One or two scale carriage assemblies with cover plate.
2. Hardware component boxes, which include:
   A. Two cleats with four bolts.
   B. One interface cable.
   C. One power cable and hardware for battery connection.
   D. One power/communication box.
   E. One mounting kit for power/communication box with hardware.

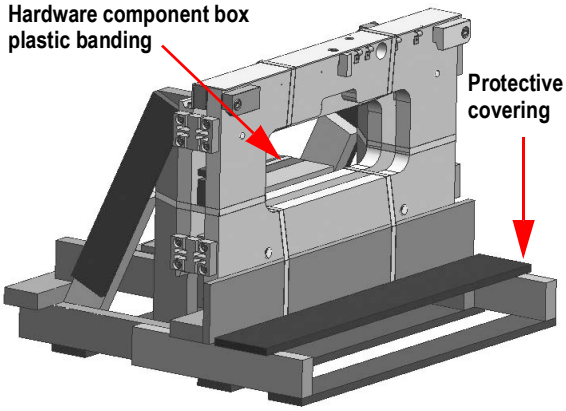
Note ***To ensure that all products received from the manufacturer are in good shape upon arrival, it is recommended to fully inspect all contents and properly fill out the bill of lading.***

2.3.1 Unpacking a One Scale Configuration

The scale is shipped in an upright position, which allows for ease of installation. The power/communication box and accessories are located in a hardware component box.

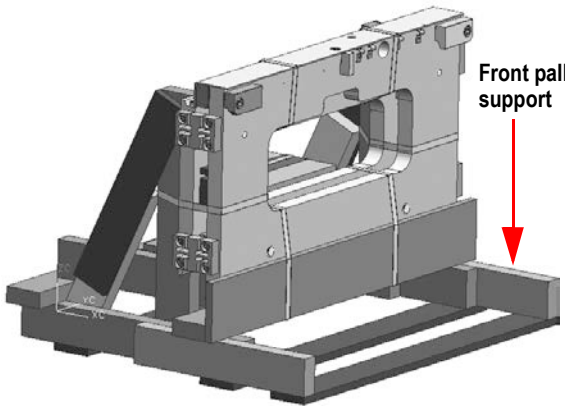


Exploded View of Components

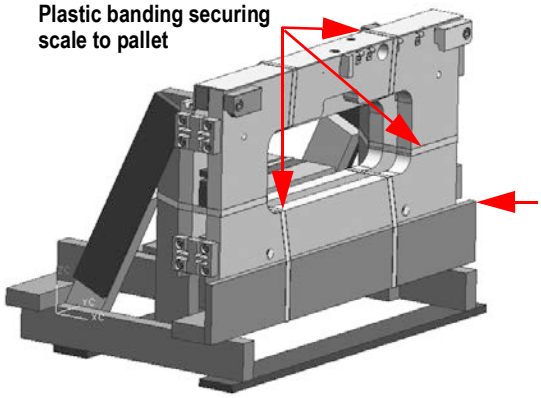


Step 1: Clip plastic band securing hardware component box

Step 2: Remove protective wood covering

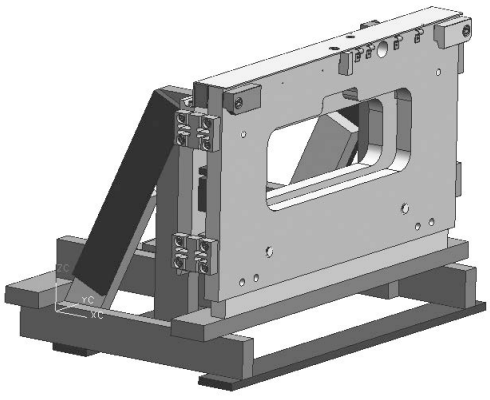


Step 3: Remove Front Pallet Support



Step 4: Clip remaining plastic bands

Step 5: Remove protective wood



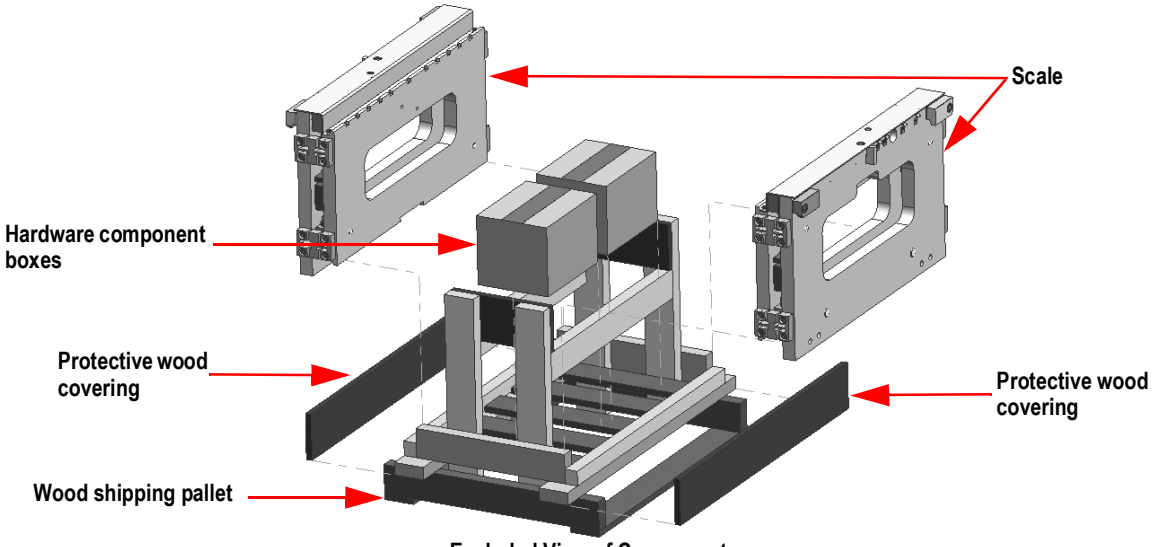
Step 6: Scale is now ready for installation

Figure 2-2. Unpacking One Scale

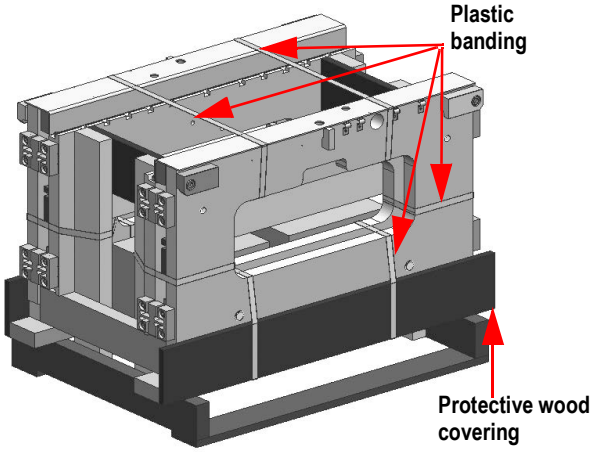
2.3.2 Unpacking a Two Scale Configuration

The scales are shipped in an upright position which allows for ease of installation. The power/communication box and accessories are located in a hardware component box.

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.***



Exploded View of Components



Step 1: Clip top plastic bands

Step 2: Clip plastic band to release hardware component boxes

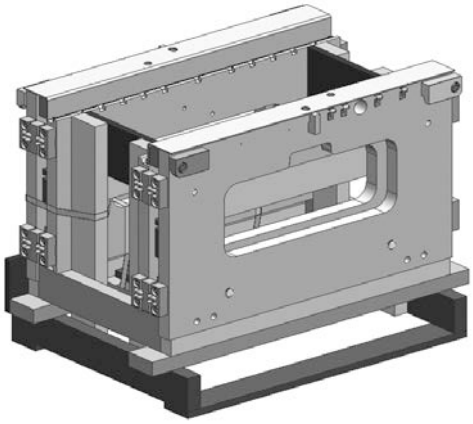
Step 3: Remove hardware component boxes

Step 4: Clip plastic bands from first scale

Step 5: Remove protective wood covering for first scale; scale one is ready for installation

Step 6: Clip plastic bands from scale two

Step 7: Remove protective wood covering for second scale; scale two is ready for installation



Do not clip the plastic band from scale two until scale one is installed

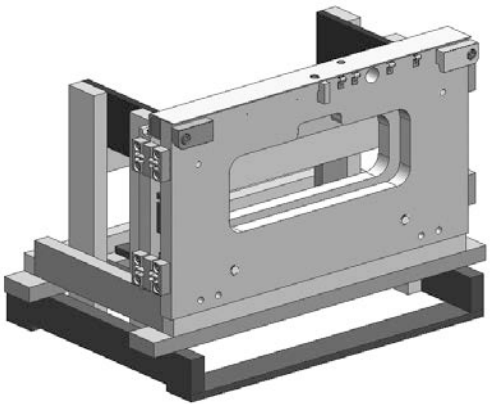


Figure 2-3. Unpacking Two Scales

2.4 Scale Base Installation

Use the following steps to install the scale base to the forklift.

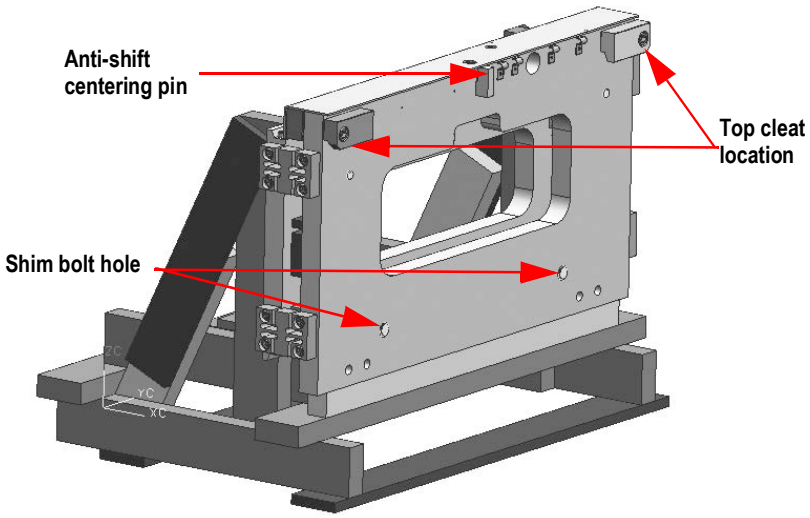


Figure 2-4. Anti-shift Centering Pin, Shim Bolts and Top Cleat Locations (One Scale Configuration Shown)

CAUTION ***Verify that the shim bolts are flush with the back plate of the scale. Not doing so places the entire scale out of alignment when attaching it to the forklift and makes it difficult to make final adjustments once it is mounted.***

1. Ensure the forks are removed from the forklift, move the forklift in close to the pallet and scale.
2. Ensure the anti-shift centering pin on the scale assembly is aligned with the center notch on the forklift carriage.
   A. Centering pin should not touch the bottom of the notch on the original carriage, this will cause side to side tilting of the scale.
   B. Outside top cleats provide support to the scale assembly and the centering pin helps to position the scale on the forklift carriage.
   C. Centering pin should not bear any weight; if it does, the use of a grinder to grind down the centering pin will help remedy that.
3. Tilt the mast forward slightly to catch the scale assembly.
4. Slowly raise the scale carriage slightly so the top cleats of the scale hook onto the forklift carriage; if the scale hook and forklift carriage do not hook push the scale toward the forklift as it is being raised.
5. Tilt the mast back to secure the connection and raise the scale to shoulder height.
6. Attach the bottom cleats to the bottom of the scale assembly, so that the lip of the cleat is behind the scale carriage.
7. Torque the bottom cleat retaining bolts to 125 ft-lb.

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

8. Adjust the shim bolts so there is a minimal clearance (0.020") between the bottom cleats and the scale carriage; use the provided feeler gauge.

IMPORTANT ***Failure to adjust shim bolts to the clearance of 0.020" may result in binding, poor accuracy or improper fit of attachment to forklift.***

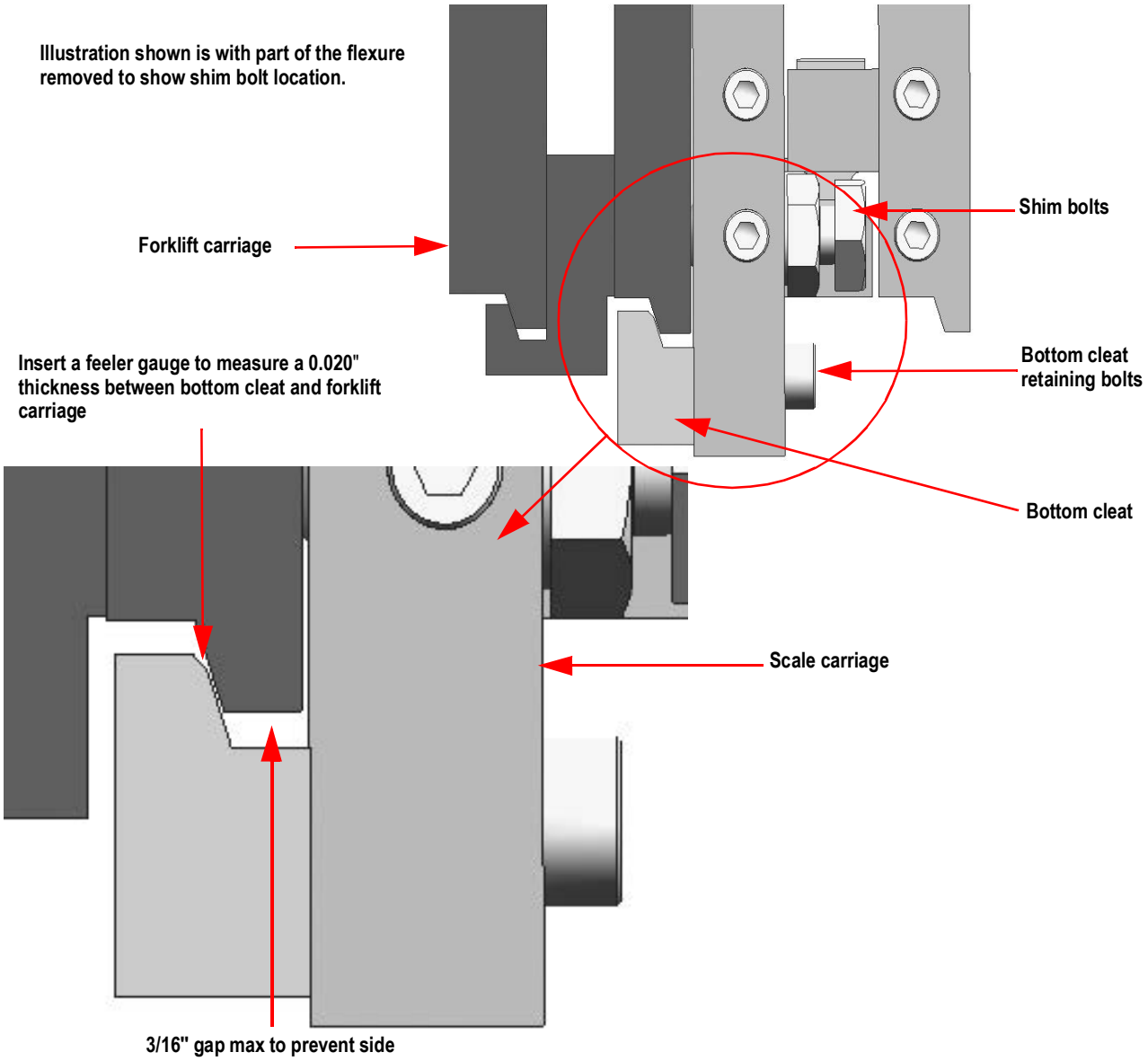


Figure 2-5. Bottom Cleat Location and Assembly

9. Seal the carriage junction box and load cell quick disconnects for Weights and Measurements approval.

2.5 Connect the Coiled Interface Cable to Junction Box

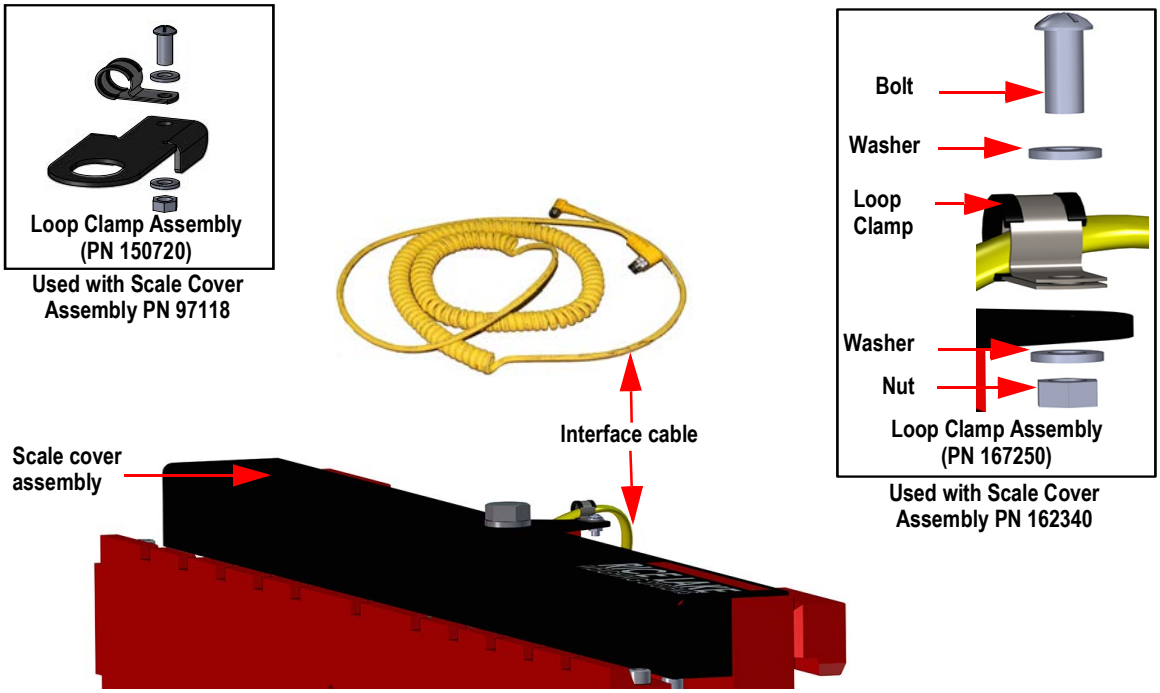


Figure 2-6. Connect Interface Cable

1. Loosen the bolt holding the cover to the scale assembly and remove cover.
2. Assemble loop clamp kit to the interface cable.
3. Route the interface cable through clips on backside of carriage toward middle. For proper interface cable routing, tighten clips; the other end of the cable connects to the power/communication box (Section 3.0 on page 12).
4. Push the 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 on the scale and secure with the bolt and washer.

Note ***After successful installation (Section 2.0 on page 5 and Section 3.0 on page 12) and calibration (Section 5.0 on page 38), replace the cover on the scale assembly and secure with bolt and washer.***

2.6 Install Forks onto Scale Assembly

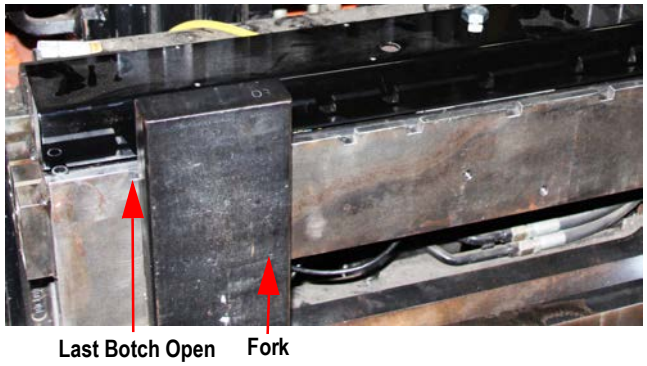


Figure 2-7. Fork Attachment

1. Align a fork to the center of the scale assembly making sure 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; let it stop in the second notch from the end and latch it in place; repeat process for other fork, sliding it the opposite direction on the scale

Note ***For accurate weighing it is recommended to leave forks at the second notch from the outside edge of the scale.***

3.0 Power/Communication Box Hardware Setup

3.1 Mounting Locations

3.1.1 Mounting Location #1

The first preference for the mounting location of the box is 4-6" from the top of the cage on the right rear pillar. If an access hole is available in this location, route the power cable though the roll cage tubing to the battery.

Figure 3-1. Preferred Mounting Location

If there is no access hole available on the right rear pillar, check for an access hole on the left rear pillar. If there is no access hole available on the rear left pillar, use the closest available access hole on the forklift roll cage.

If unable to mount power/communication box in this location due to items such as fire extinguishers, use Mounting Location 2 as seen in Figure 3-2.

3.1.2 Mounting Location #2

The alternate mounting location for the box is 4-6" from the top of the cage on the left rear pillar. If an access hole is available in this location, route the power cable though the roll cage tubing to the battery.

Figure 3-2. Secondary Mounting Position

If there is no access hole available on the left rear pillar, check for an access hole on the right rear pillar. If there is no access hole available on the right rear pillar, use the closest available access hole on the forklift roll cage.

3.2 Mounting Power/Communication Box

There are two styles of Power/Communication boxes, see below for the mounting instructions for the type that is being mounted.

3.2.1 Power/Communication Box (PN 153616)

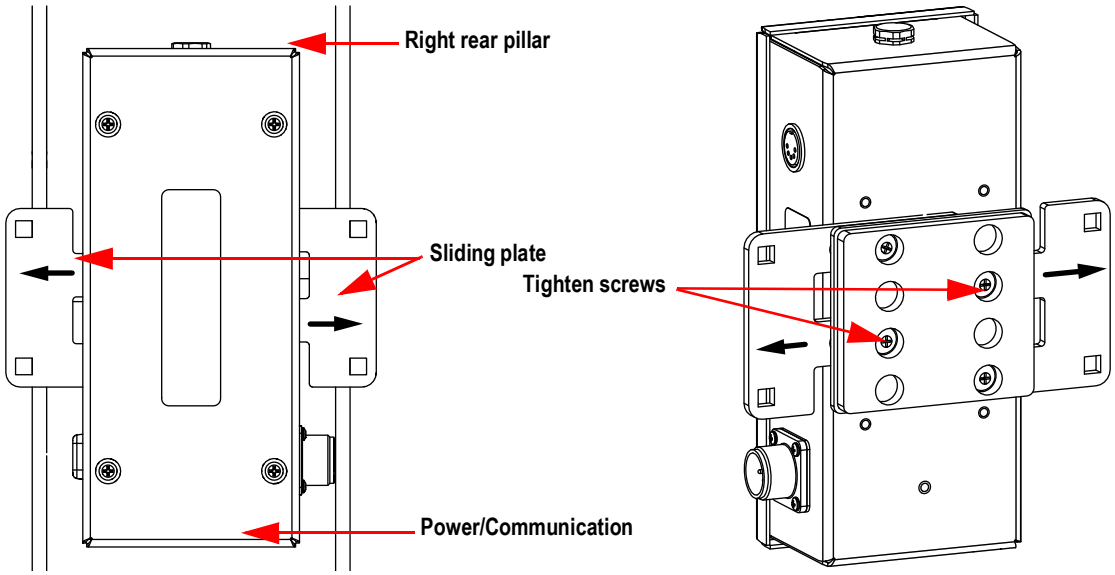


Figure 3-3. Slide Bracket Plates

1. Hold the box against the selected location of forklift.
2. Adjust sliding plates so the bolt holes are clear of the forklift pillar. Maintain equal distances on each side of box.
3. Turn the box over and tighten the screws to secure plate in position.

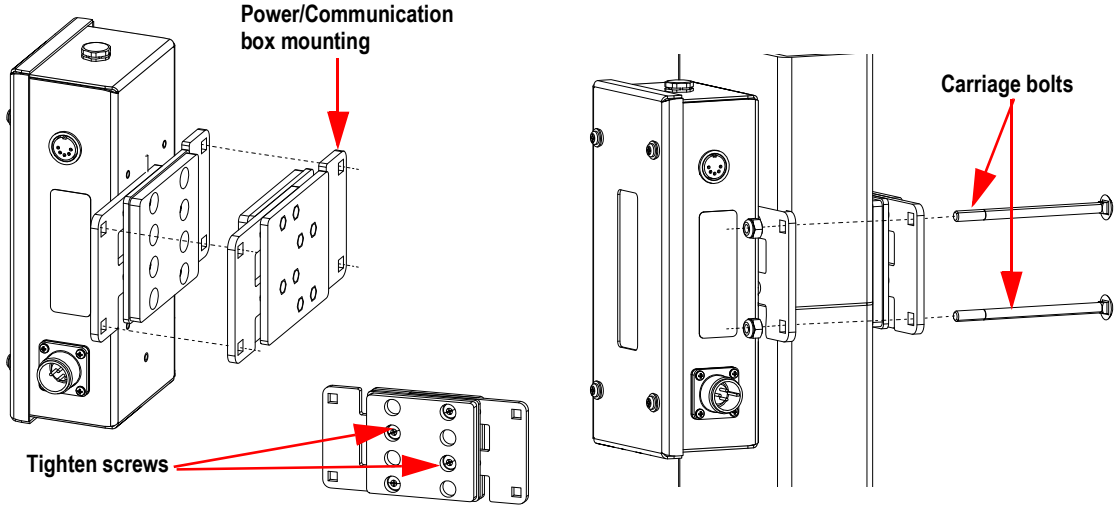


Figure 3-4. Install Mount Bracket

4. Align mounting bracket sliding plates to match sliding plates on the box. Ensure the bolt holes are aligned.
5. Turn mounting bracket assembly over and tighten the screws to secure position of the plates.

6. Hold the box on the inside of the right rear pillar of the forklift and the mounting bracket assembly on the outside right rear pillar of the forklift. Use carriage bolts with nuts to secure in place.

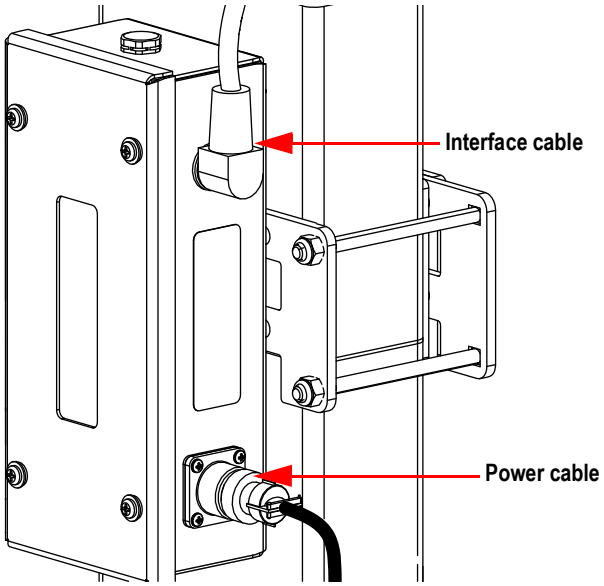


Figure 3-5. Connect Cables

7. Attach interface cable to the Power/Communication box and route as specified in Section 3.4 on page 18.
8. Attach the power cord and route as specified in Section 3.3 on page 15.

3.3 Power Cable Connection

Each installation is unique, depends on model and style of the forklift.

CAUTION ***Do not connect the power cable to the power/communication box until battery connection and power hook-up is complete.***

The indicator power source is connected directly to the battery of the forklift. 12 volt systems are typical for propane, gas and diesel forklifts.

12 volt systems must have a negative ground, ensure the forklift has a negative ground electrical system. The CLS cannot operate on a positive ground forklift.

Refer to the forklift user's manual for further verification of grounding requirements.

The power/communication box draws its power from the forklift battery. After it is mounted, run the power cable along the shortest path that provides protection for the cable (away from moving or hot objects and pinch points), to the forklift battery. Secure the cable at several points with cable ties.

Cable is required to run inside the roll cage tubing, if there are access holes for this purpose, using fish tape. If the cable is run through a hole in a tube or panel, be sure the cable is protected against chaffing.

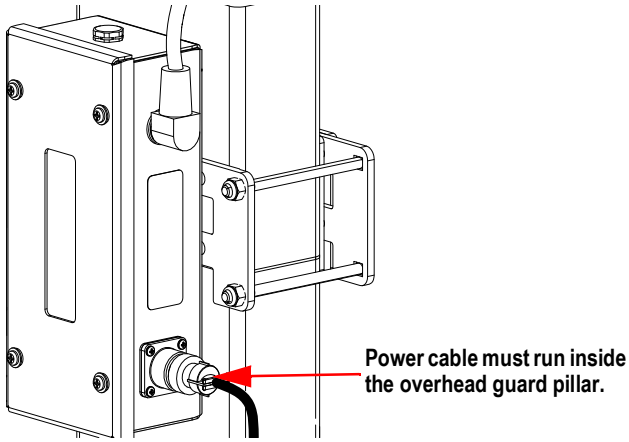


Figure 3-6. Route Power Cable (PN 153616)

WARNING ***When routing cables, do not cover any existing labels on the forklift in compliance with OSHA regulations.***

IMPORTANT ***Avoid running wires anywhere they could potentially be damaged.***

* *Do not let the cable touch or run along anything that gets very hot*
* *Keep the cable away from moving parts, including control linkages and fan blades*
* *Do not place the cable where it can be pinched by the compartment cover when closed*
* *Do not run the cable up against, or directly across the ignition wires*
* *Do not let the cable come in contact with engine fluids*
* *Secure the cable with cable ties at several points to prevent movement or loosening*
* *Inspect the cable often to ensure it has suffered no damage*

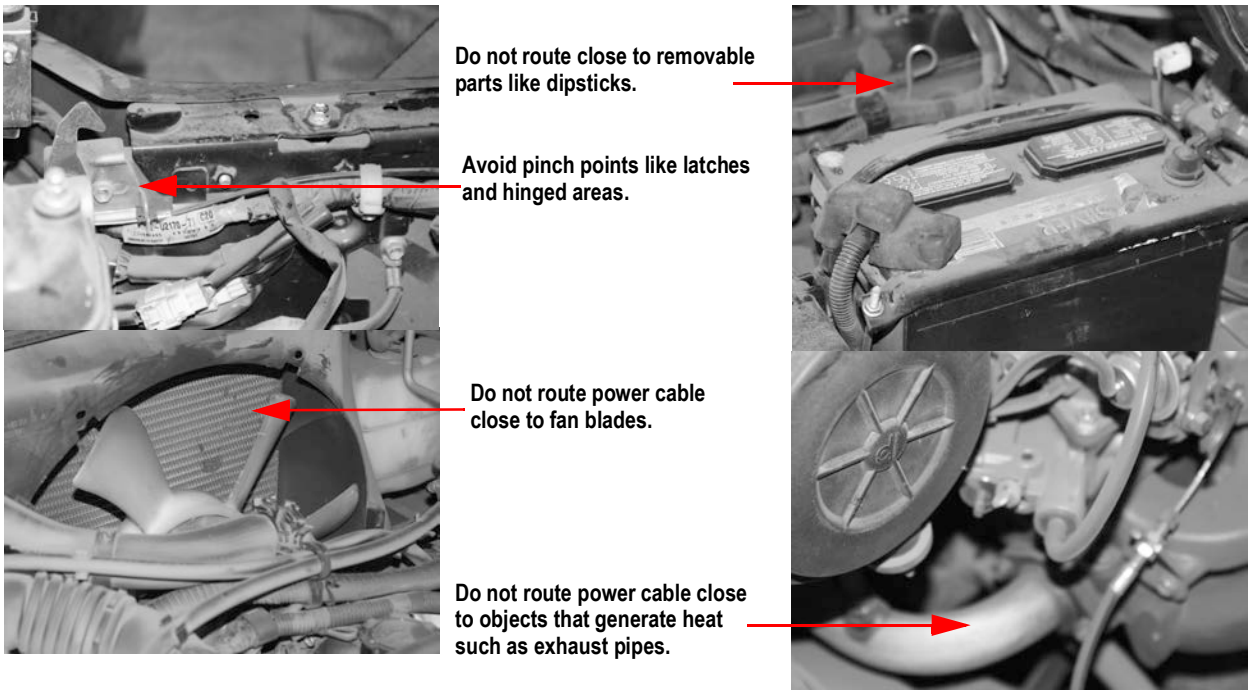


Figure 3-7. Areas to Avoid When Running Power Cable

3.3.1 Power Cable to Battery Connection

1. An in-line fuse is included with the scale. The fuse comes enclosed in an in-line fuseholder with a terminal connector. Connect the fuse assembly to the power cable assembly using the terminal connectors.

Figure 3-8. In-line Fuse (PN 130129)

2. If required, prepare the battery end of the fuse holder for connection by attaching the terminals to the three wires. Ensure there is enough wire exposed, slip the terminal over the wire and use a crimping tool to secure terminal to the wire.

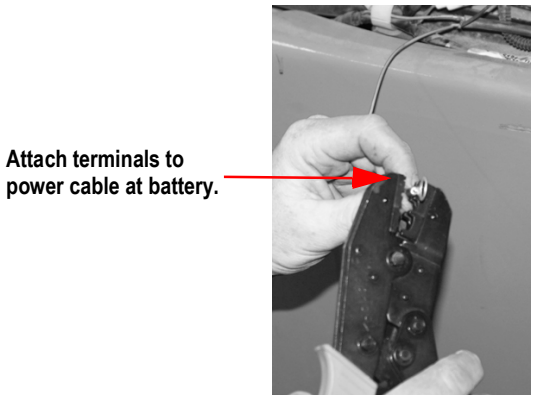


Figure 3-9. Attach Terminals to Power Cable - Battery End

3. Lift the boot from the positive battery cable (if present), and remove the nut from the clamp that connects the cable to the battery post.
4. Place the positive (red) wire terminal-end over the stud from the positive battery clamp and replace the nut to secure the wire to the clamp.

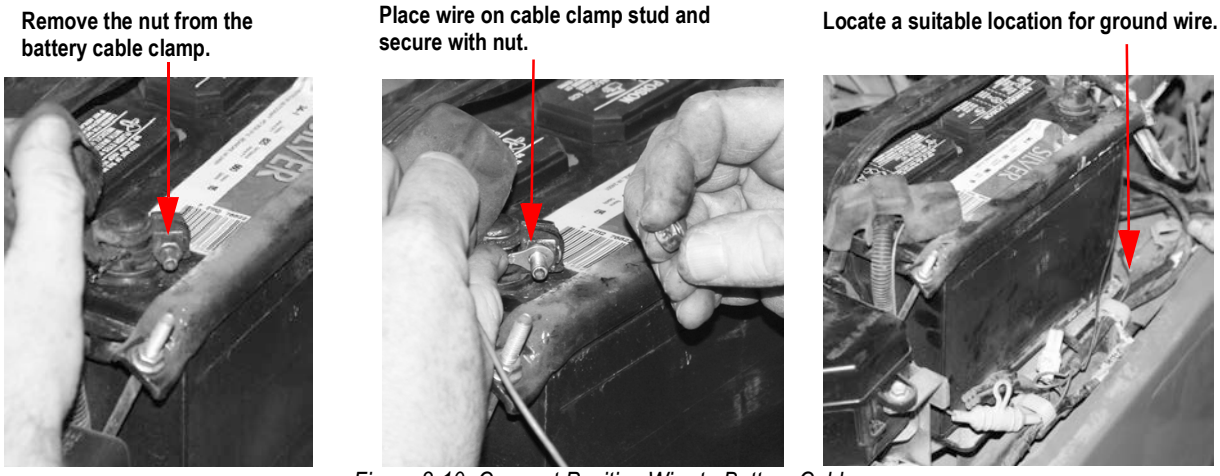


Figure 3-10. Connect Positive Wire to Battery Cable

5. Follow the same procedure to connect the negative (black) wire to the negative battery-cable clamp.
6. Connect the ground (blue) wire to a suitable location on the chassis.
7. After the connections are made at the battery, connect the cable to the power/communication box.

Wire Color	Signal
Red	Positive on battery
Black	Negative on battery
Blue	Chassis ground

Table 3-1. Power Hookups to Forklift Battery

Note ***Supplied termination hardware includes three 1/4" eyelets for 1/4" bolts.***

3.4 Routing the Load Cell Coiled Interface Cable

CAUTION ***Do not plug the interface cable into the power/communication box until power hookup is completed.***

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

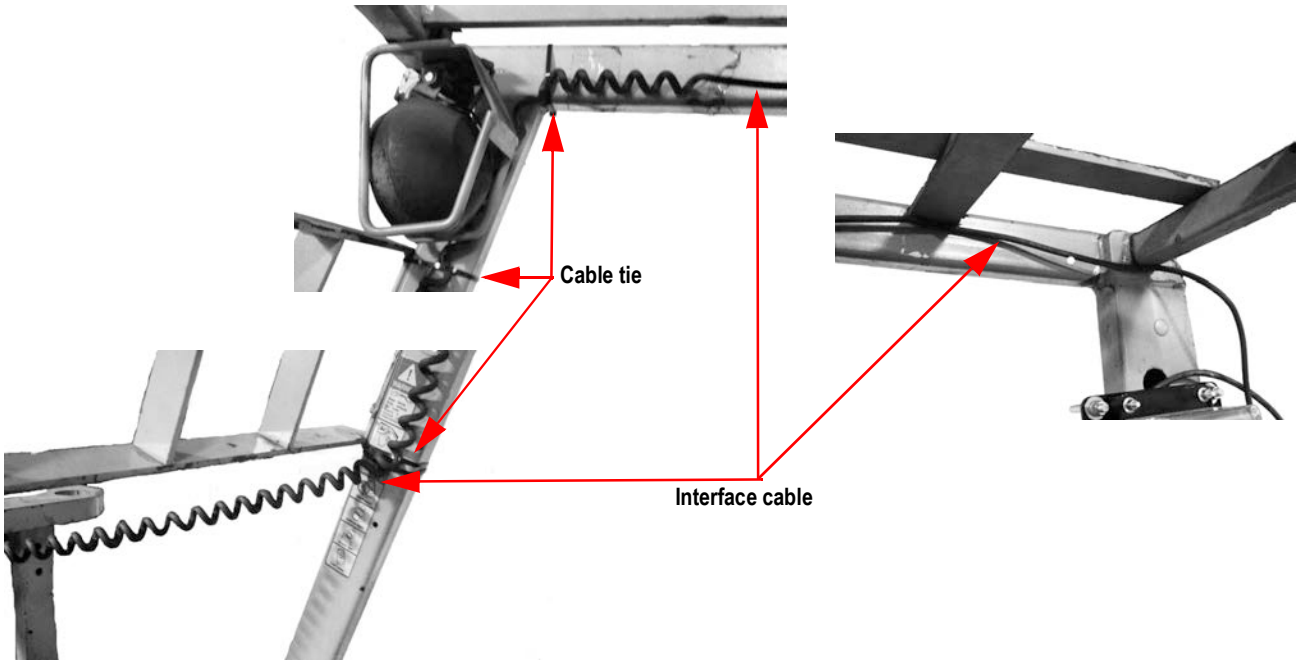


Figure 3-11. Route Signal Cable

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 is not pulled too tight and that there are no pinch points along the way.
4. Check for proper signal cable clearance as the side shifter (if used), is moved back and forth.
5. After power hook-up is completed, plug the power connector into the power/communication box.

WARNING ***When routing cables, do not cover any existing labels on the forklift in compliance with OSHA regulations.***

3.4.1 Powering the Power/Communication Box (PN 153616)

The power/communication box contains the power supply board and the USB/Bluetooth communication board.

1. To turn the power/communication box on, push the **On/Off** switch on the side of the box. The switch will light when power is on.

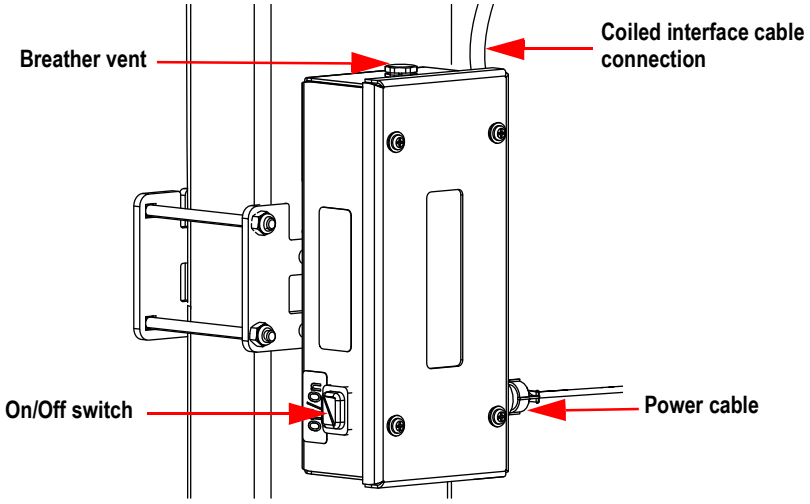


Figure 3-12. Power Switch of Power/Communication Box (PN 153616)

3.5 Weights and Measures Sealing

Weights and Measures personnel will inspect the junction box for proper sealing once installed on the forklift. The junction box must have the proper serial tag affixed to the box and lead wire sealing on the junction box.

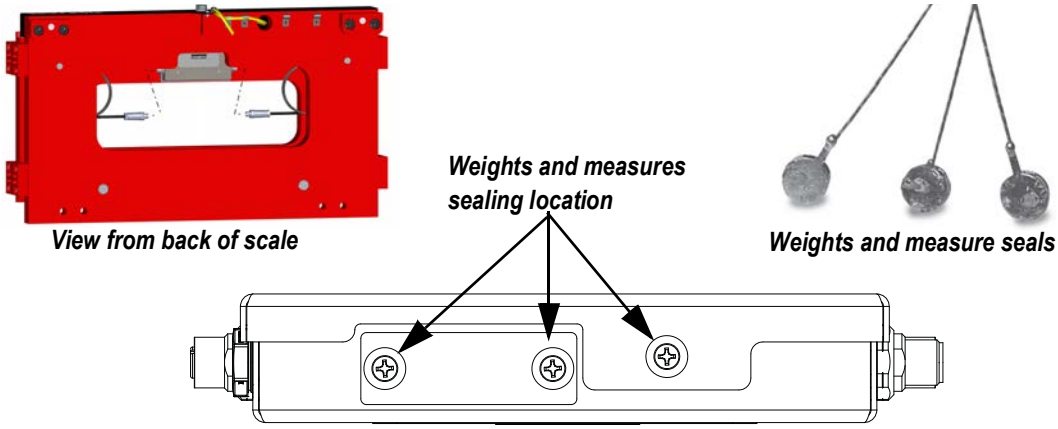


Figure 3-13. Sealing the Junction Box for Weights and Measures

4.0 Revolution® Interface to CLS

Revolution is a tool to display weight, diagnostics and calibration (if required) of the CLS Scale using a Windows® based computer.

4.1 Load USB Driver

Place the Revolution CD into the CD drive of the laptop computer you will be using for setup and calibration of the scale.

1. Open the Revolution files and select on ***CMD20814_Setup***.

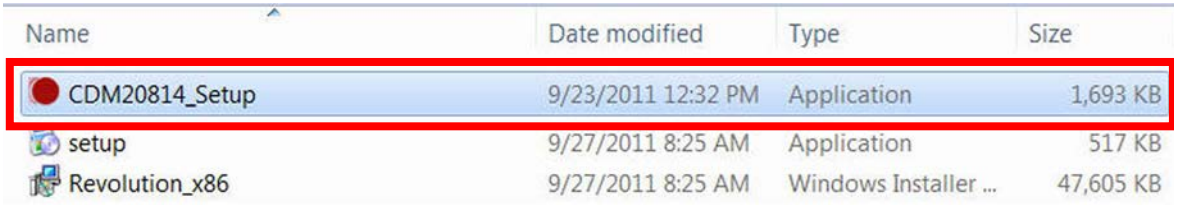


Figure 4-1. Download The USB Driver

2. Depending on processor of the computer, one of the two windows below will appear.

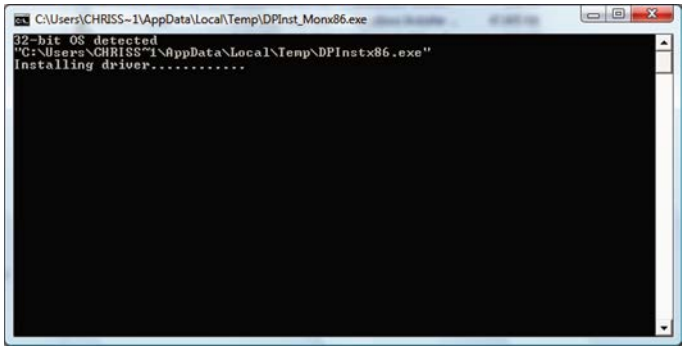


Figure 4-2. 32-bit USB Installation Screen

Figure 4-3. 64-bit USB Installation Screen

3. The USB driver is downloaded when the 32-bit screen disappears, or when you click **Next** and **Finish** of the 64-bit screen.

4.2 Install Revolution

Revolution can be downloaded using the CD included with the scale or from the Rice Lake website.

4.2.1 Download and Install Revolution from Rice Lake Website

1. Open the Rice Lake website and select ***Resources***.

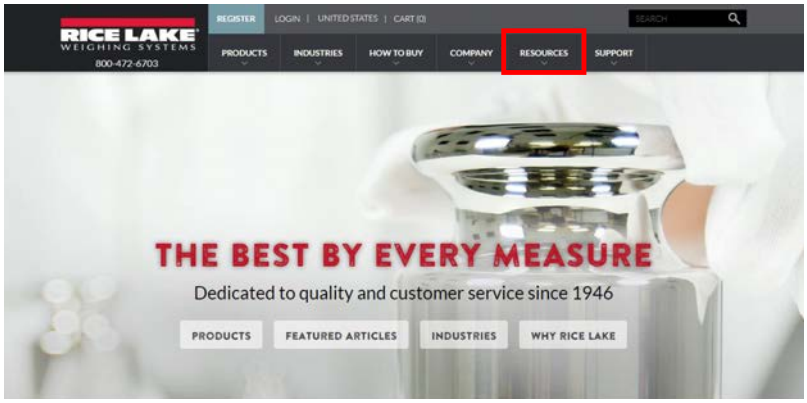


Figure 4-4. Resources Selection

2. Select ***Software/Firmware***.

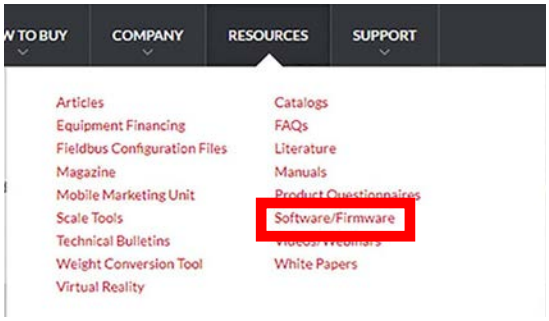


Figure 4-5. Software/Firmware Selection

3. Type Revolution in the ***Filter by title*** box and press enter.

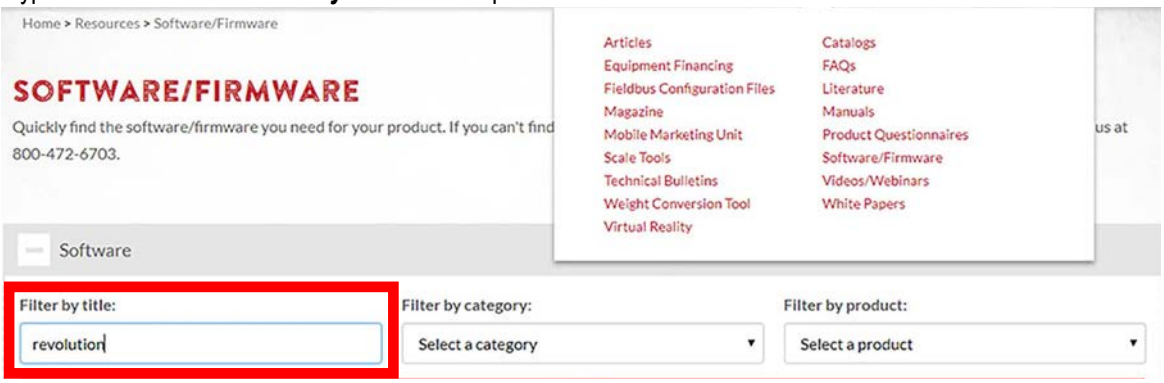


Figure 4-6. Revolution Search

4. Select **Download** next to the Revolution version needed. A zip file will be downloaded.

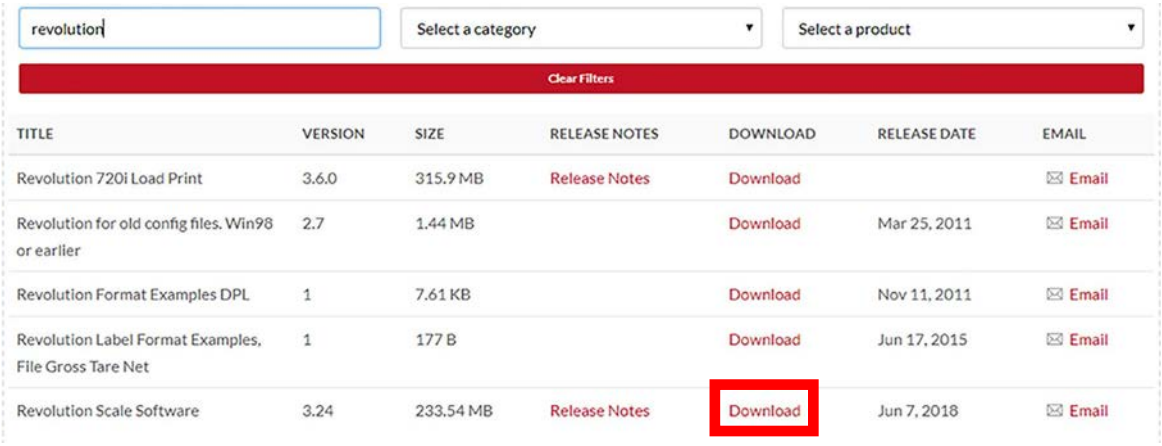


Figure 4-7. Revolution Software Download

5. Navigate to and open the **Revolution.Installer.exe** file.

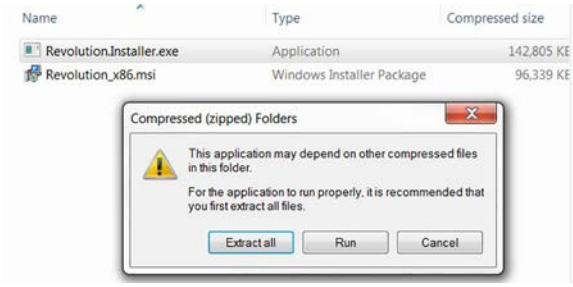


Figure 4-8. Extract Revolution Files

6. The file is compressed and must be extracted, select an extraction location.

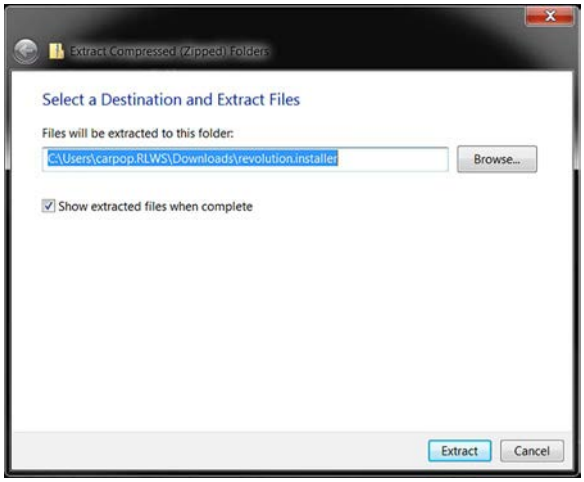


Figure 4-9. Enter Location for Files

7. Once downloaded open the **Revolution.Installer.exe** file.

Figure 4-10. Select Revolution Installer

8. Mark the ***I agree to the license terms and conditions***.

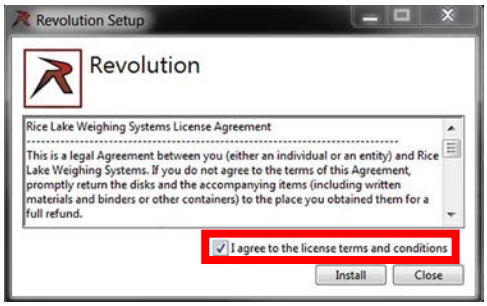


Figure 4-11. Terms and Conditions Agreement

9. Select **Install**.

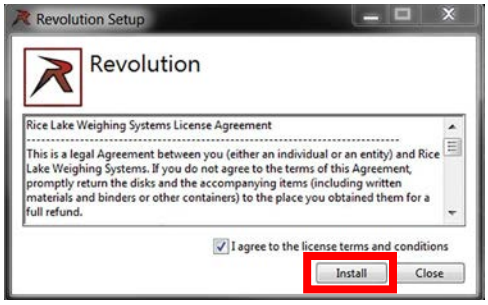


Figure 4-12. Confirm Installation

10. Allow ***Setup Progress*** to complete, progress is indicated by the bar under ***Processing***.

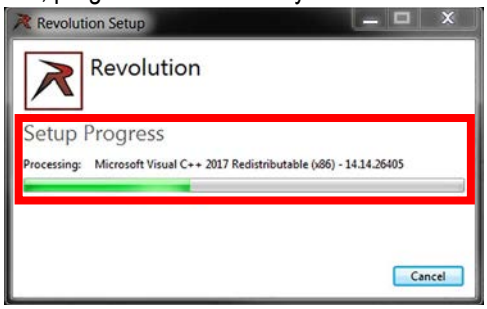


Figure 4-13. Setup Progress

11. Once ***Processing*** is complete ***Installation Successfully Completed*** displays. Select **Restart** to finish installation.

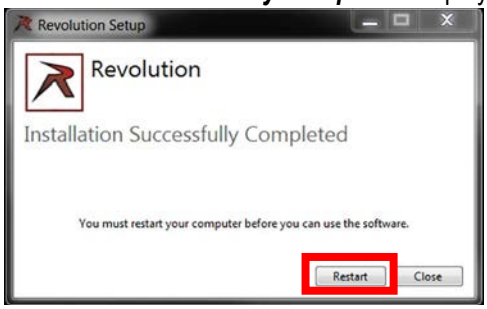


Figure 4-14. Restart Confirmation

4.2.2 Install Revolution from CD

1. Autorun should appear on screen. Select open files in Explorer.

Note

If Autorun does not appear, go to the CD-drive in Windows Explorer to locate the files.

The Revolution program can also be downloaded from the Rice Lake Weighing Systems website at http://www.ricelake.com/products/software. The CLS module can be found in version 3.3.9 or higher.

2. Select the setup file.

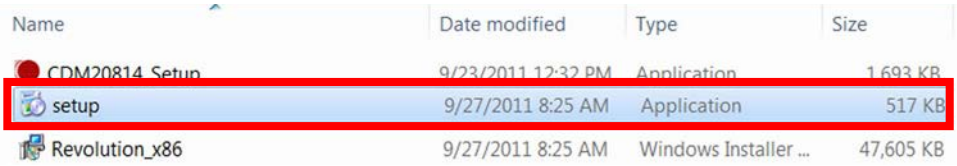


Figure 4-15. Setup Selection

3. ***Welcome to the Revolution Setup Wizard*** box displays, select **Next**.

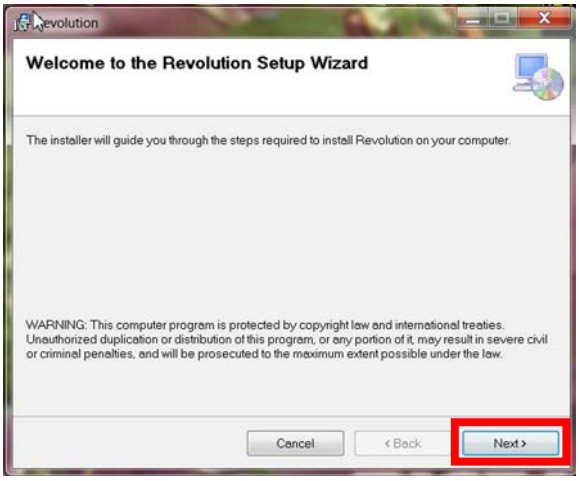


Figure 4-16. Welcome Screen

4. The ***License Agreement*** displays. Read the agreement and select **I Agree**. Selecting **I Do Not Agree** terminates the installation.

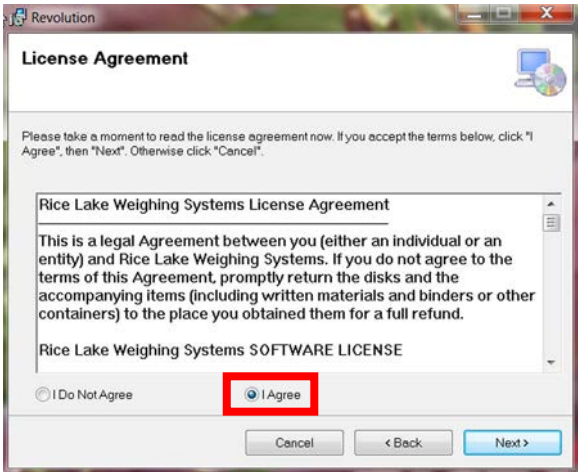


Figure 4-17. License Agreement Screen

5. Press **Next**.

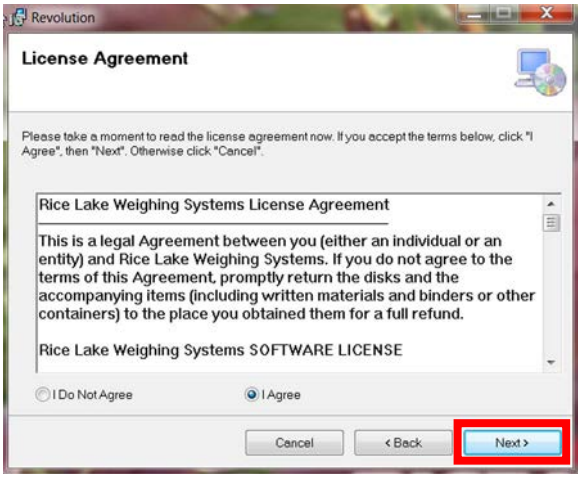


Figure 4-18. Select Next

6. ***Select Installation Folder*** box displays. Select **Browse** and navigate to the folder where the file will be saved.
7. Press **Next**. The ***Confirm Installation*** box displays.

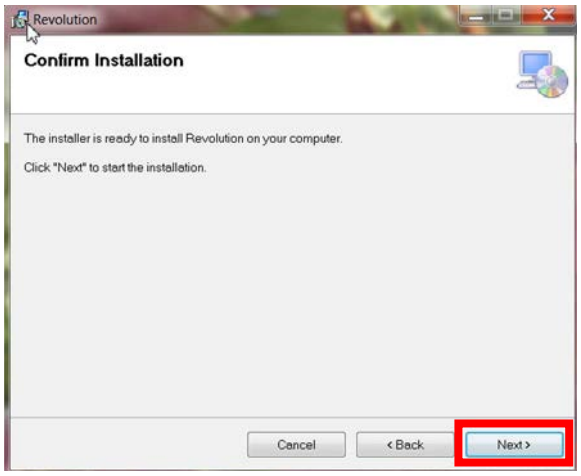


Figure 4-19. Confirm Installation Screen

8. Press **Next**. ***Installing Revolution*** displays.

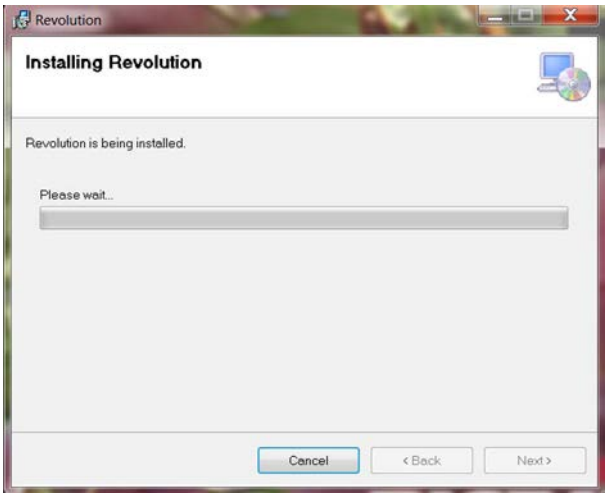


Figure 4-20. Installing Revolution Screen

9. Press **Close** when the ***Installation Complete*** box displays.

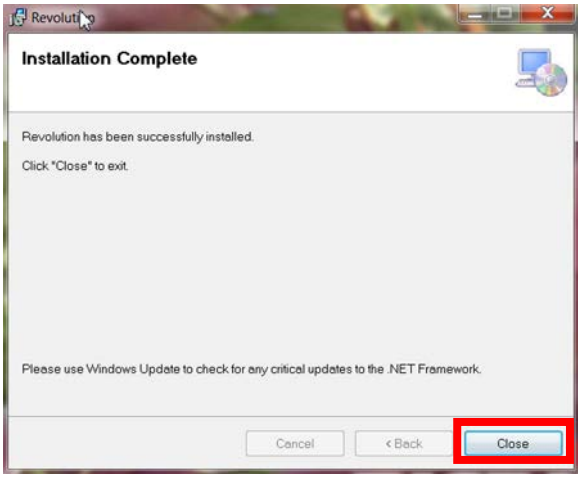


Figure 4-21. Installation Complete Screen

4.3 Revolution Scale Software

4.3.1 USB Cable to Power/Communication Box

1. Turn off power/communication box.
2. Loosen the screws on the power/communication box and remove the cover.
3. Connect the USB cable to the power/communication box.

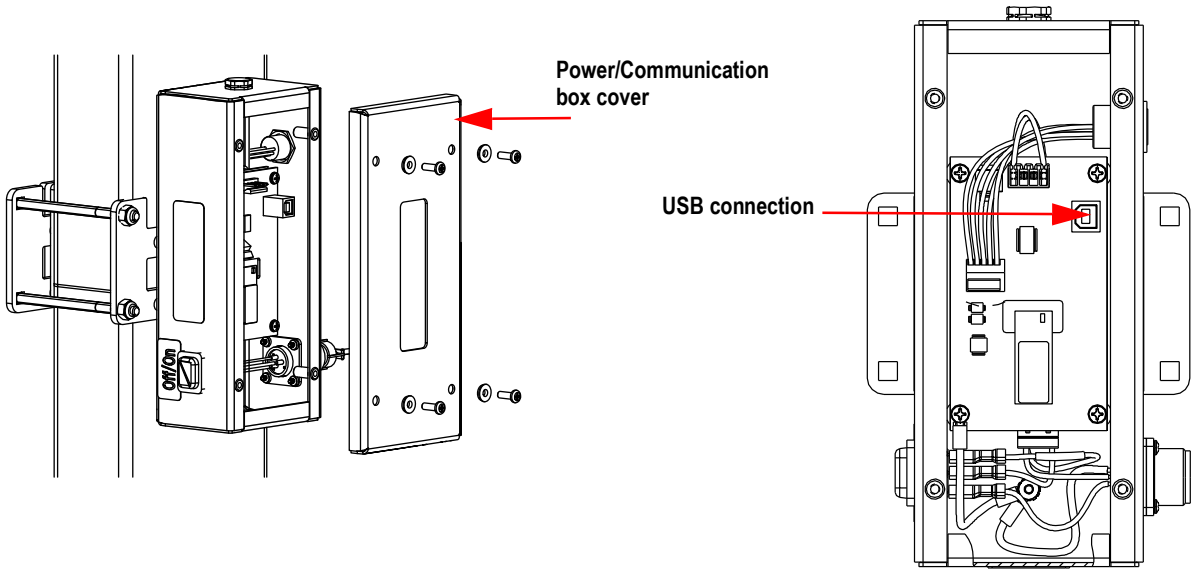


Figure 4-22. Connect USB to Power/Communication Box

4.3.2 Connect USB Card to the iQube2 Junction Box (PN 164071)

Use the following steps to connect the USB card:

1. Remove the calibration switch cover from the junction box.

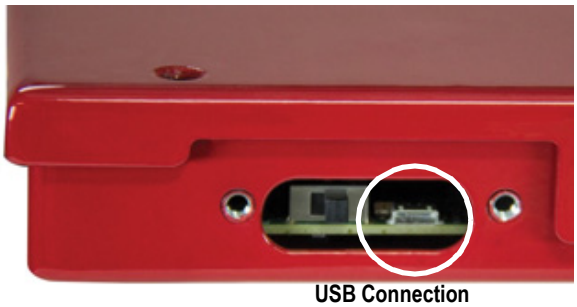


Figure 4-23. Micro B USB iQube2 Junction Box Connection

2. Use a standard type A to micro type B USB cable (PN 163898) to connect to the iQube2 junction box and PC.

4.3.3 Connect Computer to Power/Communication Box

1. Open Revolution on the PC.

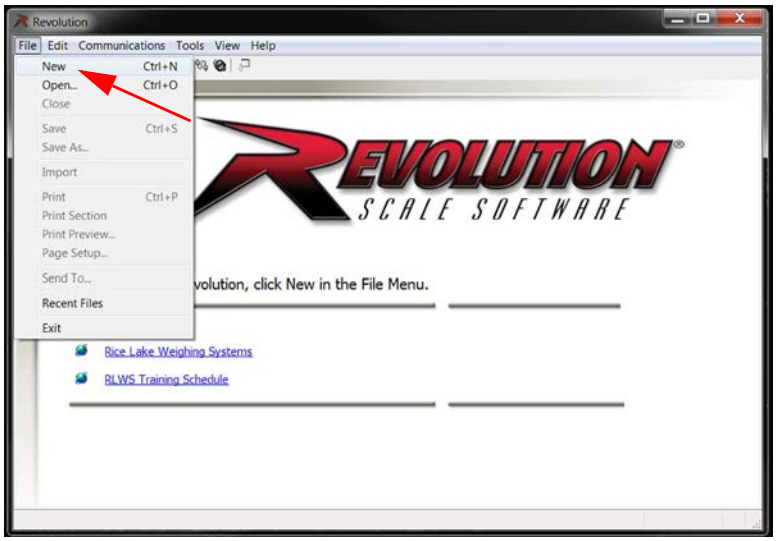


Figure 4-24. Revolution Main Menu

2. Select ***File*** and select **New**.

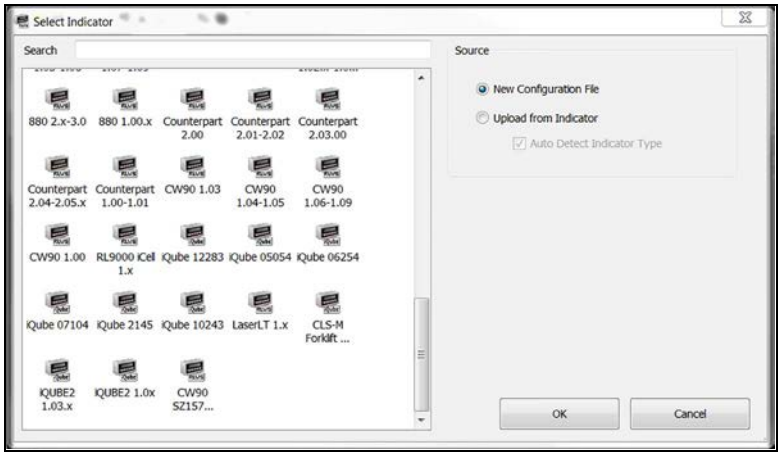


Figure 4-25. Select CLS Forklift Required

3. Select the CLS forklift option for the scale being used.
4. Press **OK**. The CLS main menu displays.

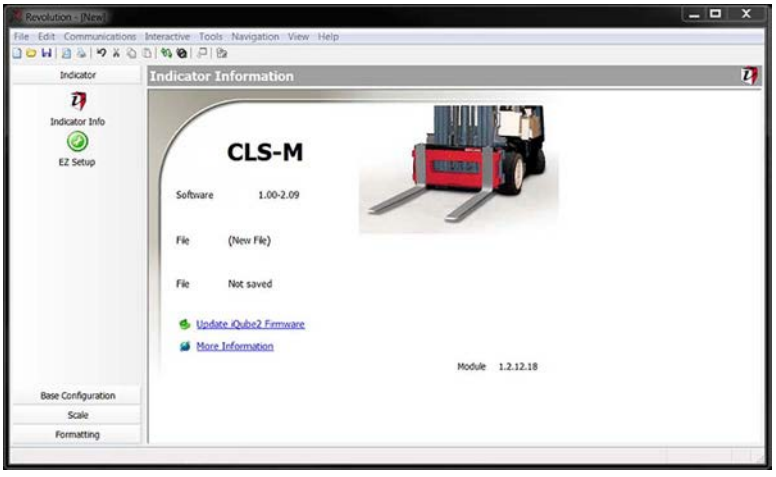


Figure 4-26. CLS Main Menu

5. Plug the USB cable into a USB port on the computer.
6. Turn on the power/communication box and wait for computer to recognize the new hardware.

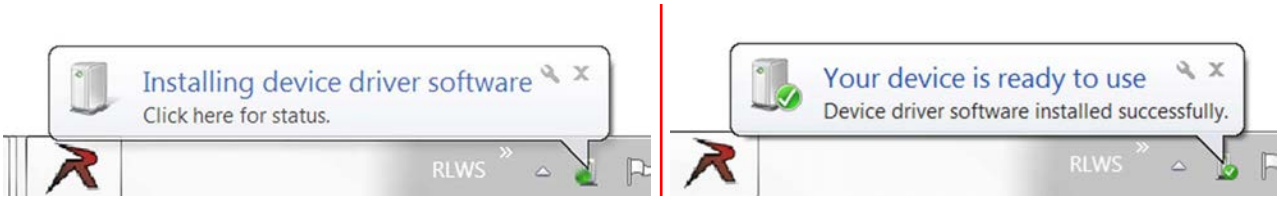


Figure 4-27. Computer Recognizing New Hardware (Windows® 7 Shown)

7. Depending on the version of Windows being used, a message displays in the lower left portion of the screen indicating that new hardware was found followed by a message that the device is ready for use.

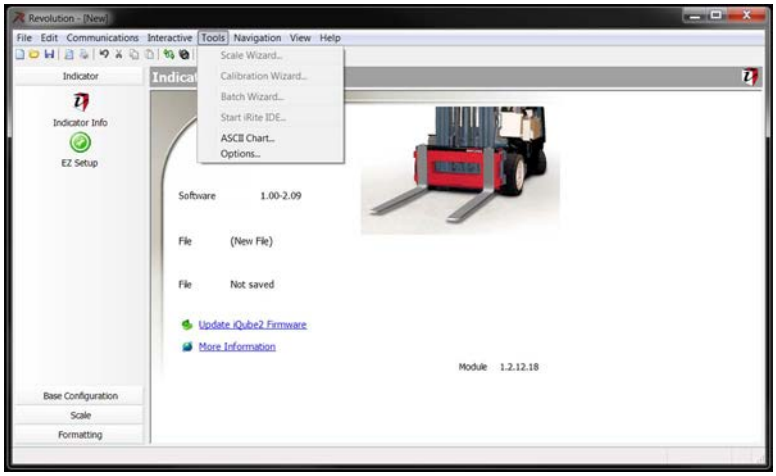


Figure 4-28. Select USB Comm Port

8. Set the USB Com Port by expanding the ***Tools*** menu and selecting ***Options***.
9. Check ***Settings***. Expand the ***PC Comm Port*** list and select the port used to connect the USB cable.
10. Press **OK**.
11. Press from the toolbar. The ***Connecting the Indicator*** displays briefly followed by ***Connected to Indicator***.

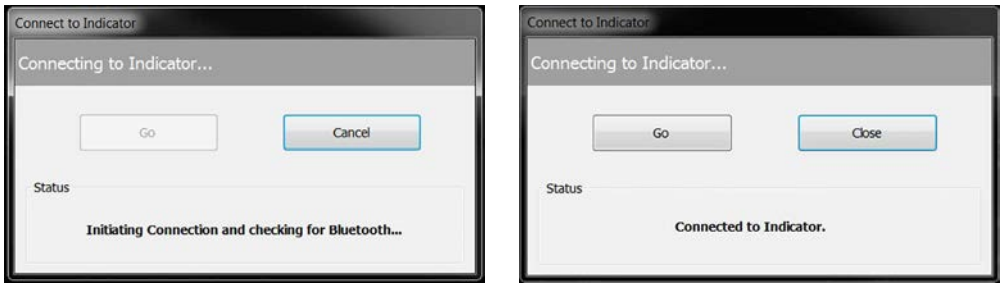


Figure 4-29. Connecting to Indicator

4.4 Live Weight Data

Also refer to this section to check scale for accuracy.

The second tab is the ***Live Weight Data*** screen. This screen is used during calibration of the scale to verify the weight values. The ***Live Weight Data*** screen will only operate with the calibration switch in the closed position.

1. Press EZ Setup and select the ***Live Weight Data*** tab.
2. Select the ***Live Weight Data*** tab.

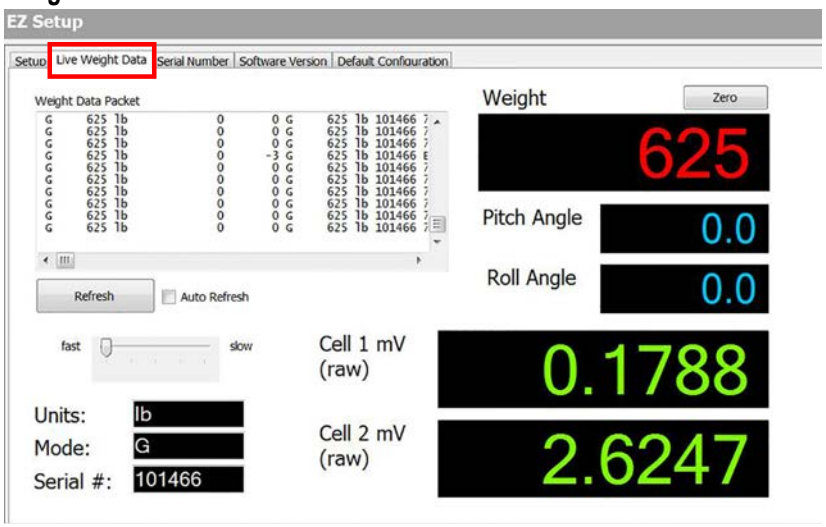


Figure 4-30. Live Weight Data Tab

Item No.	Description
1	Weight Data Packet – output formats/displays the output protocol of the CLS
2	Auto Refresh – check to start continuous streaming of data in the weight data packet
3	Zero – used to zero the scale
4	Weight – displays value of weight on scale
5	Pitch Angle – angle of the scale in a front to back direction
6	Roll Angle – angle of the scale in a side to side direction
7	Cell 1 mV (raw)
8	Cell 2 mV (raw)
9	Units, Mode, Serial Number – print string test boxes for confirmation of the weight data package

Table 4-1. Revolution Live Weight Data Item Descriptions

Weight data packet screen shows output format of CLS. Other displays include weight, pitch angle, roll angle, cell 1 and 2mV (Section Figure 4-30. on page 33). This is the information that will be sent to the customer-supplied hand-held device when attached through Bluetooth.

To start streaming data, check the auto refresh box. If not checked, the refresh button needs to be selected after each change of weight to the load cell.

4.5 Leveling Forklift Forks

Junction box needs to be in setup mode (See Section 5.2 on page 39). Turn off the forklift after leveling forks, high vibration from a running engine causes inaccurate readings.

1. Place a level on the forks and adjust to 0°.

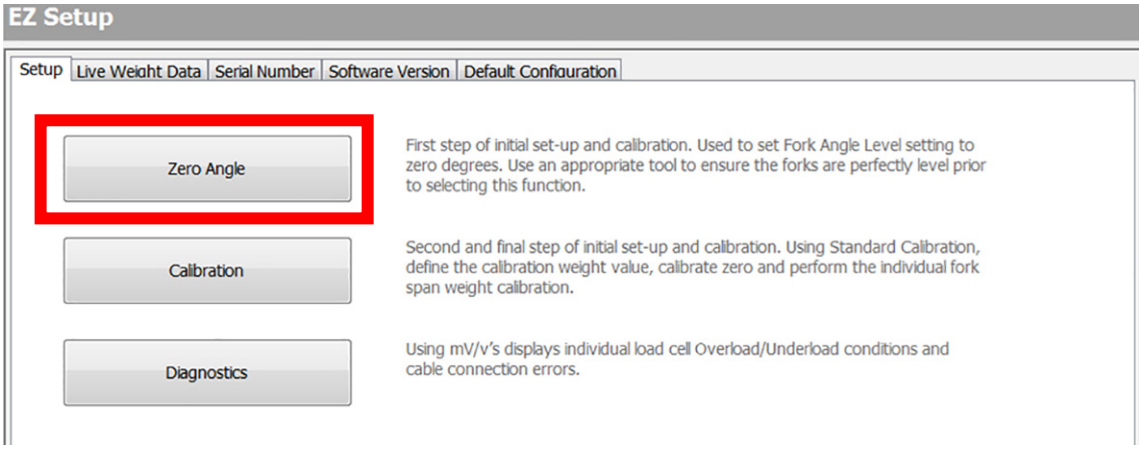


Figure 4-31. Zero Angle

2. Press ***Zero Angle.***
3. ***Zero Fork Angle Successful*** displays. Select **OK**.

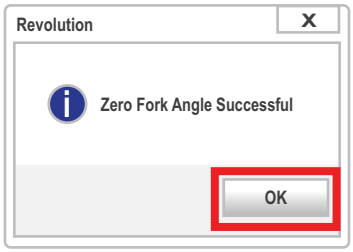


Figure 4-32. Select Ok

IMPORTANT ***Forks must be level when testing calibration. A degree of tilt in either direction can cause errors when using the scale.***

4.6 EZ Setup/Upload Unit Serial Number

Setup, Live Weight Data, Serial Number, Software Version and ***Default Configuration*** tabs display. The ***Serial Number*** tab is used for entering the current serial number of the scale in the following sections and allows the serial number to be downloaded in weighing mode.

Note ***All settings have been preset at the factory for communication with the hand-held device. DO NOT alter these settings, it will cause communication failure with the hand-held device.***

1. Select the ***Serial Number*** tab to download the serial number of the scale using Revolution while in ***EZ Setup*** mode.

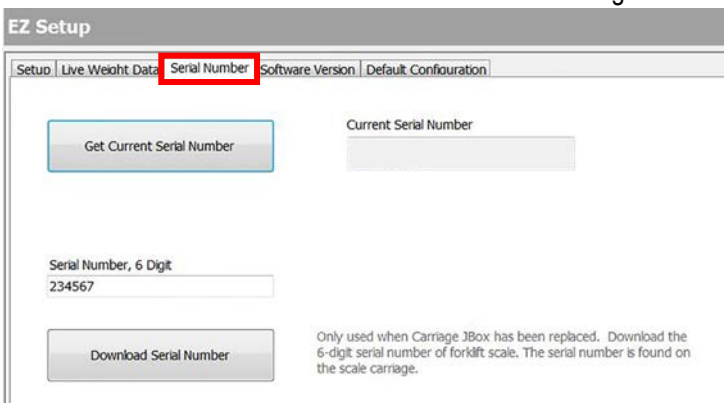


Figure 4-33. Serial Number Tab

2. Select the **Get Current Serial Number** button to get the current serial number.

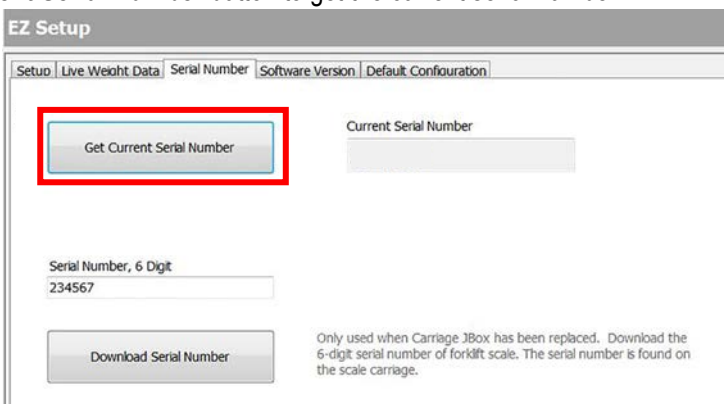


Figure 4-34. Enter Current Serial Number

3. Enter the new six-digit serial number from the forklift scale into ***Current Serial Number***.

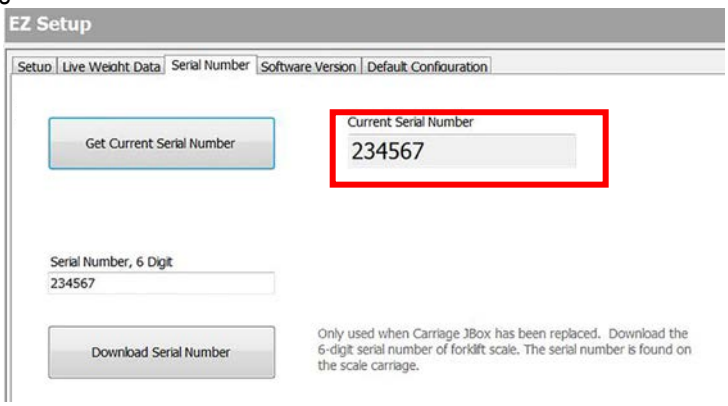


Figure 4-35. Enter Current Serial Number

4. Select **Download Serial Number** to save the new serial number.

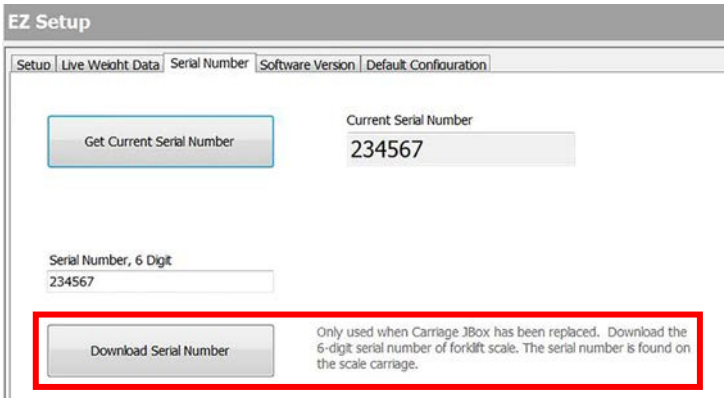


Figure 4-36. Download Serial Number

5. Once the serial number is downloaded the message ***Serial Number Sent to Device*** is displayed on the screen, press **OK** to accept that number.

Note

The serial number of the scale is pre-loaded in the junction box at the factory. It does not need to be downloaded during installation. If the junction box is ever replaced (Section 7.0 on page 65), this procedure needs to be repeated.

The serial number of the scale is located on the right side of the carriage and also under the black cover plate on the scale assembly.

The serial number (a 6-digit entry) screen typically displays 0 or the last serial number downloaded.

If installing a new serial number, uninstall the existing Revolution software program prior to upgrading.

4.7 Software Version

Press ***Get Current Software Version*** to view the version of software installed on the junction box and the part number of the junction box installed in the scale.

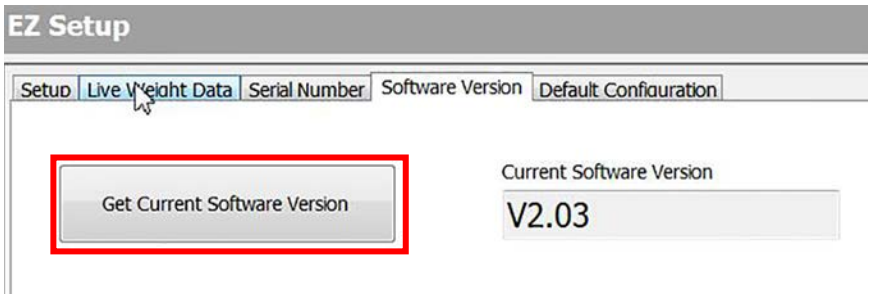


Figure 4-37. Software Version Tab

4.8 Default Configuration

Use the default configuration tab to set configuration and calibration values to factory default.

Use this feature if instructed by the factory or prior to replacing a junction box in the field that appears to be working properly with Revolution, but not with the mobile computer or hand-held device.

IMPORTANT ***Using the default configuration feature requires a new Zero Angle and Standard Calibration in the setup menu.***

Use the following steps to set up the default configuration:

1. Place the calibration switch into the open position.
2. Press **Default Configuration**.

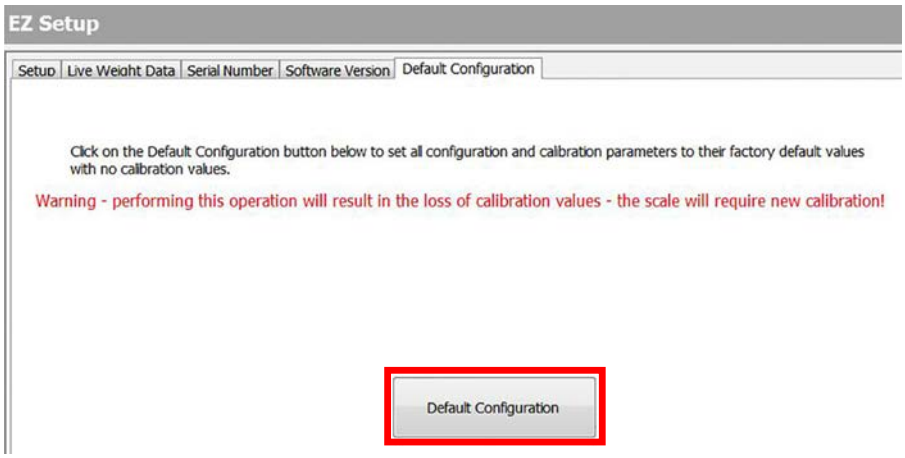


Figure 4-38. Default Configuration Tab

3. Press **Yes** to continue. A default configuration confirmation displays.

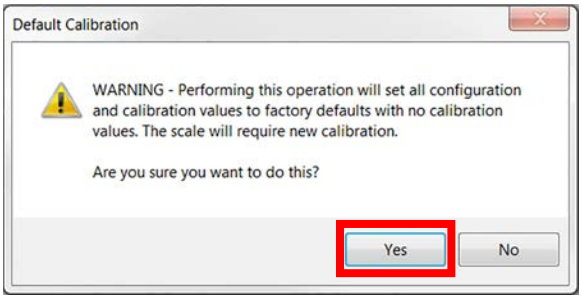


Figure 4-39. Default Configuration – Warning

4. Press **OK** to exit.

4.9 Diagnostics

Diagnostics works in setup or normal operating mode.

Note ***Selecting Auto refresh will continuously display data communications for each screen.***

1. Press EZ Setup.
2. Press **Diagnostics**. The ***Diagnostics Monitor*** displays:

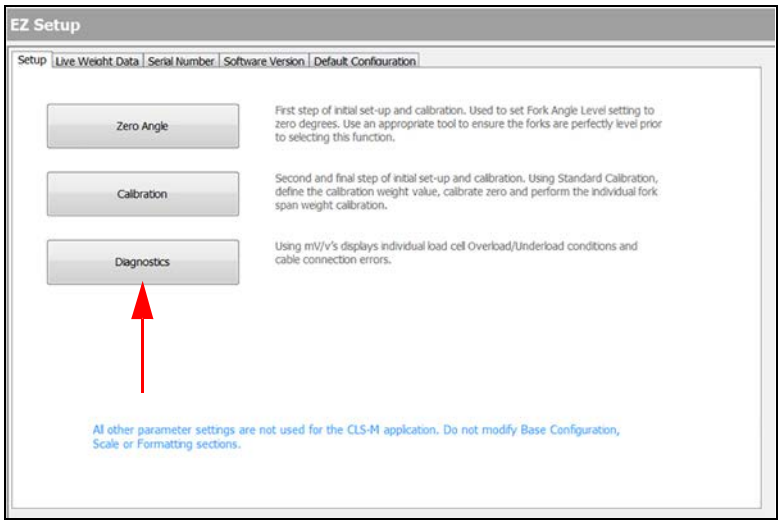


Figure 4-40. Select Diagnostics

4.9.1 Diagnostics Monitor

1. Power Supply – look for a voltage range between 6.2 and 6.5

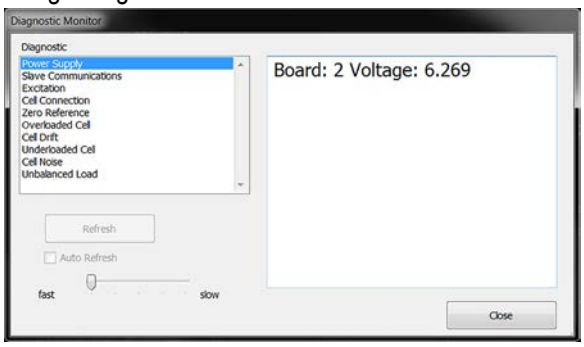


Figure 4-41. Power Supply

2. Slave Communications – not applicable to CLS software.

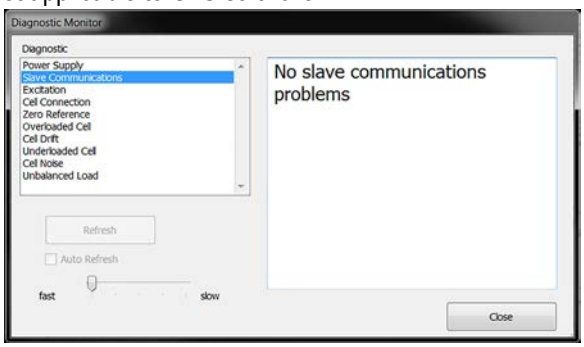


Figure 4-42. Slave Communications

3. Excitation – not applicable to CLS software.

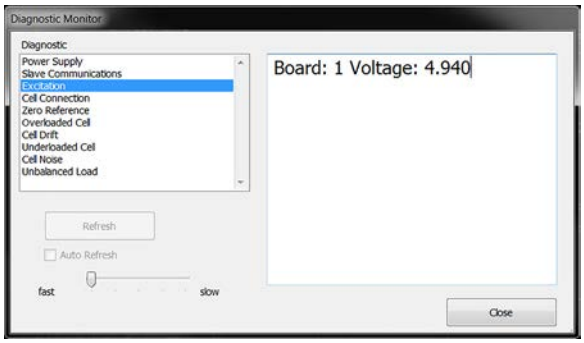


Figure 4-43. Excitation

4. Cell Connection – tests correct load cell cable connections. Scans each load cell to display connection issues. If one load cell connection error is found, text will display that will flash between ***No cell connection problems*** and ***Scale: SC1 Cell: 1 or 2***. While standing in front of the forklift, cell 1 is located on the left and cell 2 is located on the right.

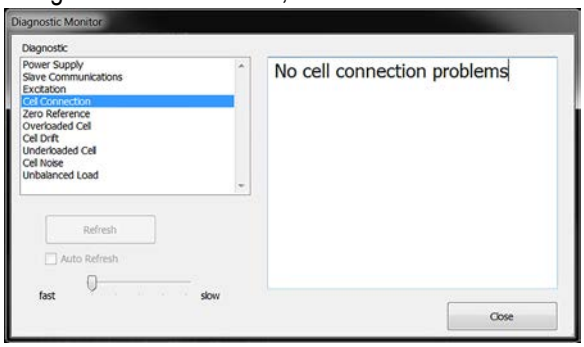


Figure 4-44. Cell Connection

5. Zero Reference – not applicable to CLS software.

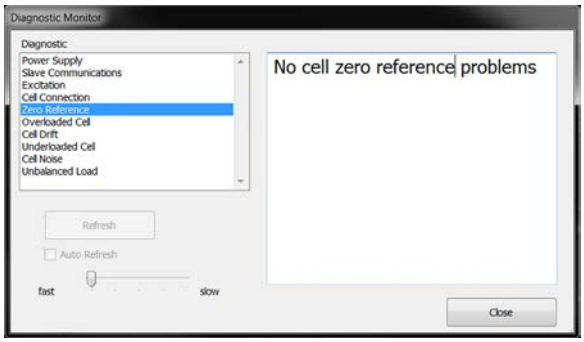


Figure 4-45. Zero Reference

6. Overloaded Cell – If an error occurs, it will display the mV level of overloaded cell. At 5000 lb, the mV rating is 1.5.

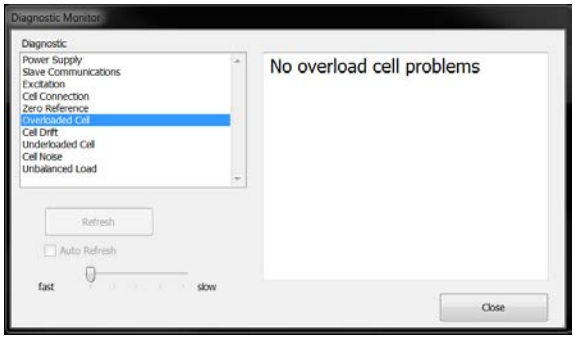


Figure 4-46. Overloaded Cell

7. Cell Drift – not applicable to CLS software.

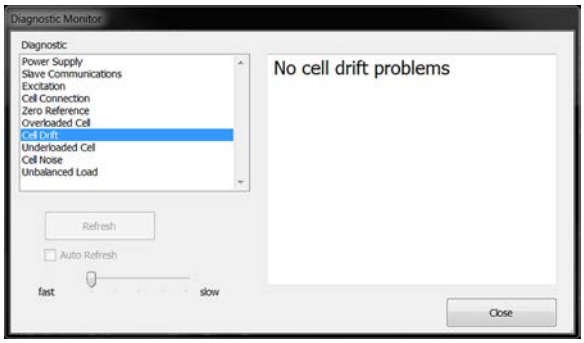


Figure 4-47. Cell Drift

8. Underloaded Cell – not applicable to CLS software.

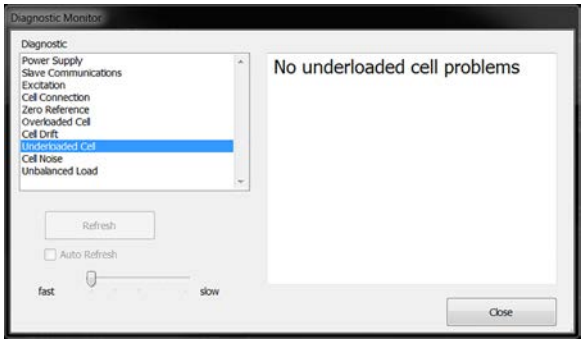


Figure 4-48. Underloaded Cell

9. Cell Noise – not applicable to CLS software.

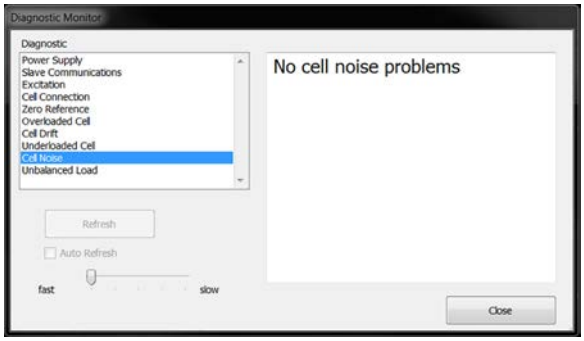


Figure 4-49. Cell Noise

10. Underload Load – If an error occurs it will display the mV level of the underload load. At 5000 lb the mV rating is 1.5.

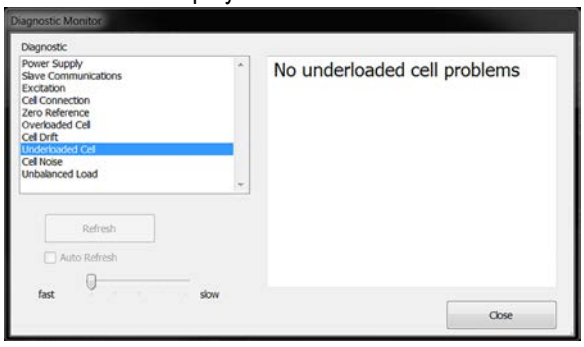


Figure 4-50. Underload Load

5.0 Calibration

When hanging weights from the forks, make sure to note the weight of the hanging device and add to test weight value.

Make sure forks are level before beginning calibration (See Section 4.5 on page 31).

Note

Suggested test weight is 500 lb minimum.

Always shut forklift off when calibrating. High vibration can cause inaccuracies.

When going through calibration steps, it is recommended that you do not use the back button; calibration may not complete.

5.1 Leveling Forklift Forks

1. Level the forks to 0° by placing a level on the forks and adjusting as required.

Note

The carriage junction box will need to be in setup mode (See Section 5.2 on page 39)

Turn off the forklift after leveling forks, high vibration from the running engine will cause inaccurate readings.

2. In the setup screen, press **Zero Angle** (Figure 5-1).

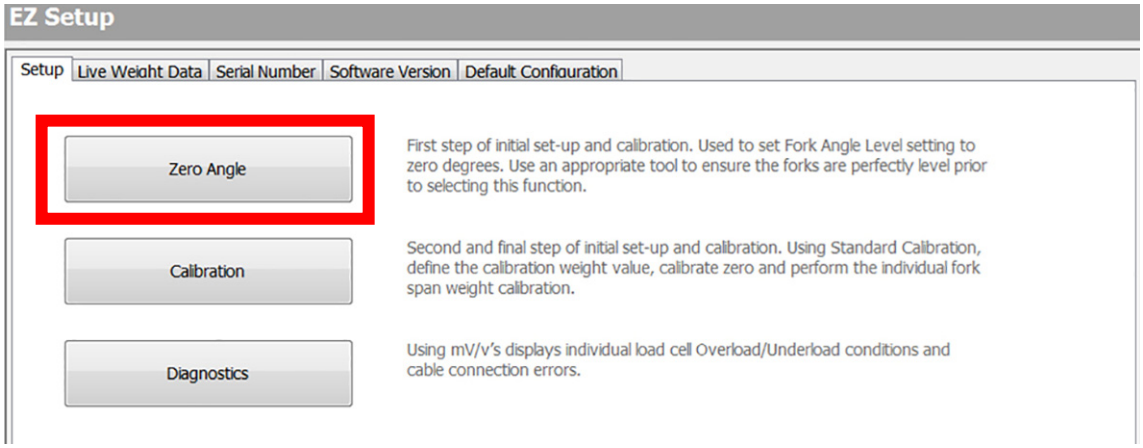


Figure 5-1. Zero Angle

3. A prompt appears as shown in (Figure 5-1). Press **OK** to close the pop-up box.

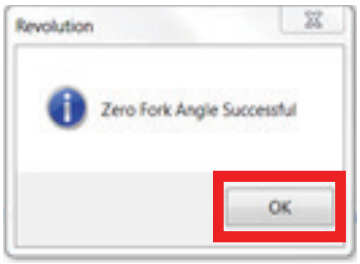


Figure 5-2. Zero Angle

Note ***Forks should be level when testing calibration.***

5.2 Carriage Junction Box Calibration Mode

The load cell junction box must be placed in the calibration mode:

1. Remove the scale cover.
2. Remove the one screw from the plate at the top of the junction box.
3. Swivel plate away from switch opening.
4. Place switch in the calibration position, away from coiled cable connection or toward the right-hand side of junction box when standing in front of the scale (load cell #2).

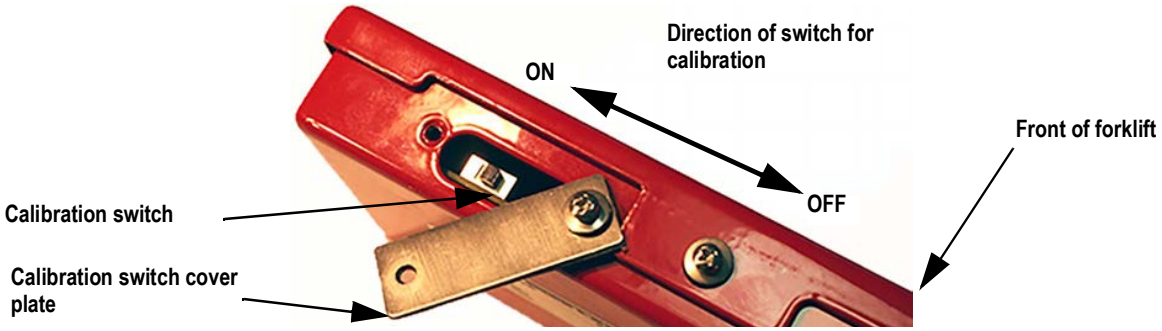


Figure 5-3. Junction Box Calibration Switch Location

5.3 Standard Calibration

1. Place the junction box in setup mode; see Section 5.2.
2. Press  and select the ***Setup*** tab.

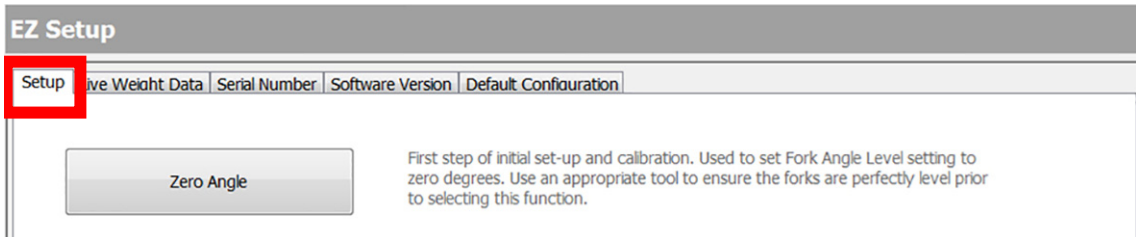


Figure 5-4. Setup Selection

3. Select ***Calibration***.

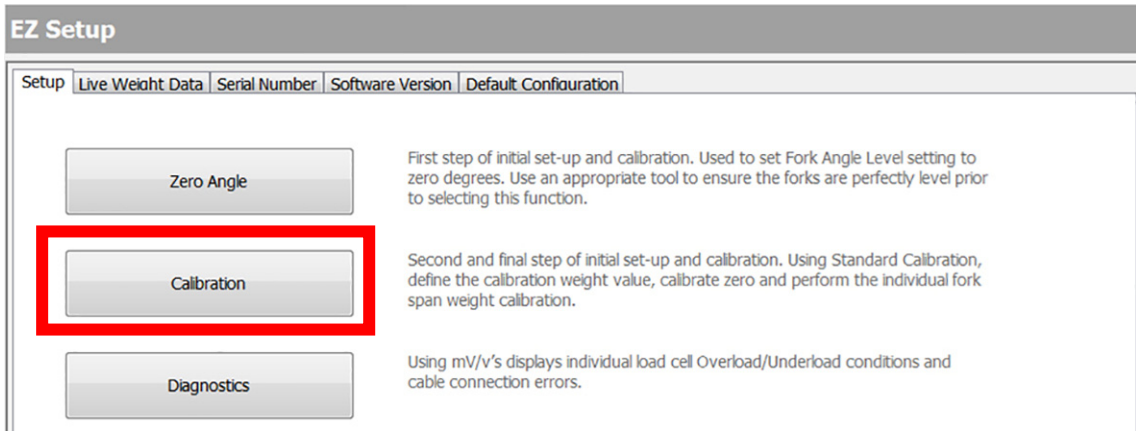


Figure 5-5. Calibration Selection

4. ***Corner Match Scale Calibration*** displays.

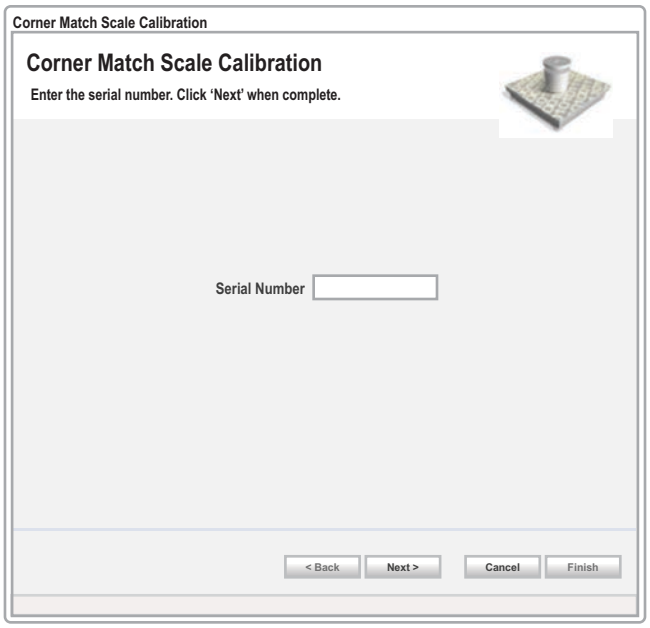


Figure 5-6. Corner Match Scale Calibration

5. Enter the six digit serial number, found on the top right cleat of the scale back plate or the serial tag installed on the scale. If the serial number is incorrect or 0, enter the correct serial number.

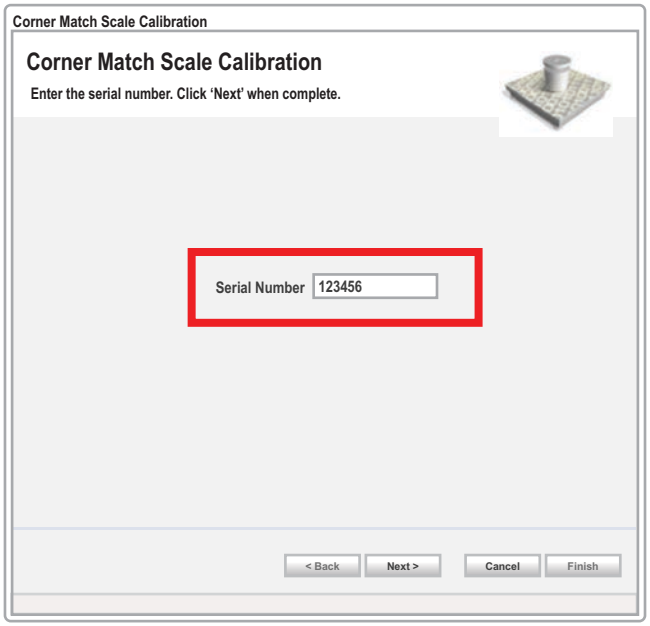


Figure 5-7. Enter Serial Number

6. Select **Next**.

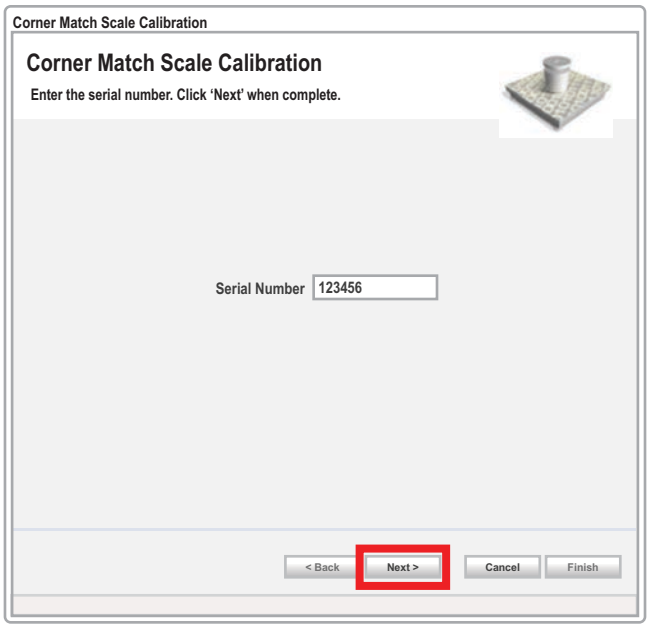


Figure 5-8. Corner Match Scale Calibration Next

7. Select the calibration type by highlighting ***Standard Calibration***.

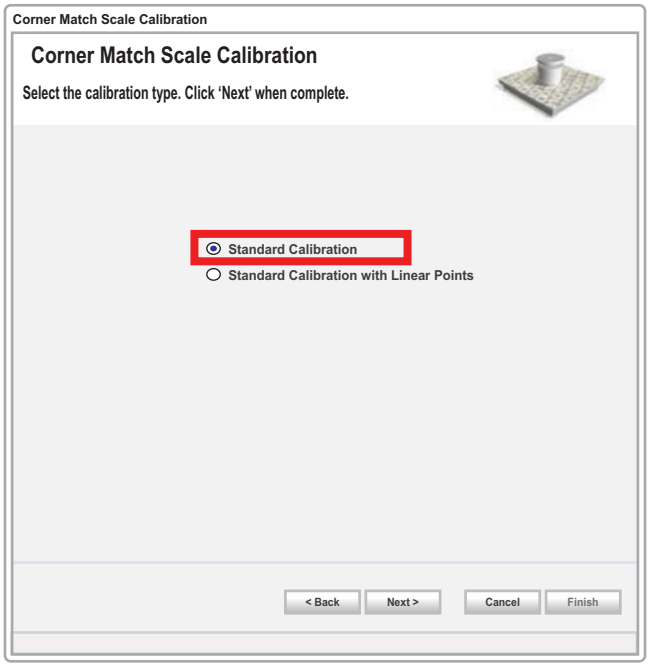


Figure 5-9. Select Standard Calibration

8. Select **Next** to store number.

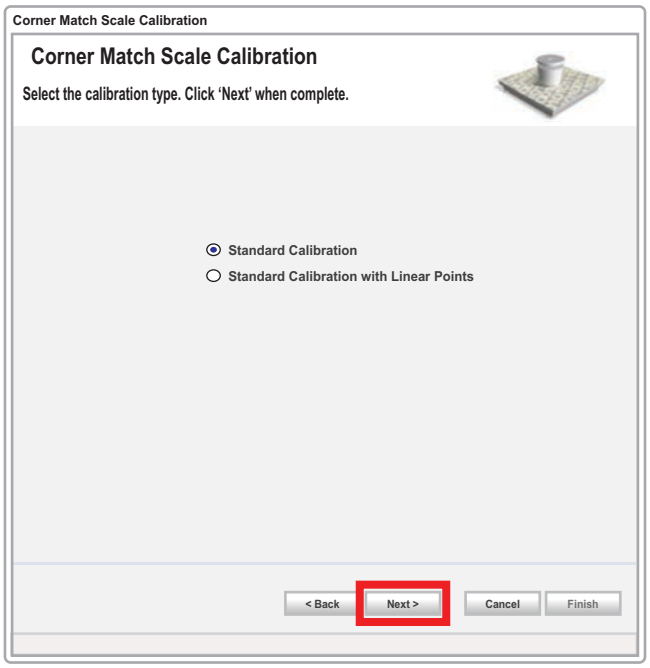


Figure 5-10. Select Next to Store Number

9. Enter a test weight value within ***Amount of Test Weight*** (minimum suggest weight is 500).

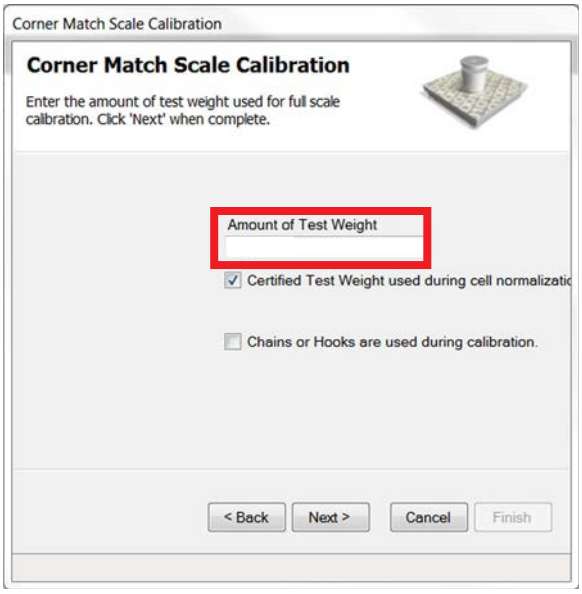


Figure 5-11. Enter Test Weight Value

10. Check ***Certified Test Weight used during cell normalization***.

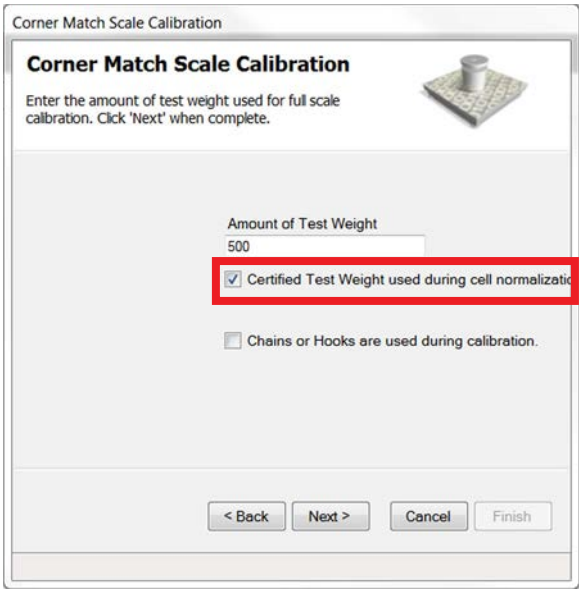


Figure 5-12. Certified Test Weight Used During Cell Normalization Checked

11. Press **Next**.

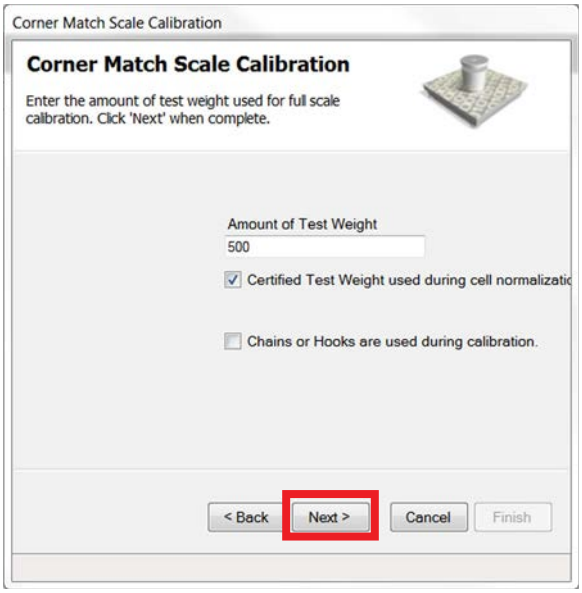


Figure 5-13. Select Next

12. Press **Calibrate Zero**.

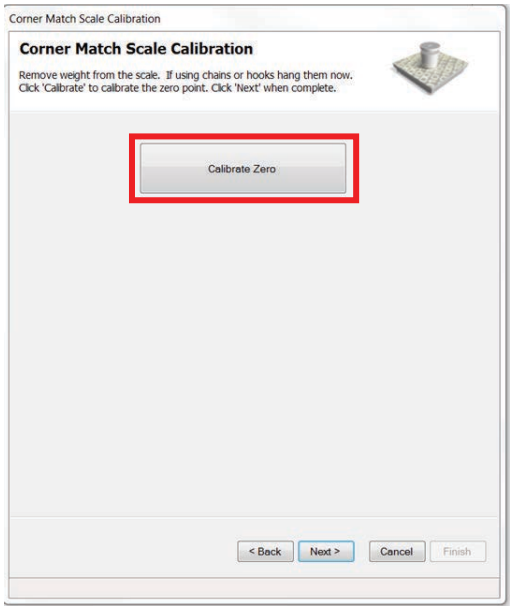


Figure 5-14. Calibrate Zero

13. Press **Next**.

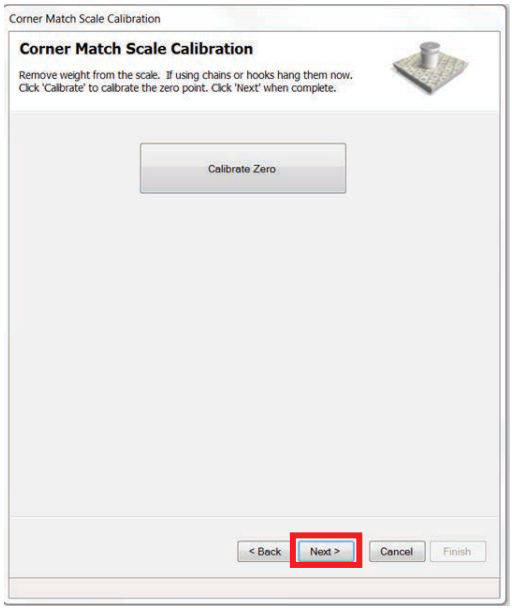
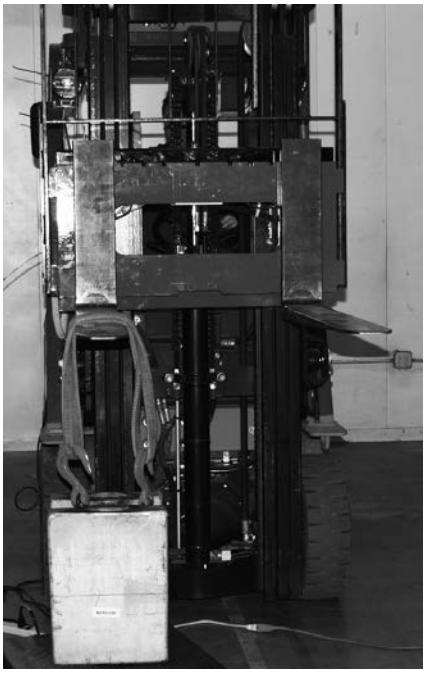
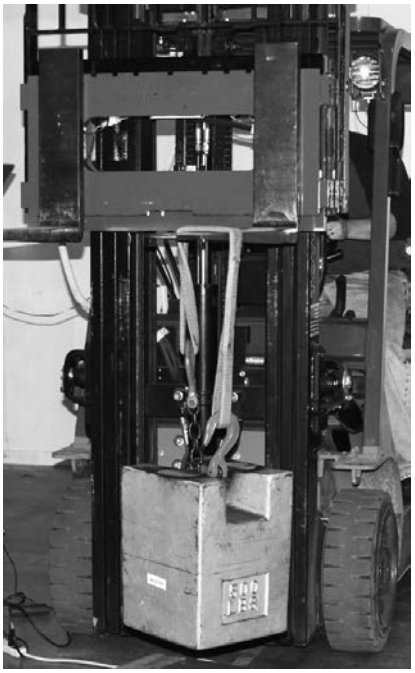


Figure 5-15. Select Next

14. Add a known weight to load cell #1 (left). allow it to stabilize if using hanging weight).



Load Cell #1
(Left Hand)



Load Cell #2
(Right Hand)

Figure 5-16. Load Cell #1 and #2

Note

Always shut forklift off when calibrating; high vibration can cause inaccuracies.

Make sure to calibrate forks in the correct order, or the calibration will not be successful.

Ensure the pitch value to ensure it is close to zero. Adjust forks if necessary.

15. Select **Measure** next to CELL #1.

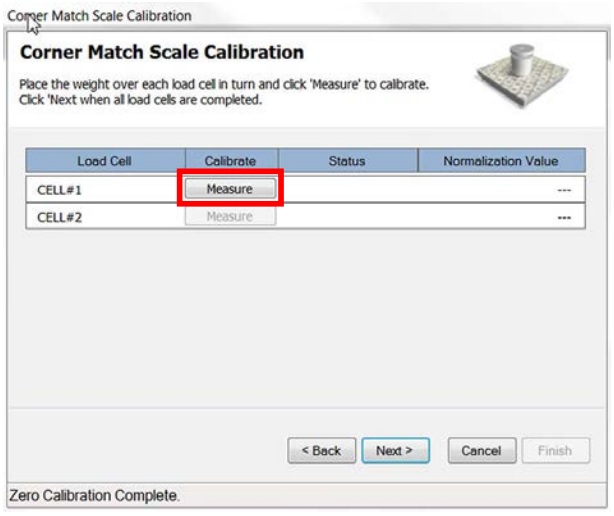


Figure 5-17. Calibration Measure

16. Press **Next**. ***Success*** displays once calibration is successful.

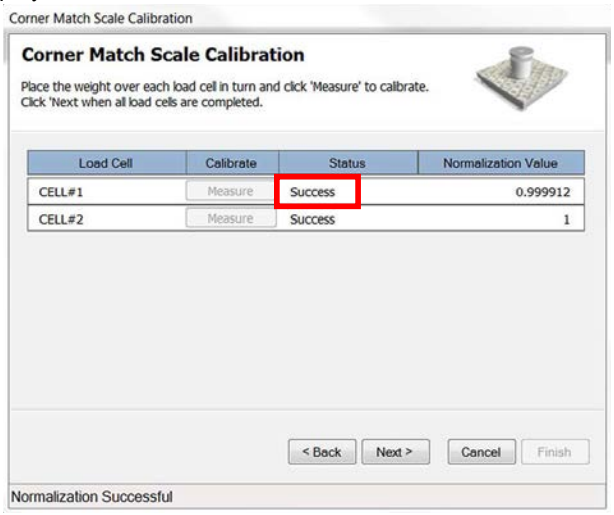


Figure 5-18. Success Displays

17. Repeat Step 15 and Step 16 for load cell #2; ***Normalization Successful*** will display in bottom bar.

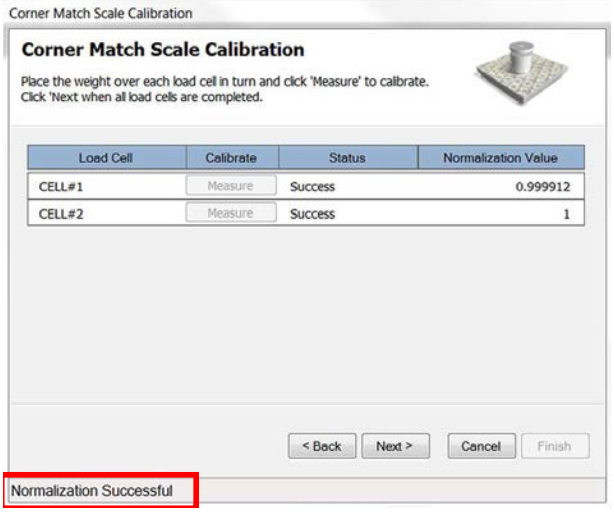


Figure 5-19. Normalization Successful

18. Press **Finish**.

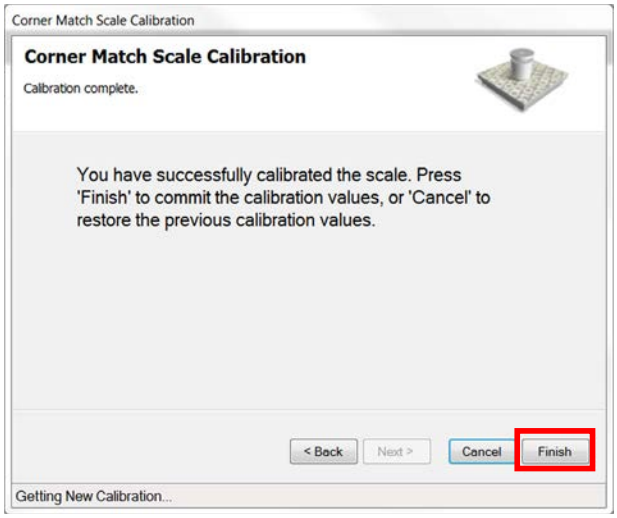


Figure 5-20. Finish Calibration

19. ***Getting New Calibration*** displays in bottom bar; once calibration is complete the ***Corner Match Scale Calibration*** box closes.

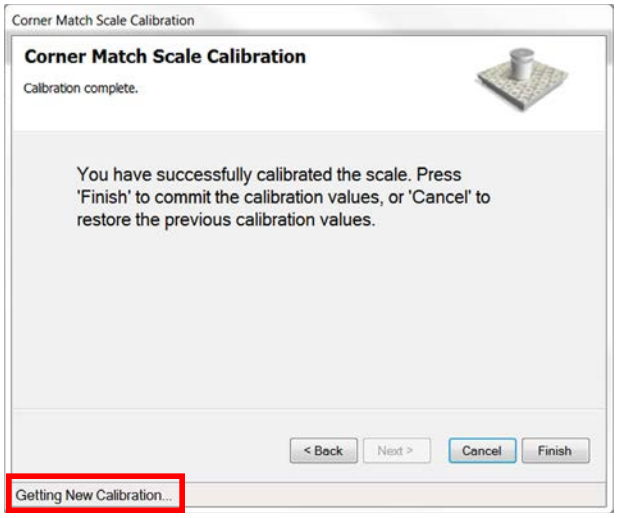


Figure 5-21. Getting New Calibration

20. Move the calibration switch to the **Off** position, toward load cell #1.

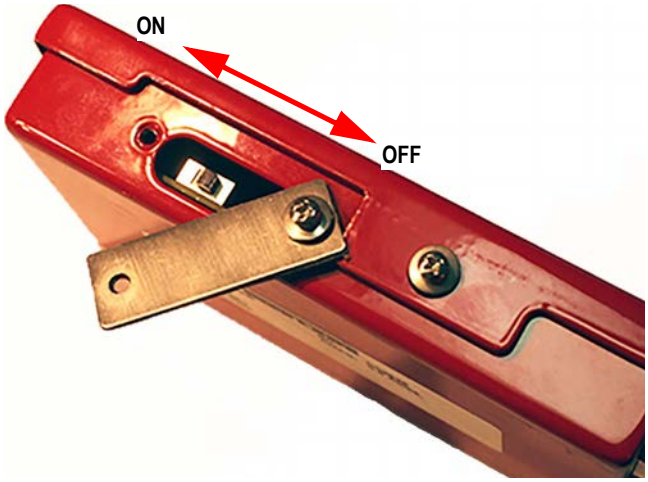


Figure 5-22. Calibration Switch Off

5.3.1 Standard Calibration with Linear Points

This calibration method is used in combination with a pallet. Use the following steps to do a standard calibration with linear points.

1. Enter the six-digit serial number of the scale. The serial number can be found on the top-right cleat of the scale back plate or the serial tag installed on the scale. If the serial number is incorrect or 0, enter the correct serial number.

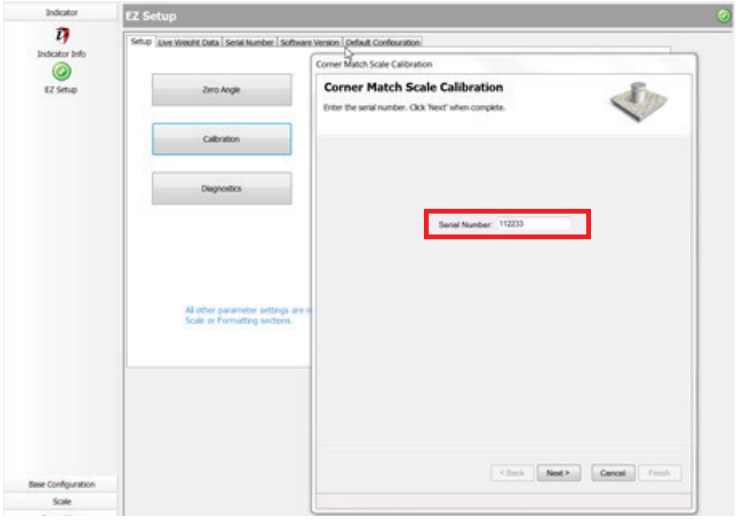


Figure 5-23. Enter Serial Number

2. Press **Next** to store that number.

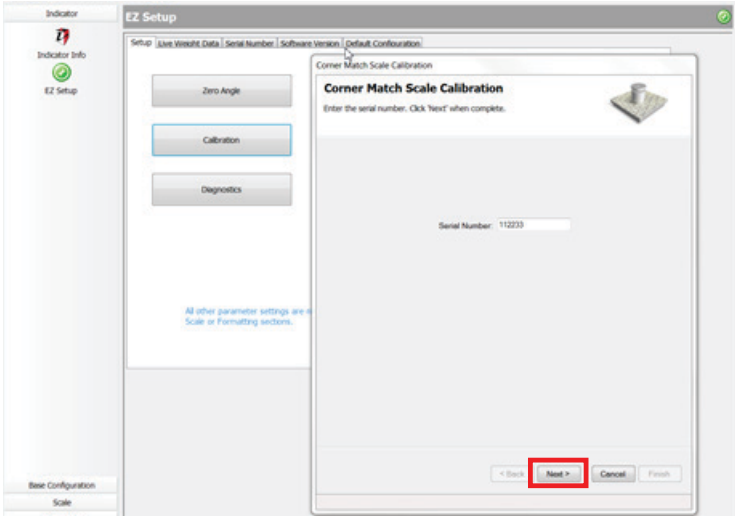


Figure 5-24. Select Next to Store Number

3. Select ***Standard Calibration with Linear Points***.

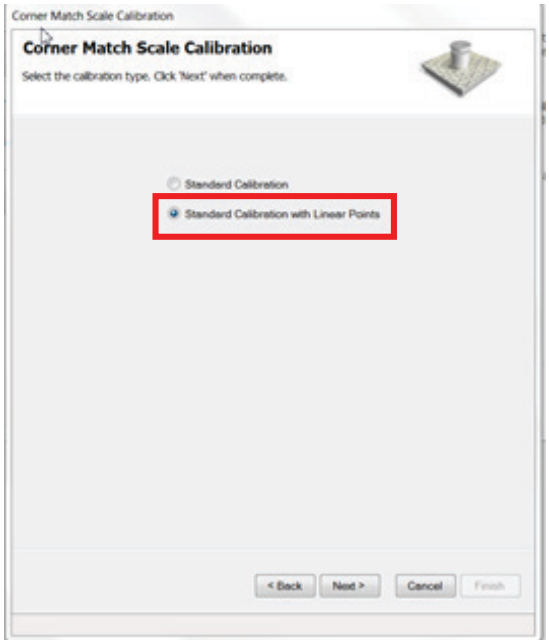


Figure 5-25. Standard Calibration with Linear Points

4. Press **Next**.

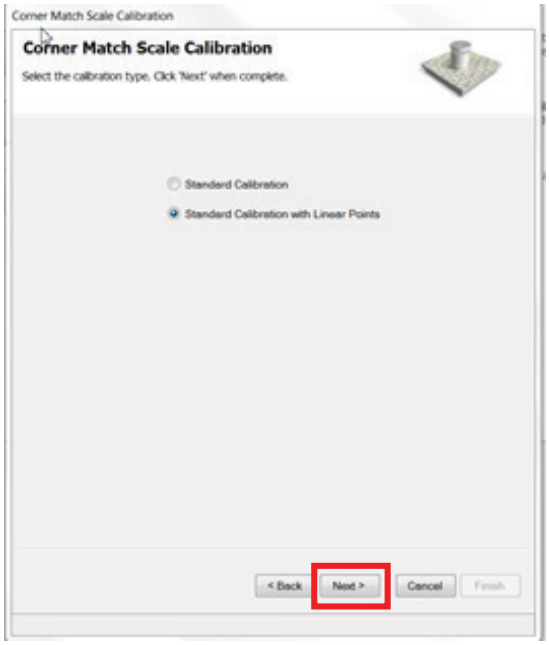


Figure 5-26. Select Next

5. Enter a test weight value to be used for normalization.

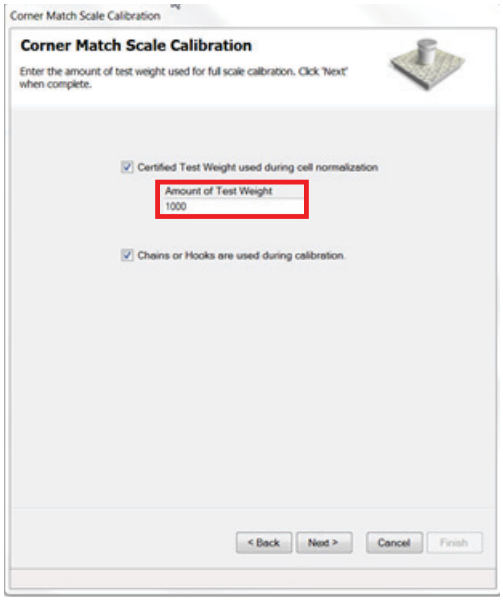


Figure 5-27. Enter Test Weight Value

6. Ensure the ***Certified Test Weight Used During Cell Normalization*** box is checked.

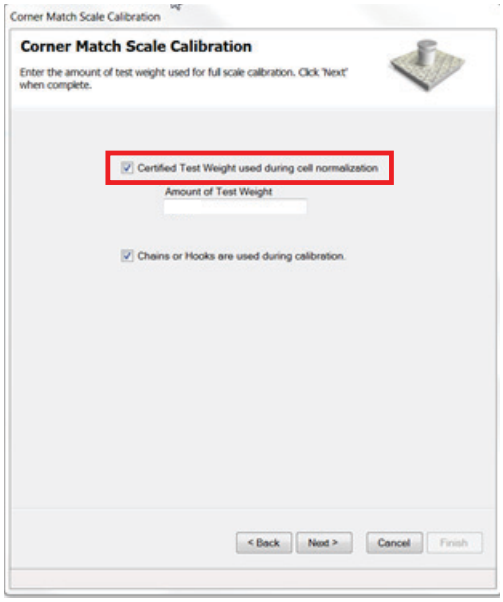


Figure 5-28. Certified Test Weight Used During Cell Normalization Checked

7. Select ***Chains or Hooks are used during Calibration***.

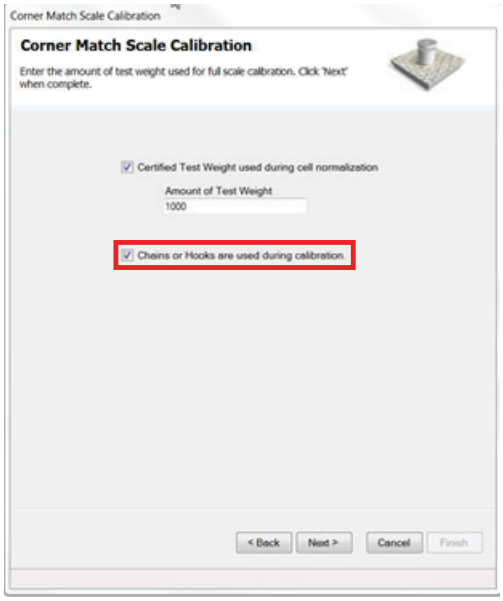


Figure 5-29. Chains or Hooks Are Used During Calibration Checked

8. Press **Next**.

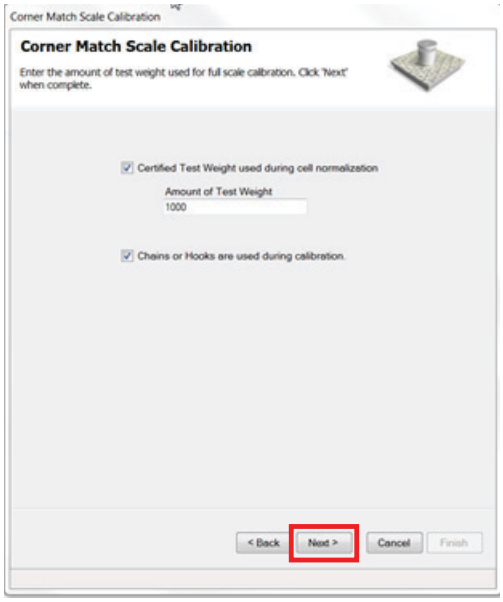


Figure 5-30. Select Next

9. Place a pallet on the forks and lift the tines off the ground.

10. Press **Calibrate Zero**.

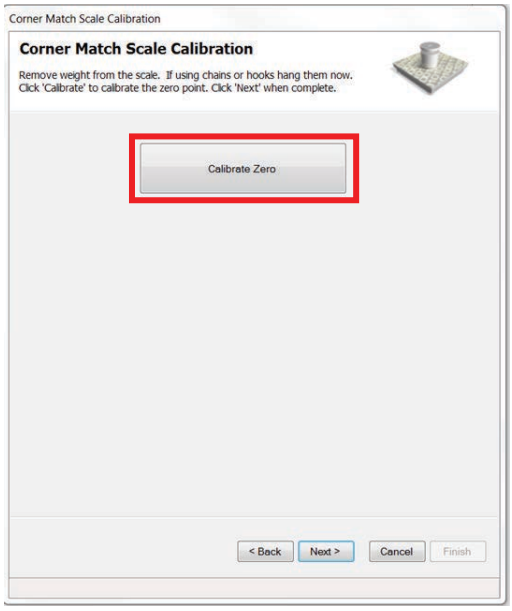


Figure 5-31. Calibrate Zero

11. Press **Next**.

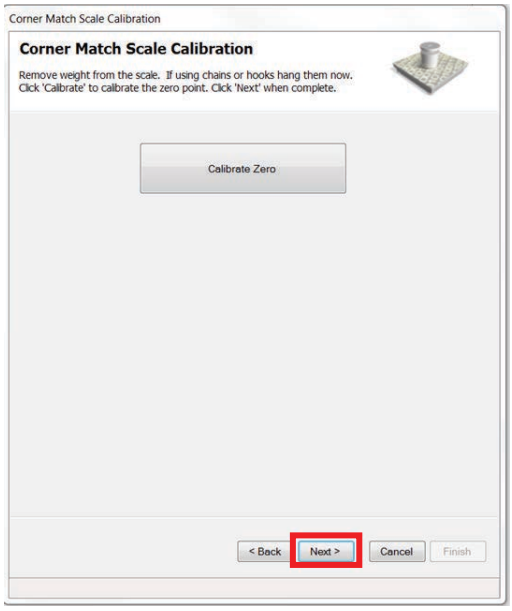


Figure 5-32. Select Next

12. Place a certified weight on the pallet and enter the value in the first weight field box then press **Measure**.

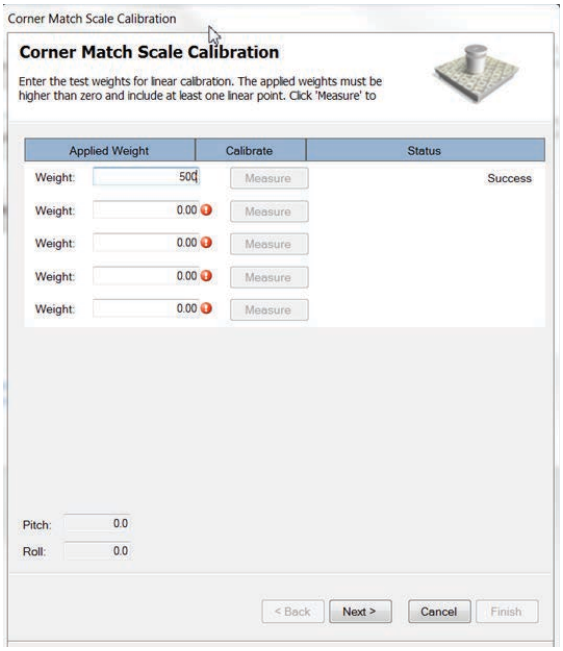


Figure 5-33. Enter Weight Values

13. Continue to place certified weights on the pallet and press **Measure** as each button becomes active (up to five total linear points), making sure each weight value is an incremental weight.

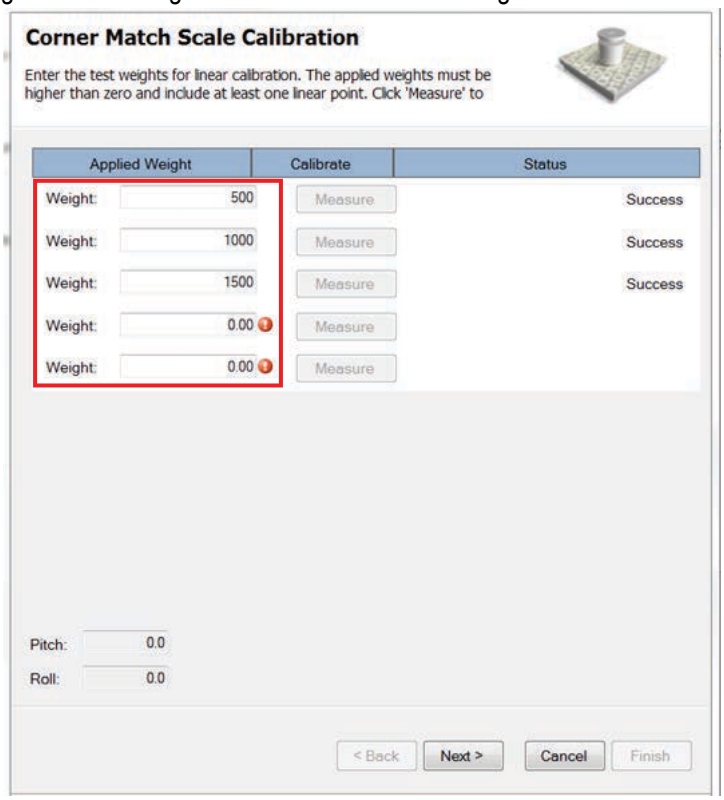


Figure 5-34. Continue to Enter Weight Values

14. Press **Next**.

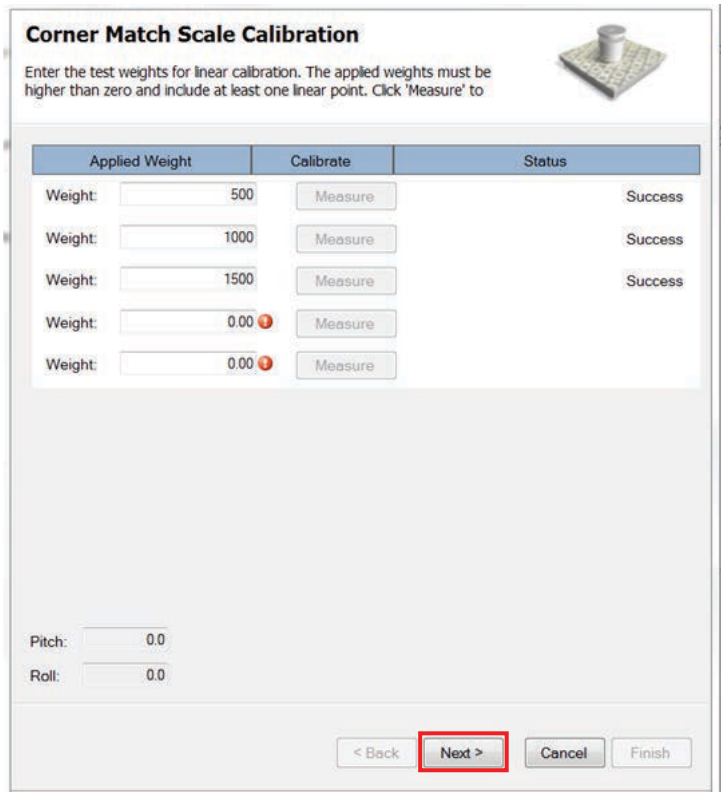


Figure 5-35. Select Next

15. Remove the weights and pallet. Select ***Rezero Calibrate***.

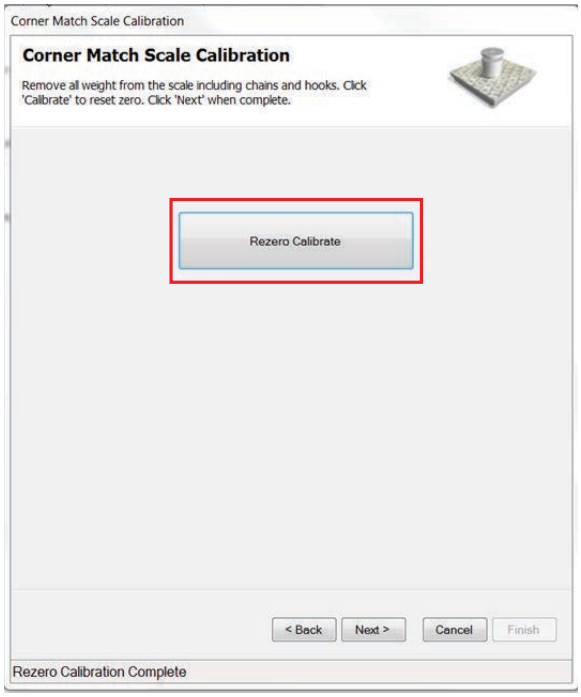


Figure 5-36. Rezero Calibrate

16. The prompt ***Rezero Calibration Complete*** will display.

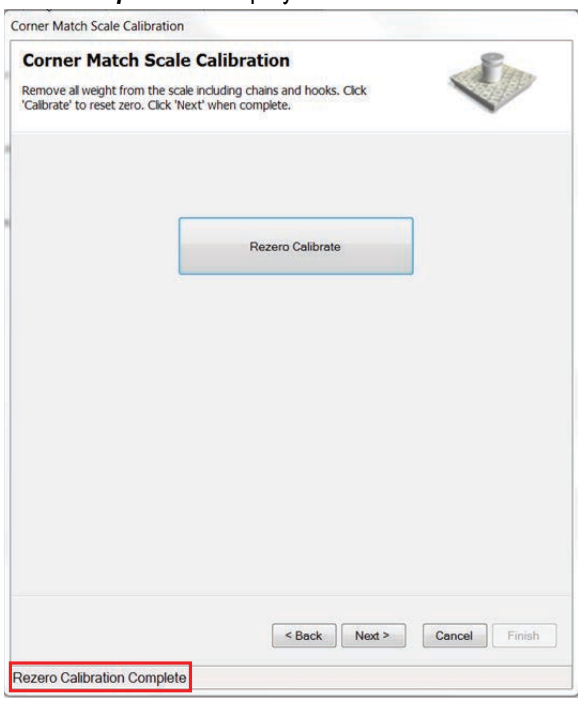


Figure 5-37. Rezero Calibration Complete

17. Press **Finish** to complete the calibration.

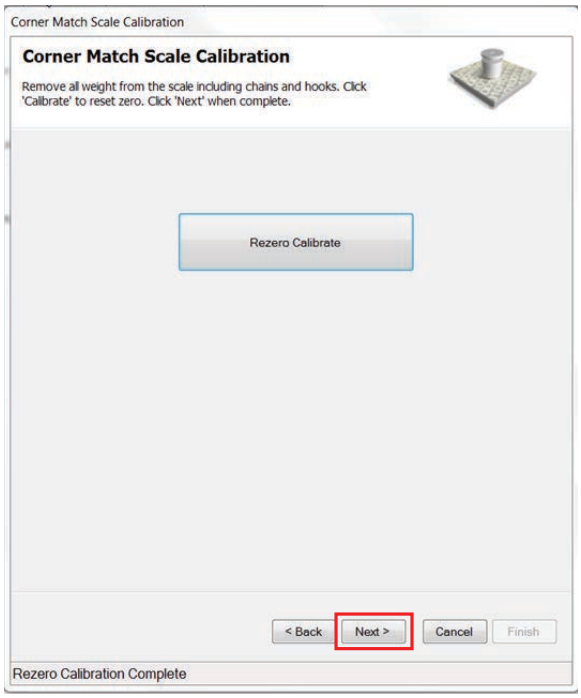


Figure 5-38. Select Next

5.3.2 Reading Data in Live Weight Screen

1. Once calibration is complete, select the ***Live Weight Data*** tab.

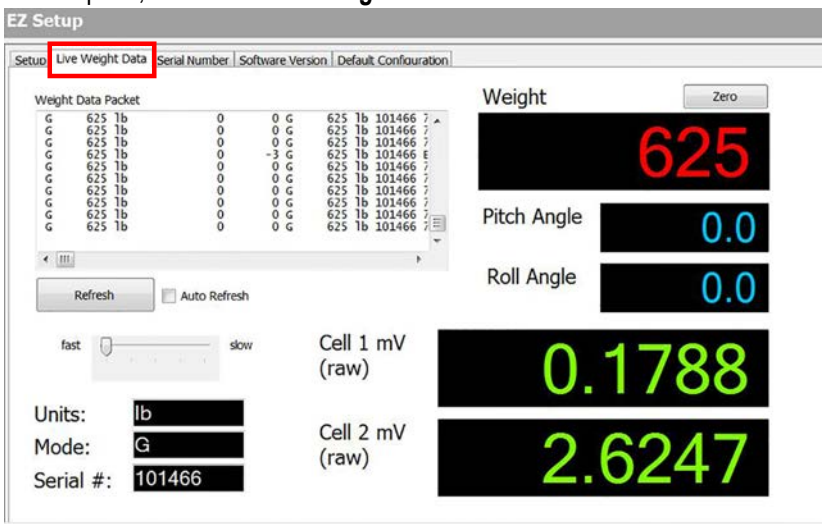


Figure 5-39. Live Weight Data Tab

IMPORTANT ***When moving the calibration switch in and out of calibration mode, it may take a few seconds for the Weight Data Packet and Weight window fields to update with accurate information.***

The mV, Pitch and Roll Angle functions are active whether the scale is in calibration or normal weighing mode. If the sealing switch is in calibration mode, the ***Weight*** may have held the last displayed weight value in memory. Move the sealing switch in normal weighing mode to continue to use the ***Live Weight Data*** feature correctly.

2. Place the calibration switch into the closed position, toward the left-hand side of the junction box when standing in front of the scale.
3. Test a known weight amount as specified in Section 4.3.3 on page 28; the value will appear in the ***Weight*** box and the ***Weight Data Packet*** values will update.

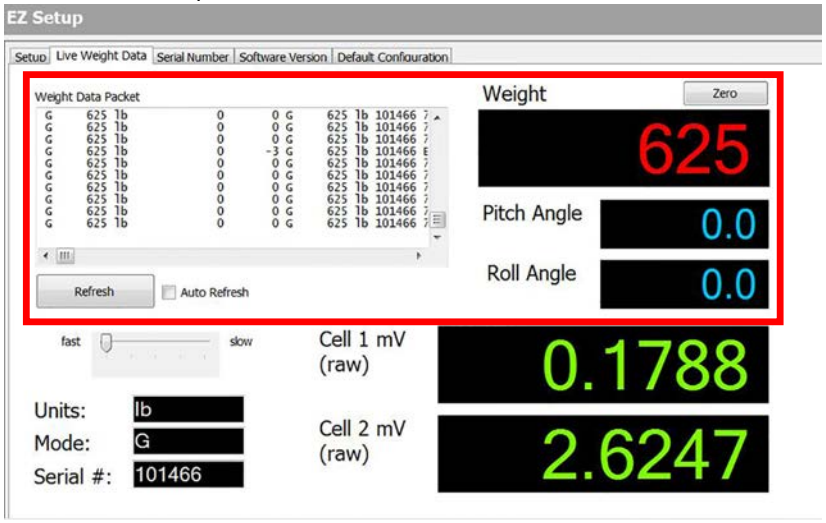


Figure 5-40. Weight Data

4. If scale is weighing correctly, carefully disconnect USB and replace the clear cover.
5. Swivel the cover plate back to the correct position and secure with the screw.
6. Upon successful installation and calibration, seal the carriage junction box and load cell for Weights and Measurements approval.
7. Re-install the scale cover plate; the scale is now ready for use.

6.0 Load Cell Replacement and Flexure Troubleshooting

This section describes procedures for replacing a load cell. The CLS uses Rice Lake's load cell, PN 125543.

The following instructions must be followed exactly to allow for seamless and easy load cell replacement.

WARNING ***Take all necessary safety precautions when installing or replacing the scale parts including wearing safety shoes, protective eyewear, and using the proper tools.***

6.1 Required Tools for Replacing a Load Cell

The following list of tools is necessary for replacing a load cell on the *CLS-M* scale. Ensure that you have these tools handy.

Rice Lake Part #	Item Description
96196	Modified box wrench
	Crescent wrench
	3/4" socket wrench, with extensions
	ball-peen hammer
	1-1/8" wrench for overload stop
	Chisel
	Allen wrench for overload stops
	Torque wrench
	Pry bar

Table 6-1. Required Tools for Replacing a Load Cell

Note ***Adequate light is necessary to change the load cell. Try to position the forklift close to a good source of natural light or if not possible, have a good source of lighting available.***

6.2 Load Cell Replacement

A replacement parts kit is available (PN 97883), which contains all of the component parts shown in Figure 6-1.

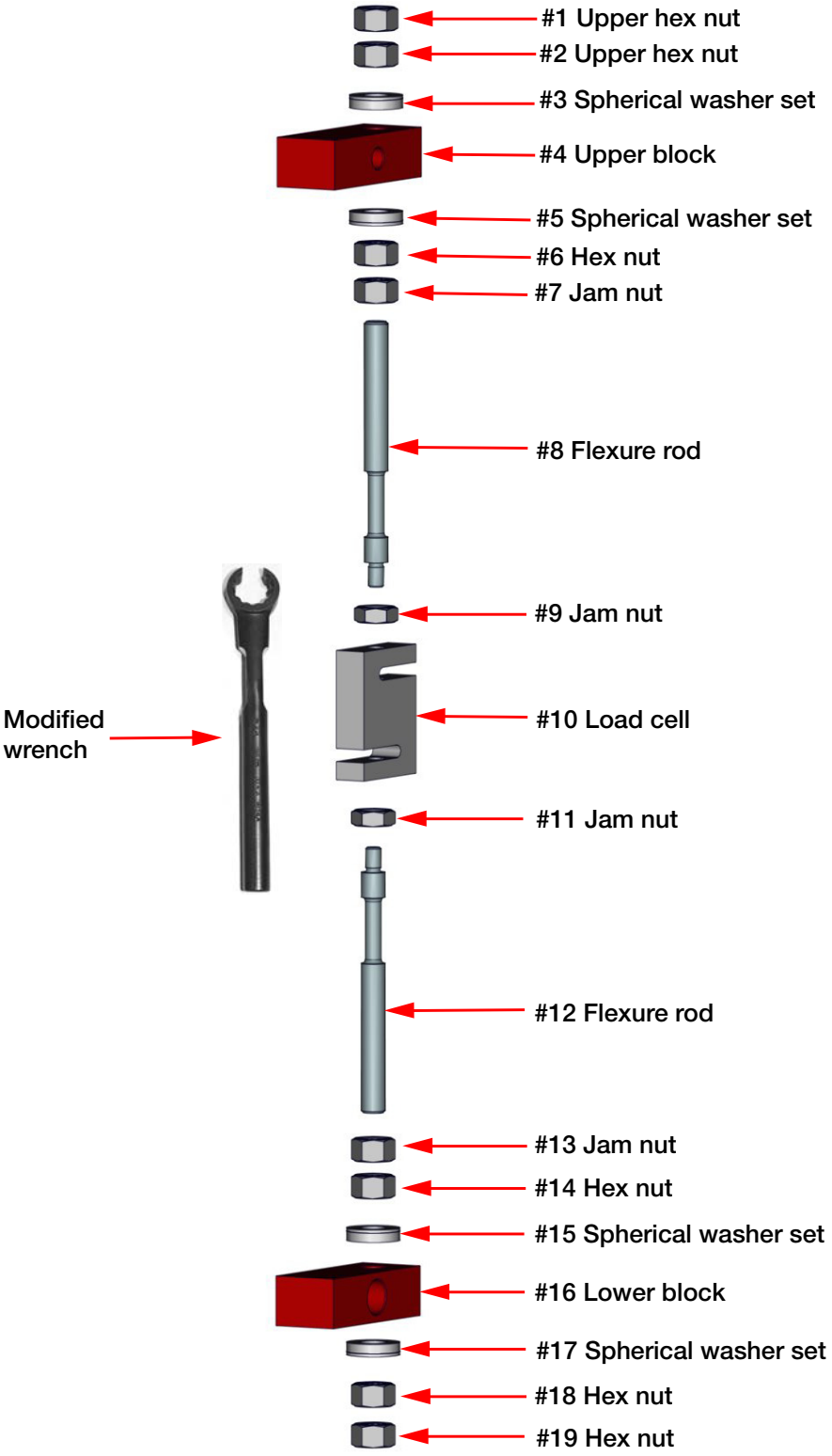


Figure 6-1. CLS-M Load Cell Assembly Parts Breakout

Use the following steps to replace a load cell:

1. Raise the forklift carriage just slightly for fork removal.
2. Slide the forks to the center of the carriage to allow for removal and set forks aside.

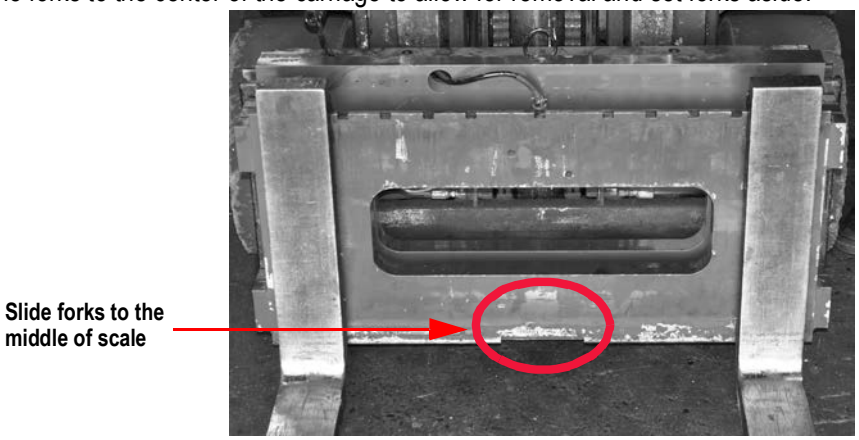


Figure 6-2. Fork Removal

3. Raise the forklift carriage to a comfortable working height for the load cell replacement.
4. Remove the top hex nut (#1) with a socket wrench.

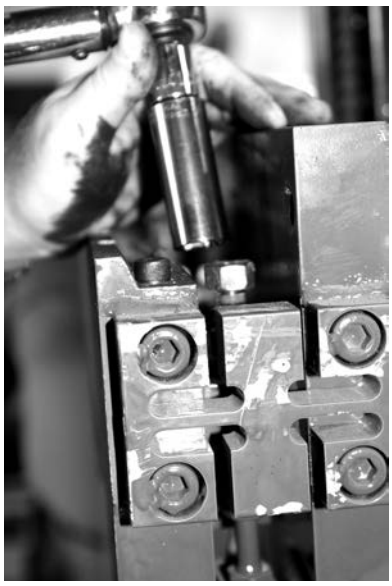


Figure 6-3. Removal of Hex Nut (#1 of Parts Breakdown)

5. Loosen jam nut (#7) from the upper block using the special modified box wrench (PN 96196 - supplied with load cell replacement kit) and shown in Figure 6-1.
6. Loosen jam nut (#13) from the lower block.

7. Remove the top hex nut (#2) and the top spherical washer set (#3).

Figure 6-4. Loosen and Remove Bottom Hex Nut (#18 and #19 on Parts Breakdown)

8. Remove the bottom hex nuts (#18 and #19) and the bottom spherical washer set (#17).
9. Loosen the hex nut located under the upper block (#6).
10. Loosen the jam nut located on top of the load cell (#9).
11. Loosen the hex nut (#14) located on top of the lower block.
12. Loosen the hex nut (#11) on the lower side of the load cell.
13. Remove the bottom flexure rod (#12) and the top flexure rod (#8) sliding the remaining washer sets (#5 and #15).
    - Ensure flexure rod threads are free of debris and paint by running a nut the full distance of the rod.

Figure 6-5. Remove Flexure Rod with Nuts and Washers

14. Check the flexure rod threads for smooth operation by running a nut the full distance of the rod, making sure it does not get stuck anywhere along the way. If so, clean off any paint using a wire brush and oil.
15. Oil the spherical washers using a standard machine shop oil.
16. Disconnect the load cell cable from the junction box.
17. Loosen cable clips and remove the load cell.

- Detach load cell clip from back plate of scale using a large screwdriver.

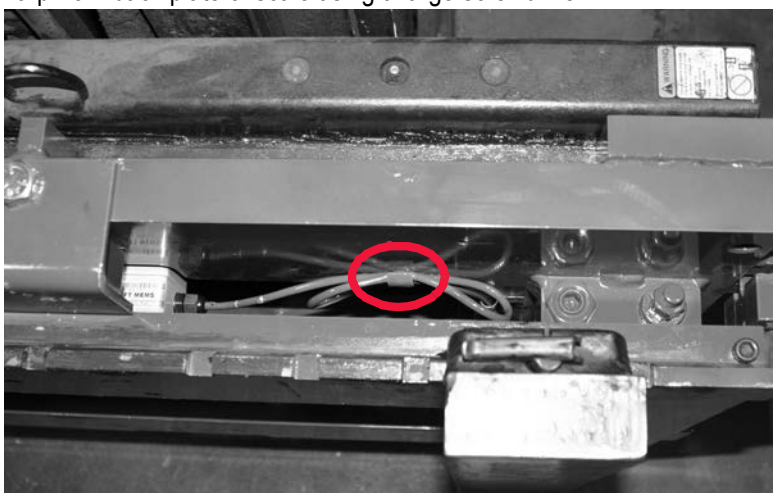


Figure 6-6. Load Cell Cable Clips

18. Position a new load cell with its cable facing towards the center and opening of the S-beam facing the flexures.

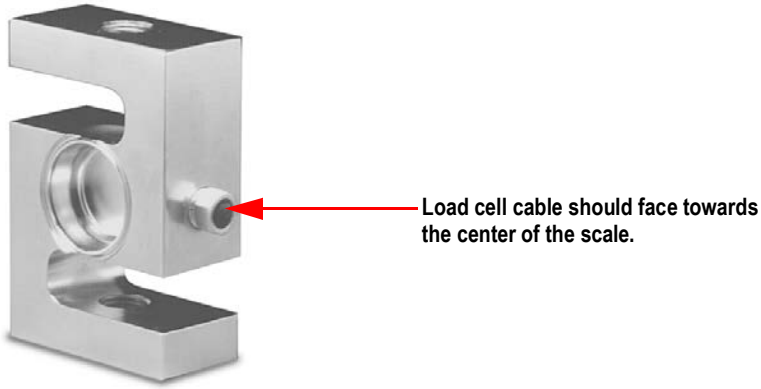


Figure 6-7. Load Cell

19. Install the top and bottom flexure rod with hardware, ensuring that the flexure rod be oriented with the short thread of the rod facing nearest the load cell.

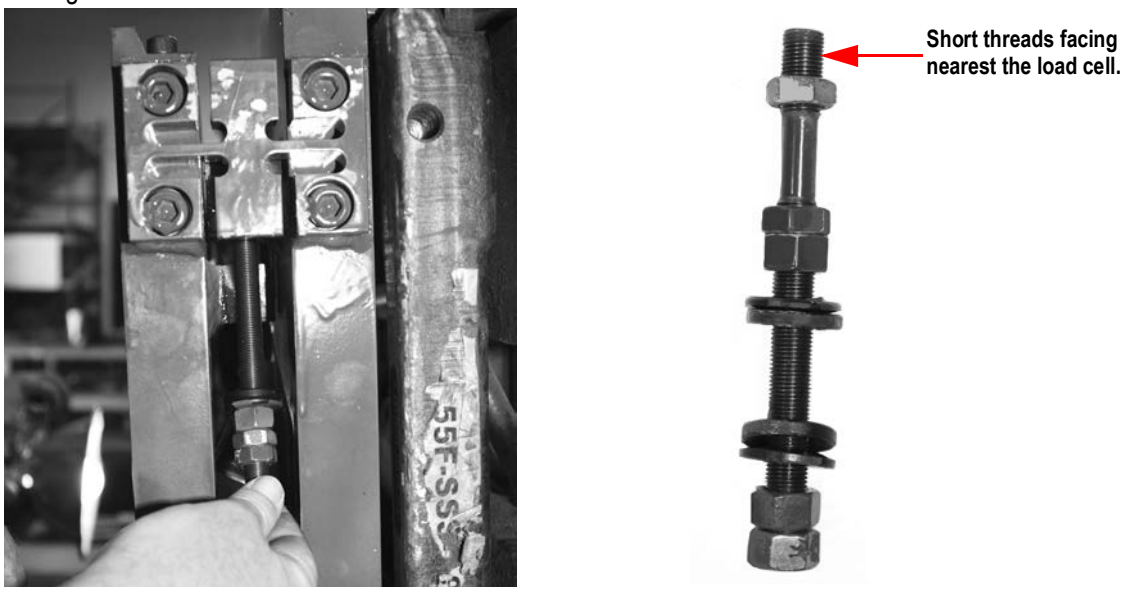


Figure 6-8. Installing Flexure into Scale

20. Insert the load cell and thread flexure rods into top and bottom of the load cell making sure the appropriate hex nuts, jam nuts, and spherical washers are in the correct order per (See Figure 6-1).
21. Screw in the rod and tighten jam nut but, leave approximately two threads exposed outside of the jam nut; repeat for both the top and bottom of the load cell.
22. Use hex nuts to position the load cell in the center of the mounting blocks with an equal amount of flexure rod on the top and bottom of the load cell.
23. Tighten the jam nuts on the top and bottom of the load cell, making sure they are tight, and load cell is completely vertical with the scale. To accomplish this, you can use a pry bar or chisel to hold the cell straight as illustrated in Figure 6-9.

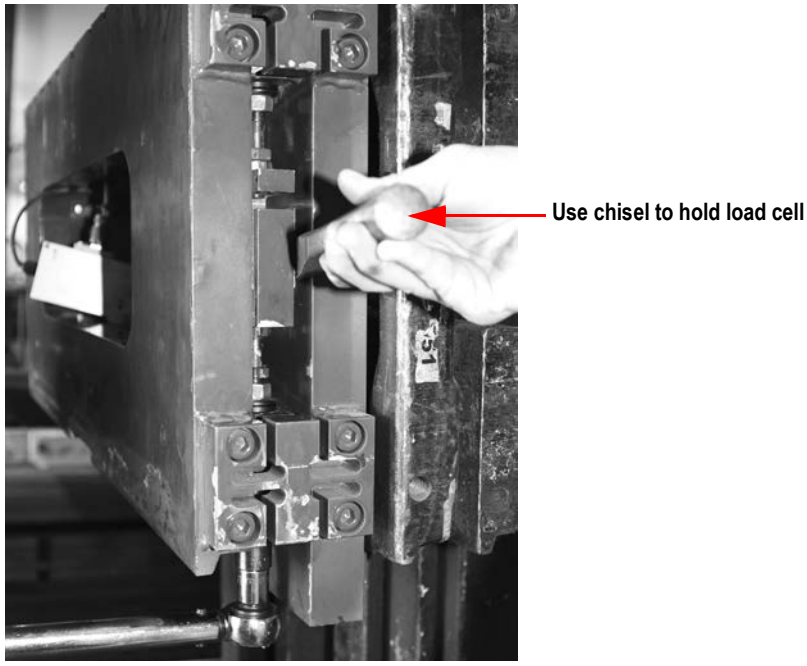


Figure 6-9. Use Chisel to Hold the Load Cell in Straight

24. Install the spherical washer set and hex nut on the bottom flexure rod, ensuring that the fat washer is mounted towards the mounting block

Figure 6-10. Install Spherical Washer Set

25. Install a flat-bladed screwdriver in the upper mounting block between the hole and the flexure rod, forcing the flexure rod in the same direction of the flexures

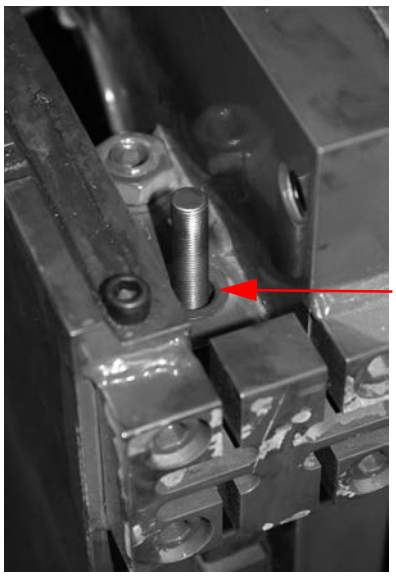


Figure 6-11. Centering the Flexure Rod

26. Use a pry bar or chisel to hold the load cell (bottom half of the cell), straight while using a torque wrench to tighten the bottom hex nut on the lower mounting block to 110 ft-lb. Install the other hex nut on the bottom of the flexure rod and torque it to 110 ft-lb

Figure 6-12. Centering the Load Cell Using a Chise l

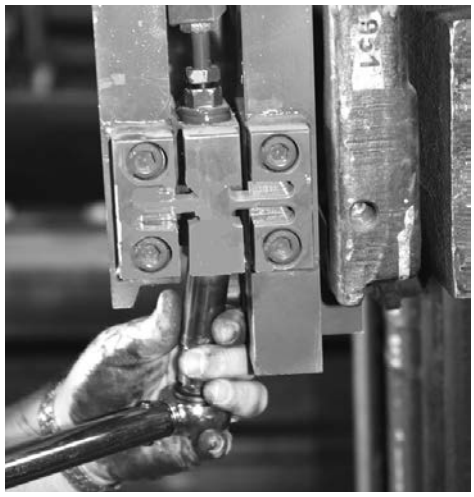


Figure 6-13. Tightening the Lower Hex Nut

27. Use the special modified box wrench to tighten the jam nut (#13) on the lower block
28. Remove the flat-bladed screwdriver as used in Step 25 and inspect the flexure rod; the flexure rod needs to be in the center of the hole
29. Install the spherical washer set (#3) and hex nut (#2) on the top of the upper block
30. Connect the load cell cable to the junction box at this time
31. Torque the hex nut (#2) on the upper mounting block until you see 100 lb on the weight display; tighten the lower hex nut (#6) below the upper mounting block using the modified box wrench and try to get the display as close to zero as possible
32. Torque the top hex nut (#1) with a torque wrench to 110 ft-lb; use a pry bar or chisel to ensure the load cell stays centered while tightening and doesn't touch the sides of front or back plate
33. Install the final hex nut on the top mounting plate and torque to 110 ft-lb; use a pry bar or chisel to keep the load cell centered
34. Tighten the jam nut on the lower mounting block assembly
35. Exercise the scale, heel to toe, by placing a weight (1000 lb) on the heel, then the toe to check if the assembly was installed correctly; repeat for both sides, and if the weight is off, check assemblies
36. Place a weight in the center of the fork and check side to side values
37. Calibrate the load cells (See Section 5.0 on page 38)

6.3 Forklift Flexure Troubleshooting - 28" and 34" Models

This section refers to Rice Lake PN 92828.

The forklift flexure is designed to protect the load cell from damage in the forklift environment.

Use the following steps if the forklift scale is out of tolerance or unable to return to zero on a consistent basis.

1. Check for debris within the scale or between the scale carriage.
2. Check for proper spacing of the jam nuts at 0.02".
3. Check the dimensions of the flexure for damage; there should be a +/-0.03" tolerance to the drawing shown below for height and width.

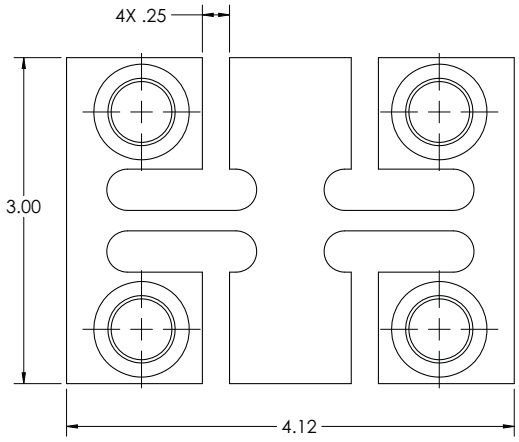


Figure 6-14. Flexure Chassis

7.0 iQube2® Junction Box

The iQube2 junction box designed for use with the Rice Lake CLS-M series forklift scales and is a replacement for the junction box used on early models of the scale. Load cell connectors have been updated to improve serviceability.

7.1 iQube2 Junction Box Replacement

The junction box is located between the front and back panel of the scale and is covered by a metal cover plate on the top of the scale.

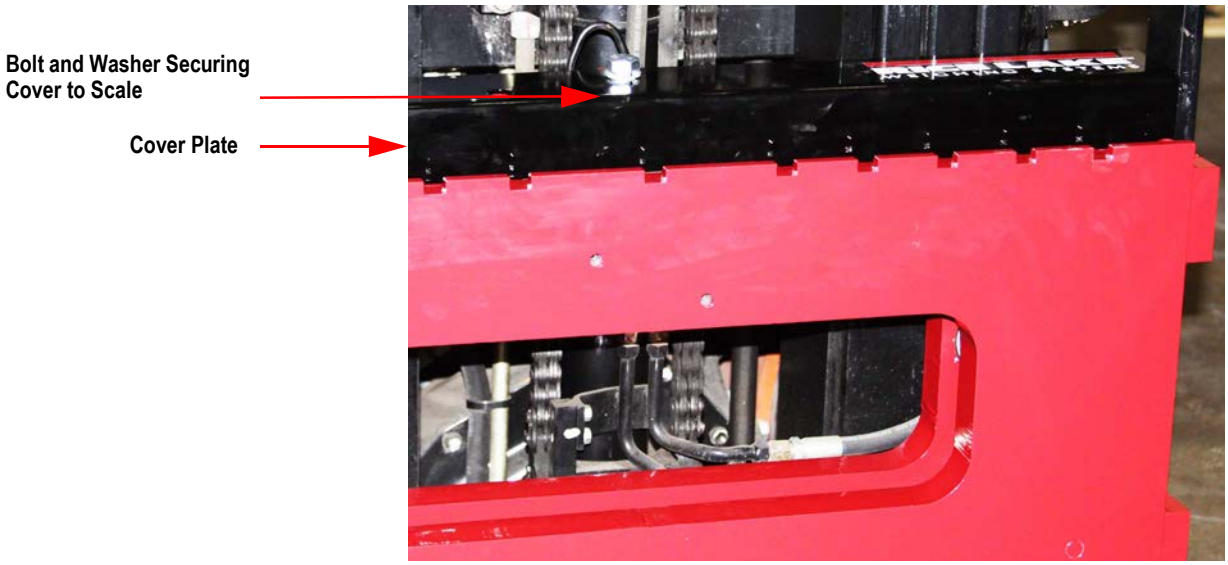


Figure 7-1. Remove Cover Plate

1. Turn scale power off on the Communication/Power box.
2. Remove the bolt that holds the cover plate in place, which conceals the junction box.
3. Remove the cover plate and set aside.
4. Unplug power cable.
5. Lift the forklift to a comfortable working height.
6. Remove the two screws securing the junction box to the scale, using a #4 metric Allen wrench, to remove existing junction box from scale carriage.
7. Remove the coiled interface cable from the junction box.
8. Disconnect the load cell cables.

Note

Steps 9-14 are only required when upgrading the original junction box to an iQube2. If replacing an iQube2 with another iQube2 skip to step 15.

Remove automotive quick connects from load cell cables.

9. Strip wires for connection to the new load cell connectors. See Figure 7-3.
10. Follow the instructions on the packaging for Turk connector, PN BS-8157-0/P69, for inserting wires.
11. Wire the load cell 5-pin male connector to the following color codes Table 7-1. and Figure 7-3. Note the orientation of the raised diamond in Figure 7-3. Use the supplied tool in the rectangular tool slot to lock wires down.

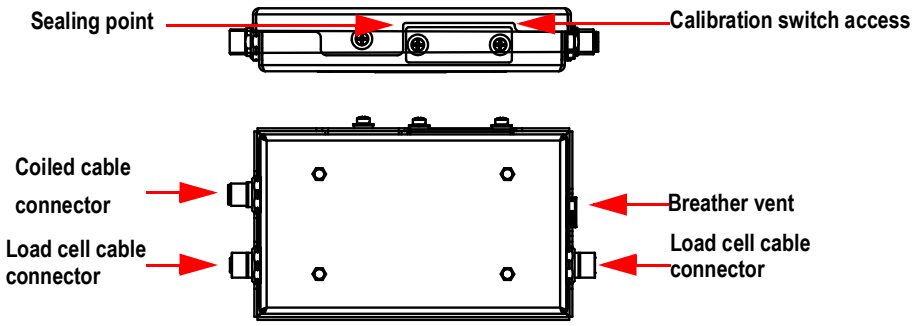


Figure 7-2. iQube2 Junction Box

Pin #	Wire Color	Function
1	Green	+SIG
2	White	-SIG
3	Red	+EXC
4	Black	-EXC

Table 7-1. Load Cell 5-Pin Male Connector Wiring

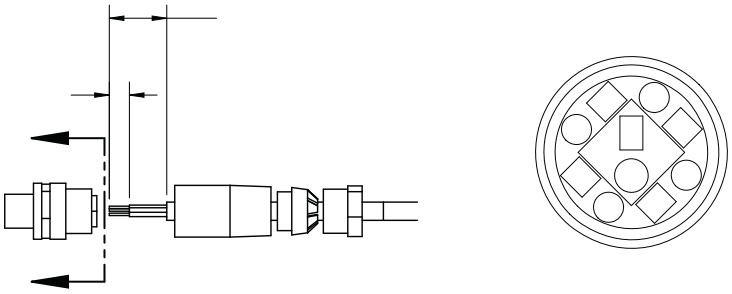


Figure 7-3. Load Cell Wiring

12. Add blue Loctite®1 425 to the two contact points as indicated in Figure 7-3.
13. Attach the load cell cables to the bottom two connectors on the junction box.
    A. Apply Loctite.
    B. Tighten until connection is snug so only two threads are visible.

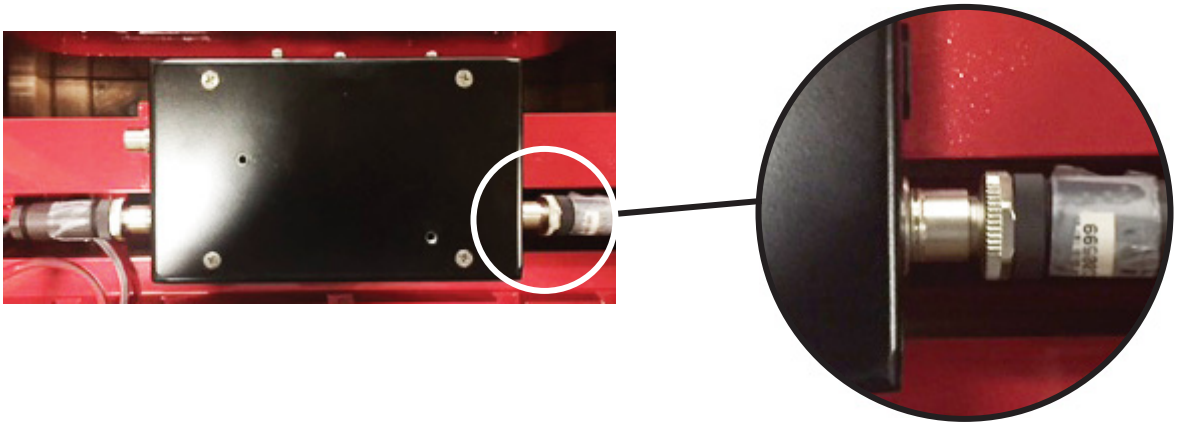


Figure 7-4. Connect Load Cell Cable to Junction Box

14. Attach the home run cable to the top side connector.
15. Install the iQube2 junction box into the forklift scale, using Loctite on the mounting screws.
16. Open the calibration access switch cover on the junction box, set switch to the **On** position.
17. Plug in the power cable, and turn on the communication power box.
18. Calibrate the unit using Revolution software.
19. Connect the load cell cables to each side.
20. Connect the coiled interface cable to the top of the junction box.
21. Align the iQube2 junction box with the bolt holes in the scale and use an Allen wrench to tighten.
22. Place the cover plate in place and secure with a bolt and washer and seal the unit.

7.2 Download the Serial Number to the Junction Box

1. Select the ***Serial Number*** tab to download the serial number of the scale using Revolution while in ***EZ Setup*** mode.

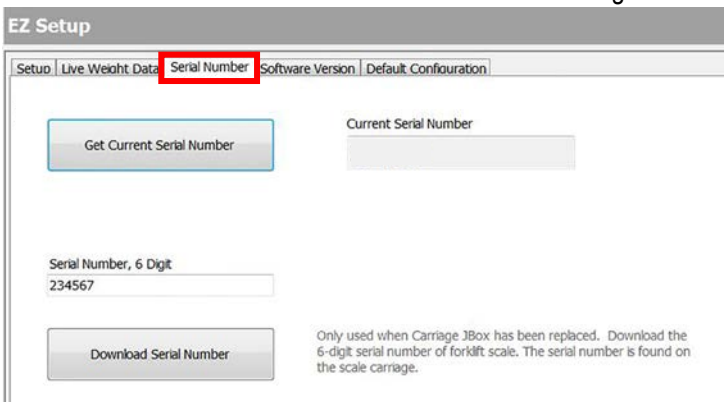


Figure 7-5. Serial Number Tab

2. Select the **Get Current Serial Number** button to get the current serial number.

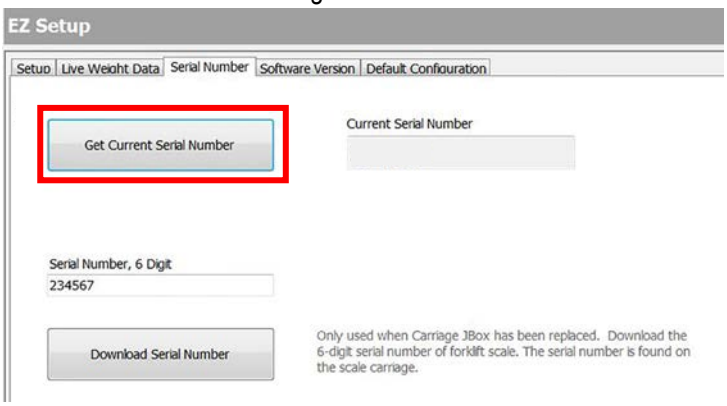


Figure 7-6. Enter Current Serial Number

3. Enter the new six-digit serial number from the forklift scale into ***Current Serial Number***.

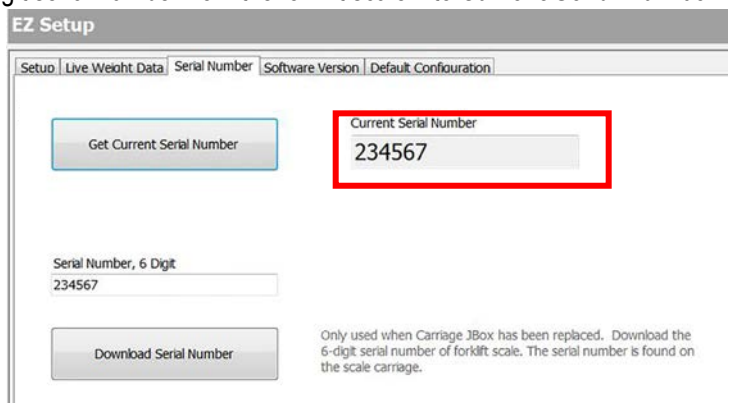


Figure 7-7. Enter Current Serial Number

4. Select **Download Serial Number** to save the new serial number.

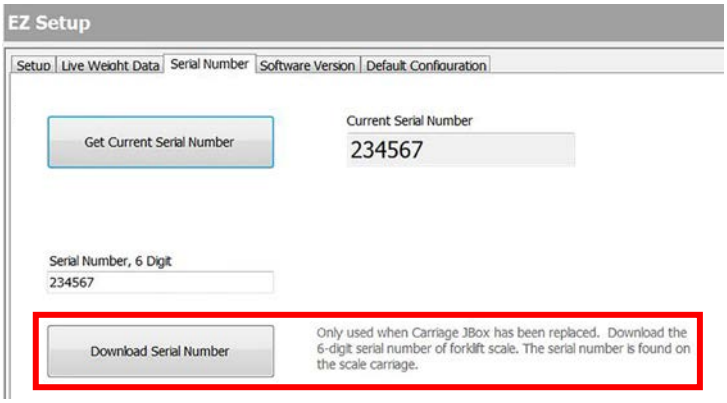


Figure 7-8. Download Serial Number

5. Once the serial number is downloaded the message ***Serial Number Sent to Device*** is displayed on the screen, press **OK** to accept that number.

Note

The serial number of the scale is located on the right side of the carriage and also under the black cover plate on the scale assembly.

The serial number (a six-digit entry) screen typically displays 0 or the last serial number downloaded.

The upload and download of each configuration file is no longer required. The iQube2 junction box has default factory settings to communicate with the CLS forklift scale.

7.3 iQube2 PCB Board Assembly Replacement

1. Remove junction box from the scale carriage; see Section 7.0 on page 65.
2. Disconnect load cell and coiled cable connectors.
3. Loosen four screws to remove front cover of junction box.
4. Disconnect JST connectors for load cells and coiled cable.
5. Remove PCB board assembly.
6. Install new PCB board assembly and install screws using blue Loctite®.
7. Connect coiled cable JST connector to J1.
8. Connect left load cell cable JST connector to J2.
9. Connect right load cell cable JST connector to J3.
10. Replace cover and secure with four screws, Locktite not required.

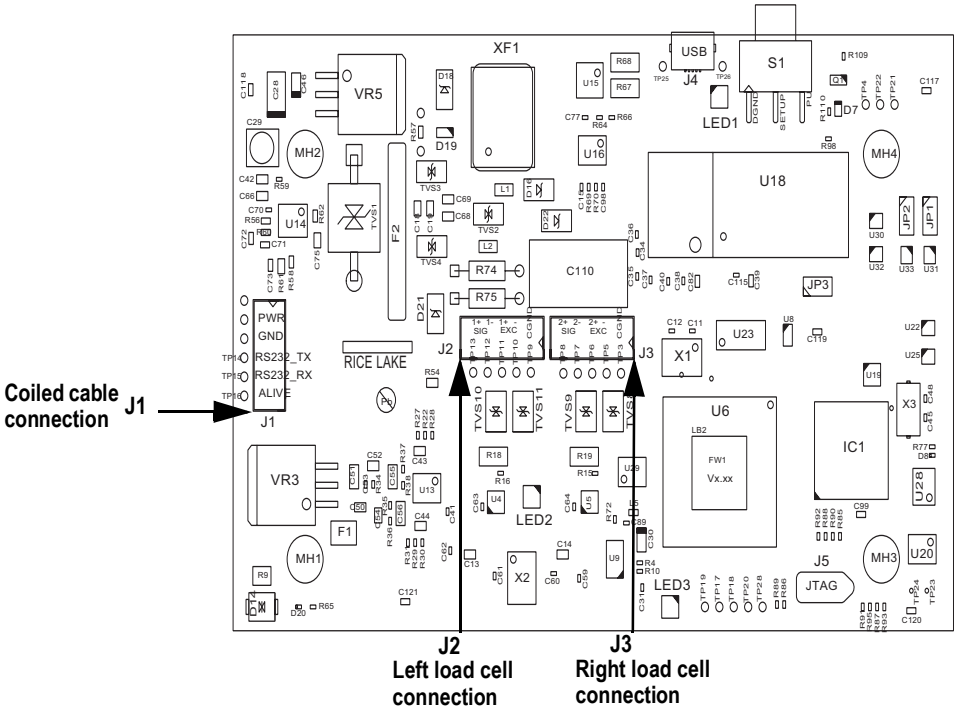


Figure 7-9. PCB Board Assembly

7.4 iQube 2.3 Cross References

When identifying the correct junction box cross referenced part number, please provide the serial number of the scale so that the Rice Lake Weighing Systems sales and service departments can track it to the correct top level part number sold.

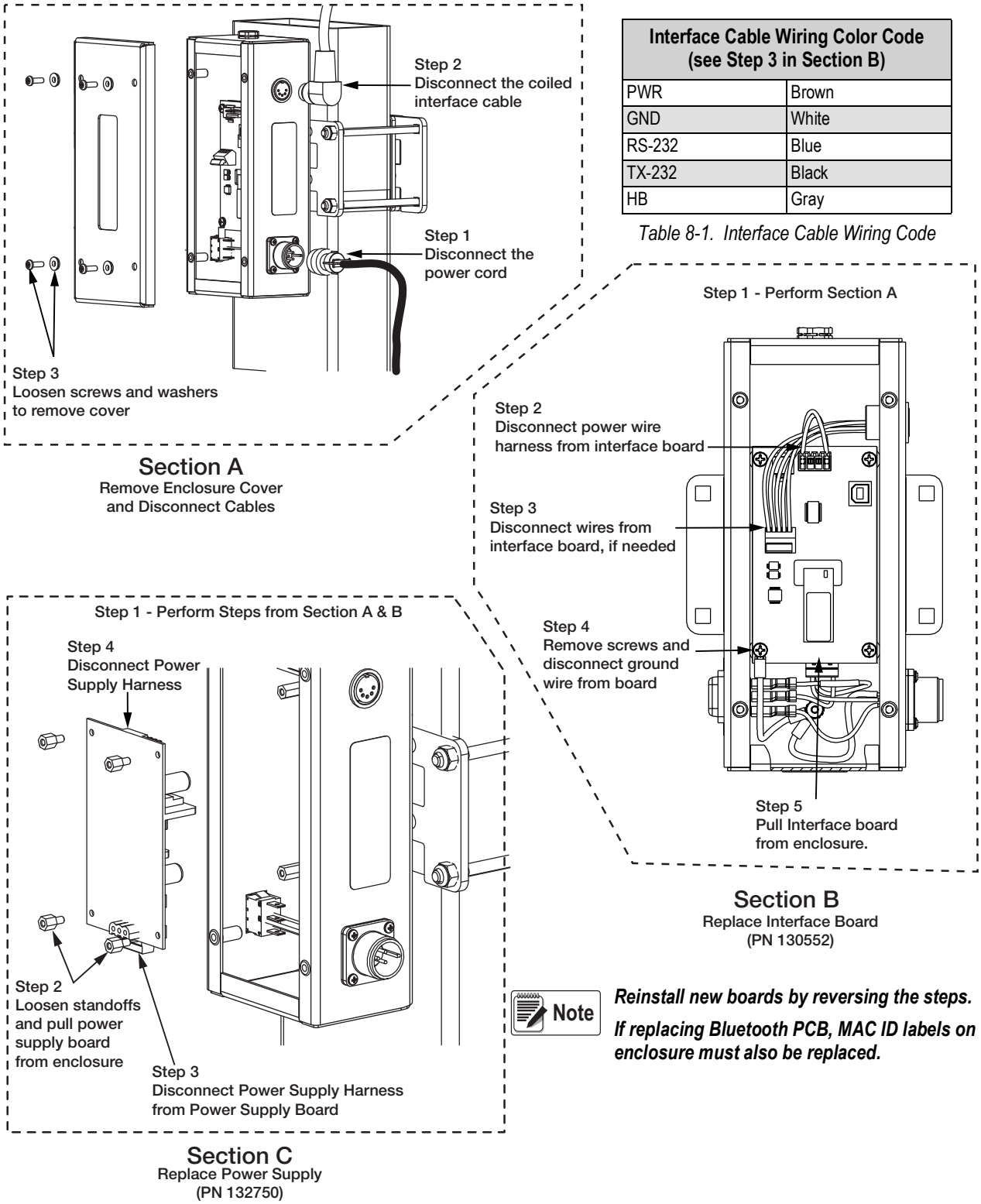
The kit part number includes the appropriate load cell and cable adapters required to upgrade your unit. This table references the part numbers 125277 and 153539 only:

28" Forklift Carriage			
Top Level Fork Lift PN	Indicator	iQube 2.3 Kit PN	iQube 2.3 junction box PN
111033	420 Wired	167345	167344
111034	420 Wireless		167416, 167344
111035	920i Wired	Upgrade not available	121014
111036	920i Wireless		121014
34" Forklift Carriage			
Top Level Fork Lift PN	Indicator	iQube 2.3 Kit PN	iQube 2.3 junction box PN
96339	420 Wired	167345	167344
96340	420 Wireless		167344
96341	920i Wired	Upgrade not availabl	121014
96342	920i Wireless		121014
130822	420 Wired	167356	167261
130823	420 Wireless		167261
130824	920i Wired	Upgrade not available	130826
130825	920i Wireless		130826
SPX or SO WO	420 ABF	167345	167344
120911	420 ABF	167356	167261
161964	420 ABF	167341	167261
125277	CLS-M	167340	164071
153539	CLS-M	167340	164071
151803	CLS-420	167356	167261
132414	CLS-M2	167340	164071
156294	CLS-M3	167340	164071
164649	CLS-420	167341	167261
162279	CLS-420	167341	167261
38" Forklift Carriage			
Top Level Fork Lift PN	Indicator	iQube 2.3 Kit PN	iQube 2.3 junction box PN
111038	420 Wired		167407
111039	420 Wireless		167407
111040	920i Wired	Upgrade not available	121366
111041	920i Wireless	Upgrade not available	121366
151506	420 Wireless		167407
151490	920i Wireless	Upgrade not available	121366

Table 7-2. iQube 2.3 Cross References

8.0 Power/Communication Board Replacement

To replace boards, follow the instructions below.



Interface Cable Wiring Color Code (see Step 3 in Section B)	
PWR	Brown
GND	White
RS-232	Blue
TX-232	Black
HB	Gray

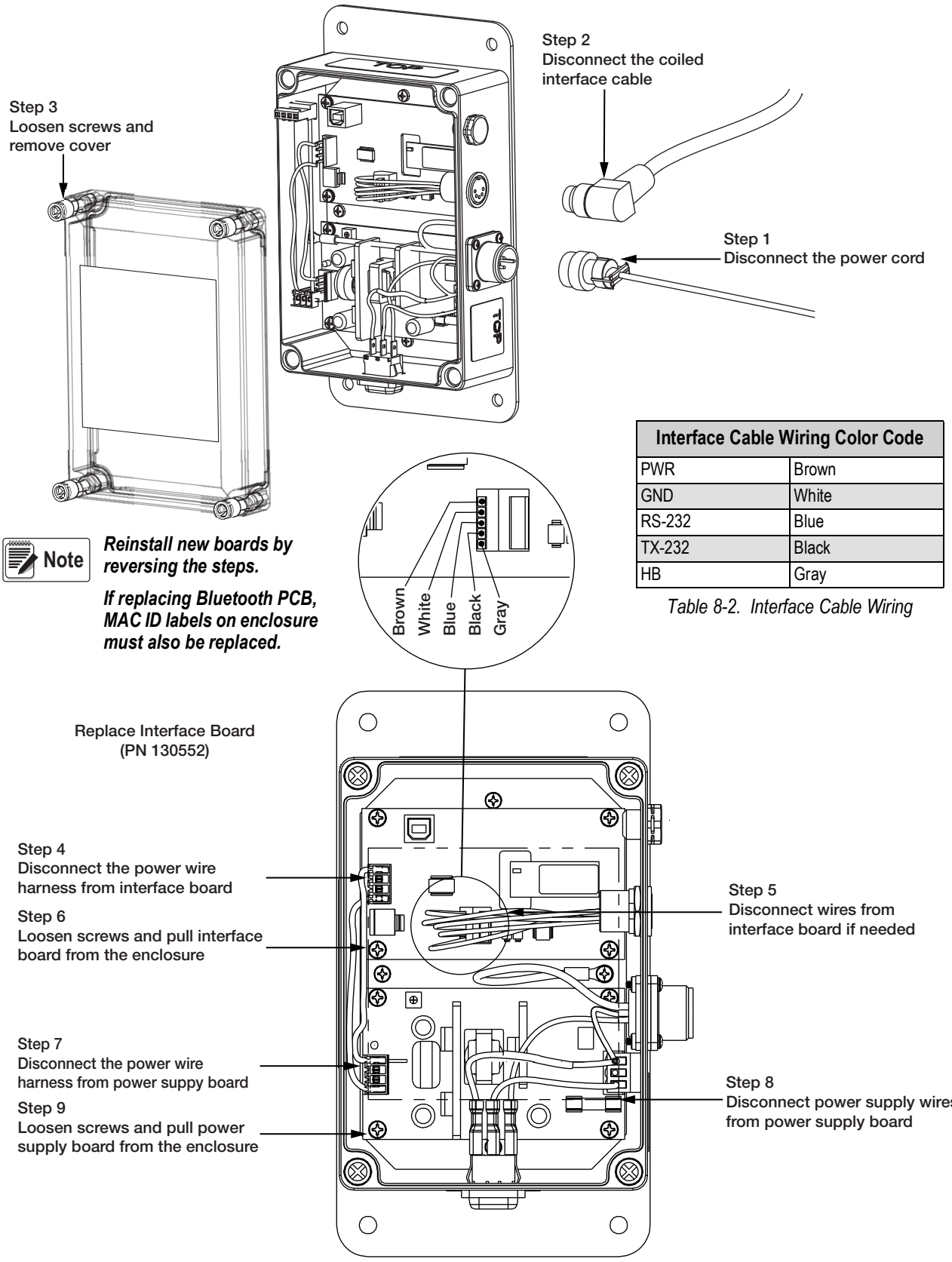
Table 8-1. Interface Cable Wiring Code

Note

Reinstall new boards by reversing the steps.

If replacing Bluetooth PCB, MAC ID labels on enclosure must also be replaced.

Figure 8-1. Board Replacement (PN 153616)



Interface Cable Wiring Color Code	
PWR	Brown
GND	White
RS-232	Blue
TX-232	Black
HB	Gray

Table 8-2. Interface Cable Wiring

Note

Reinstall new boards by reversing the steps.

If replacing Bluetooth PCB, MAC ID labels on enclosure must also be replaced.

Figure 8-2. Board Replacement (PN 130551)

8.1 Bluetooth PCB Field Replacement Instructions

For PN 130552 and 167218:

1. Ensure that two MAC ID address labels were included in the packaging of the new part.
2. Cover the existing MAC ID address labels on the existing power/communication box with the new labels.

If MAC ID address labels were not included with the new part, please contact Rice Lake Weighing Systems National Service at 1-888-225-7597. Be sure to provide the Service Dispatch number or Order number included on the ticket.

Figure 8-3. SVC Part, CLS Bluetooth Replacement Kit

Note

Each Bluetooth PCB has a unique MAC ID address. Connection to the hand-held device is dependent on the use of new labels. Bluetooth PCB failures are uncommon. Prior to returning the device to the manufacturer, please review the following symptoms.

9.0 Spare Parts and Troubleshooting

9.1 Parts Breakout

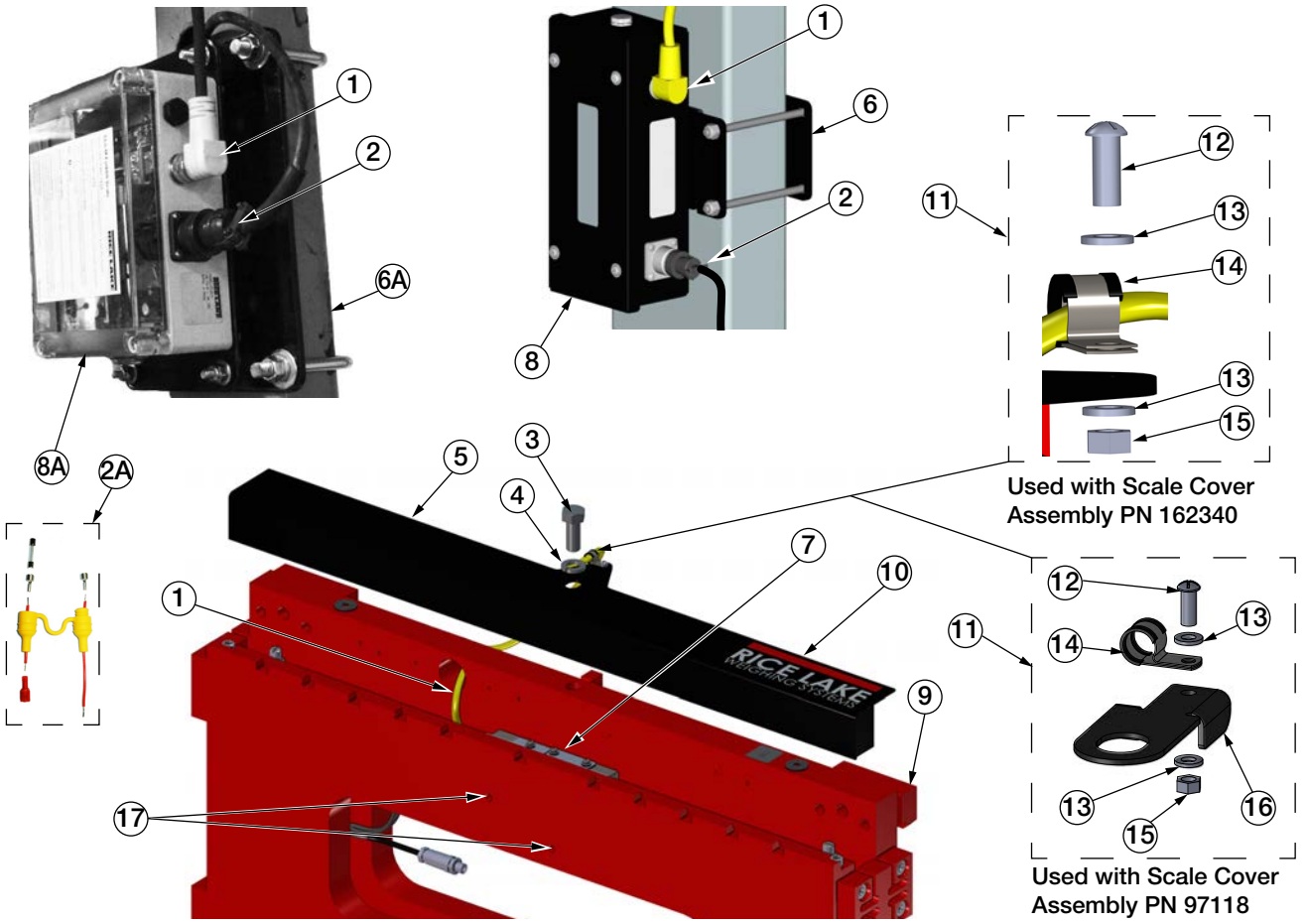


Figure 9-1. CLS Scale Assembly

Item No.	Part No.	Description	Qty
	167245	Scale, CLS	Ref
1	125395	Cable Assembly, Coiled 5x18AWG	1
2	96915	Cable Assembly, Fused Power	1
2A	130129	Fuse Assembly, Power Cable	1
3	127009	Screw, Cap 5/8-11NC	1
4	111731	Washer, Lock 5/8 Regular	1
5	162340	Angle, Protective	1
6	154208	Plate Assembly, Compow Box	1
6A	125738	Plate Assembly, Compow Box	1
7	164071	iQube2 Junction Box Assembly	1
	159589	Junction Box Assembly, Carriage CLS	1
8	153616	Junction Box Assembly, Compow CLS	1
8A	125394	Junction Box Assembly, Compow CLS	1
9	167244	Scale, Cargo Lift	1
10	162340	Scale Cover Assembly	1
	97118	Scale Cover Assembly	1

Table 9-1. CLS Scale Assembly Parts

Item No.	Part No.	Description	Qty
11	167250	Kit, Loop Clamp, Coiled Cable Assembly (Inc 12-15)	1
	150720	Kit, Loop Clamp, Coiled Cable Assembly (Inc 12-16)	1
12	126980	Screw Machine 10-32 x 1/2	1
13	15141	Washer, Plain STD No 10	2
14	150719	Clamp, Loop One Hole 1/4"	1
15	14633	Nut, Lock 10-32NF Hex	1
16	130928	Bracket, CLS-M (inc with PN 150720 only)	1
17	125649	Hex Socket Cap Screw 10-32 x 1 SST	2
	167470	Parts Kit, Forklift CLS	1
	53308	Label,1.25 x 1.25 8000T	2

Table 9-1. CLS Scale Assembly Parts (Continued)

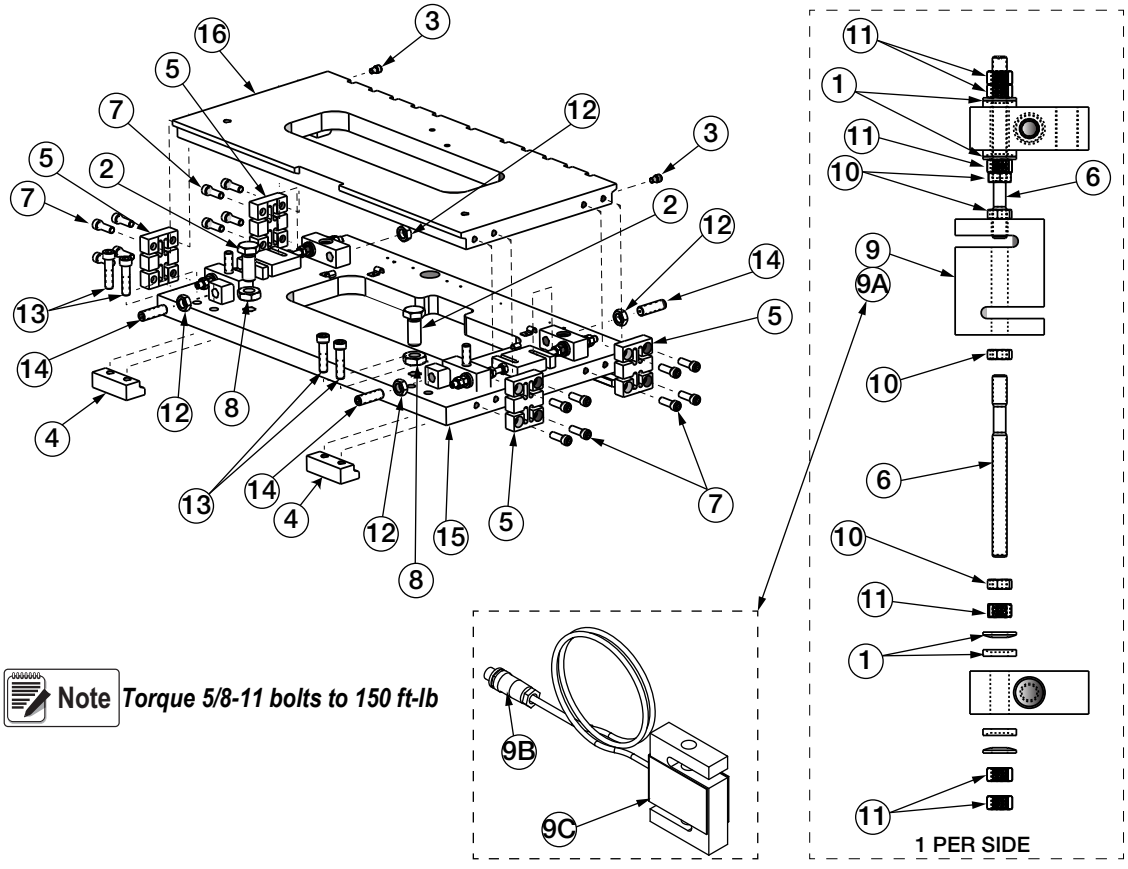


Figure 9-2. CLS Scale Parts

Item No.	Part No.	Description	Qty
	125368	Scale Section Assembly 34 - Year 2011 through 2014	
	167244	Scale Section Assembly 34 - Year 2015	
1	15198	Washer, Spherical .53 x 1.12	8
2	92822	Bolt, 1-8NC x 2-3/8 Gr 5	2
3	92812	Screw, Cap 3/8-16NC x 1/2	2

Table 9-2. CLS Spare Parts

Item No.	Part No.	Description	Qty
4	92826	Cleat, Bottom 1.25 x 1.9 x 4	2
	126770	Cleat, Bottom, Thick for use on worn carriages	2
5	92828	Flexure, 1 x 3 x 4.12 17-4PH	4
6	92827	Flexure Rod, 1/2-20 x 6.13	4
7	15061	Screw, Cap 1/2-13NC x 1-1/2	16
8	14701	Nut, Jam 1-8NC HEX Steel	2
9	125543	Load Cell, with Automotive Quick Connect	2
9A	166623	Load Cell, with Turk Screw Connectors (inc 9B & 9C)	2
9B	166756	Conn,M12 5 Pin Male Field	1
9C	96198	Load Cell,SBM RL20000 FLS	1
10	14665	Nut, Jam 1/2-20NF HEX SST	8
11	109958	Nut, Full 1/2-20NF HEX SST	12
12	14688	Nut, Jam 3/4-16NF HEX SST	4
13	92810	Screw, Cap 5/8-11NC x 2-1/2	4
14	92814	Screw, Set 3/4-16NF x 2.406	4
15	125367	Wldt, Assembly Back Plate 34 in	1
16	125547	Wldt, Front Plate 34 in	1

Table 9-2. CLS Spare Parts (Continued)

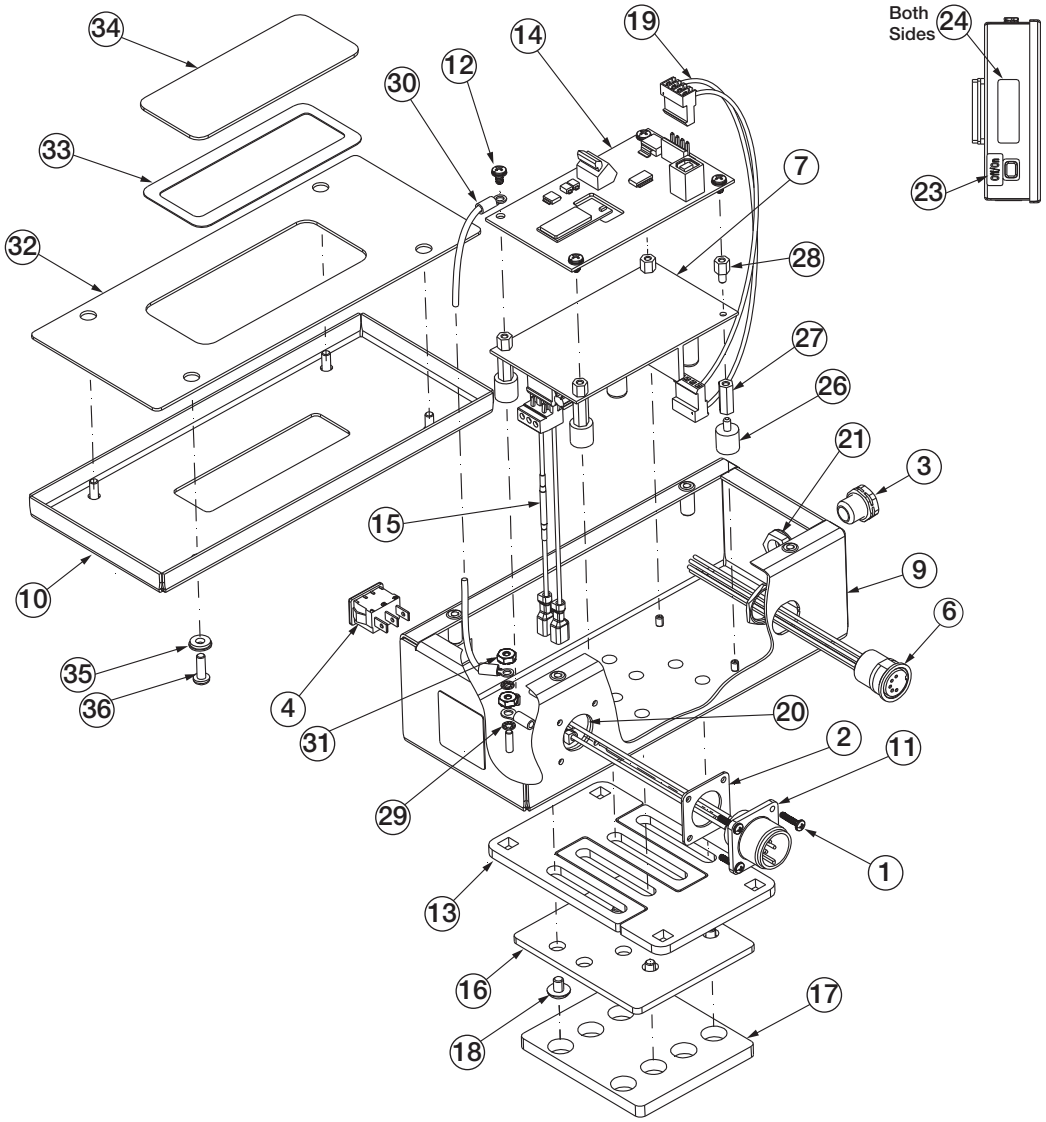


Figure 9-3. Power/Communication Box (PN 153616)

Item No.	Part No.	Description	Qty
1	14833	Screw, 4-40 x 1/2	4
2	57241	Gasket, MS CONN Shell Size	1
3	128022	Vent, Integrated Screw	1
4	156613	Switch, Rocker Illuminated	1
6	125862	Receptacle Assembly, M16 5	1
7	132750	Power Supply, DC/DC +7.5V	1
9	153640	Enclosure, Compow Box	1
10	153641	Cover, Compow Box	1
11	125864	Cable Assembly,DC Power Input	1
12	14839	Screw, Mach 6-32NC x 1/4	4
13	154187	Sliding Plate,Compow Box	2
14	167218	Board Assembly, RS232-USB Bluetooth	1
15	125947	Cable Assembly, 3 Position	1
16	154186	Retainer Plate, Compow Box	1

Table 9-3. Power/Communication Box Parts

Item No.	Part No.	Description	Qty
17	153709	Rubber Pad, Mounting	1
18	154183	Screw, Phillip Truss Head	4
19	125967	Cable Assembly, 4 Pin .156 MTA	1
20	125868	Nut Plate Assembly	1
21	88734	Nut,Breather Vent	1
23	126343	Label, On/Off	1
24		Label, Bluetooth	2
25	126343	Label, Off/On CLS	1
26	154120	Standoff, Vibration Mount	4
27	154177	Standoff, FEM-FEM 6-32NC	4
28	15370	Standoff, Male-FEM 6-32NCx	4
29	15130	Washer, Lock NO 6 Type A	2
30	45043	Wire, Ground 4in W/No.8	1
31	14621	Nut, Kep 6-32NC HEX	2
32	154132	Gasket,Compow Version 2	1
33	132562	Adhesive, Double Sided	1
34	129371	Lens, Bezel Plaskolite	1
35	75062	Washer, Bonded Sealing SST	4
36	14866	Screw, MACH 8-32NC x 1/2	4

Table 9-3. (Continued)Power/Communication Box Parts (Continued)

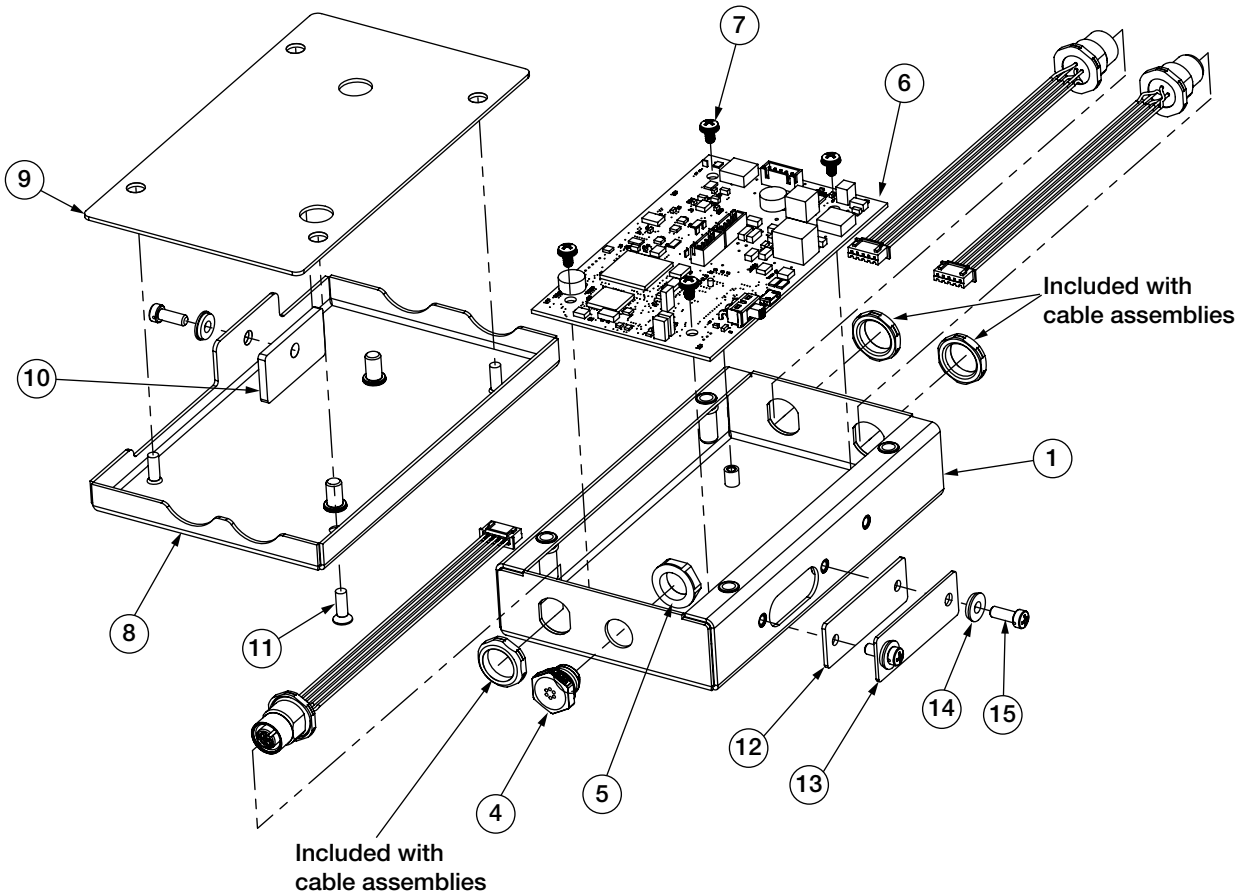


Figure 9-4. iQube2 Junction Box Assembly, PN 164071

Item No.	Part No.	Item Description	Qty.
1	162378	Enclosure Assembly	1
2	163767	Data Receptacle Cable Assembly	1
3	163766	Load Cell Cable Receptacle Assembly	2
4	164598	Breather Vent	1
5	88734	Nut, Breather Vent Thread	1
6	169248	Junction Box PCB Assembly	1
7	14839	Screw, 6-32NC x 1/4	4
8	162383	Cover Assembly	1
9	163764	Gasket, Assembly Cover	1
10	164070	Gasket, Access Cover	1
11	100968	CR-FHMS 0.164-32 x 0.5 x 0.5-N-SST	4
12	163765	Gasket, Access Cover	1
13	162384	Cover Plate, Access Hole	1
14	75062	Sealing Washer, #8	3
15	30623	Screw, 8-32NC x 7/16	3
16	52342	Label	1

Table 9-4. iQube2 Junction Box Parts

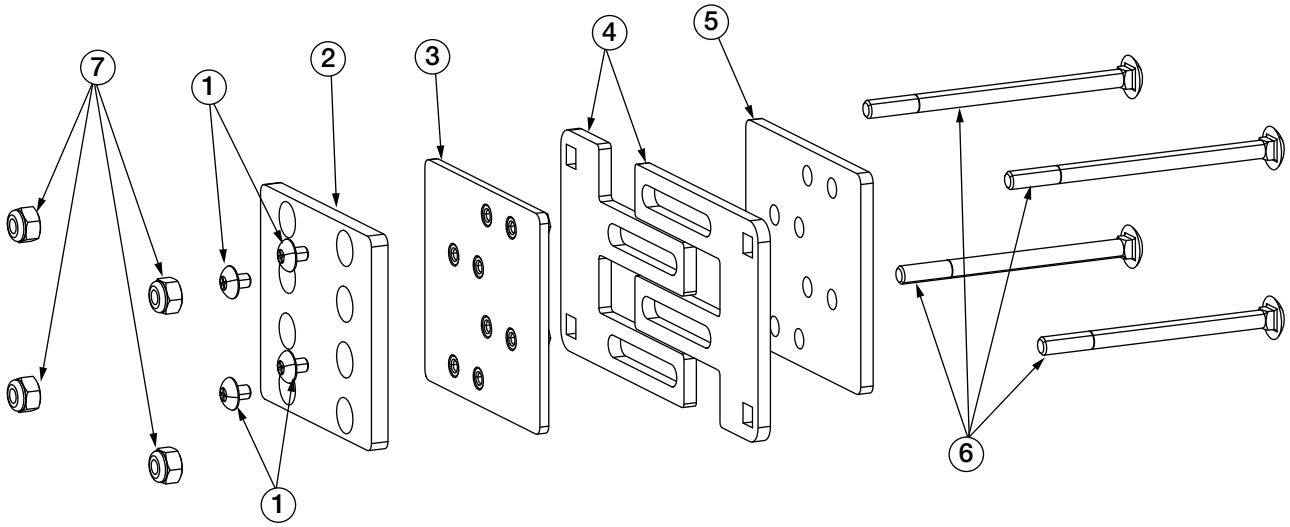


Figure 9-5. Mount Assembly, Power/Communication Box (For PN 153616)

Item No.	Part No.	Description	Qty
	154208	Mounting Assembly, Compow Box U-Bolt Plate (Inc 1-5)	1
1	154183	Screw, Phillip Truss Head	4
2	153709	Rubber Pad, Mounting	1
3	154186	Retainer Plate, Compow Box	1
4	154187	Sliding Plate, Compow Box	2
5	154188	Guide Plate, Compow Box	1
6	154184	Bolt, Carriage 1/4-20NC x 3 1/2"	4
	154185	Bolt, Carriage 1/4-20NC x 4" (Not included in kit)	4
7	14635	Nut Lock 1/4-20NC Hex (Not included in kit)	4

Table 9-5. Mount Assembly, Power/Communication Parts

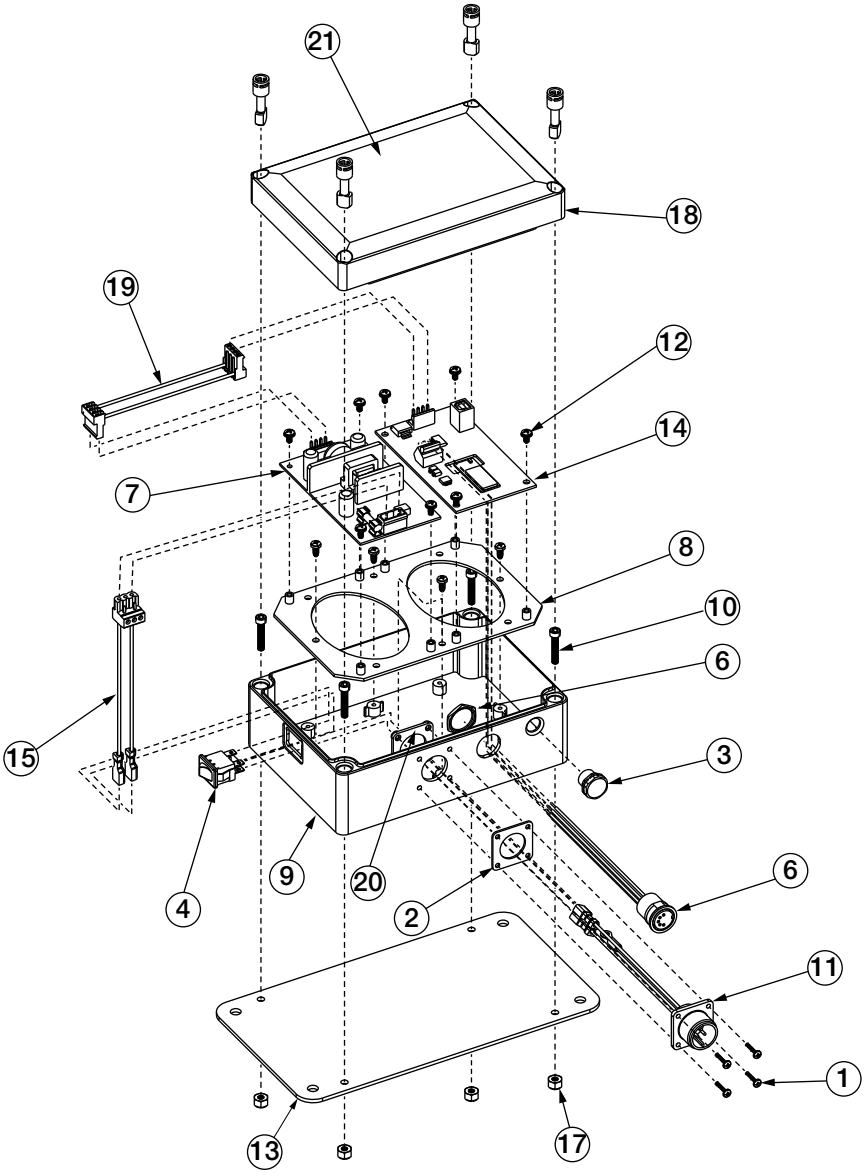


Figure 9-6. Power/Communication Box (PN 130551 and 125394)

Item No.	Part No.	Description	Qty
	130551	Warranty Exchange, Junction Box Assembly Compow CLS	Ref
	125394	Junction Box Assembly Compow CLS	Ref
1	115500	Screw, 4-40 x 1/2 Phillips	4
2	57241	Gasket, MS CONN Shell Size	1
3	88733	Vent, Breather Sealed	1
4	156613	Switch, Rocker Illuminated	1
6	125862	Receptacle Assembly,M16 5	1
7	132750	Power Supply, DC/DC +7.5V	1
8	125677	Plate Assembly, PCB Mount	1
9	125674	Enclosure, Machined Compow	1
10	125960	Screw, Cap 8-32NC x 7/8	4

Table 9-6. Power/Communication Box Parts

Item No.	Part No.	Description	Qty
11	125864	Cable Assembly, DC Power Input	1
12	14839	Screw, MACH 6-32NC x 1/4	8
13	125760	Plate, Compow Box	1
14	167218	Board Assembly, RS232-USB, Bluetooth, with Supercups	1
15	125947	Cable Assembly, 3 Position	1
17	14628	Nut, Lock 8-32NC HEX Thin	4
18	125680	Cover, Enclosure	1
19	125967	Cable Assembly,4 Pin .156 MTA	1
20	125868	Nut Plate Assembly,	1
21	125653	LIT, Label Instruction	1
	107439	Fuse, 5 Amp 250V, 5 x 20 mm (power supply)	1

Table 9-6. Power/Communication Box Parts (Continued)

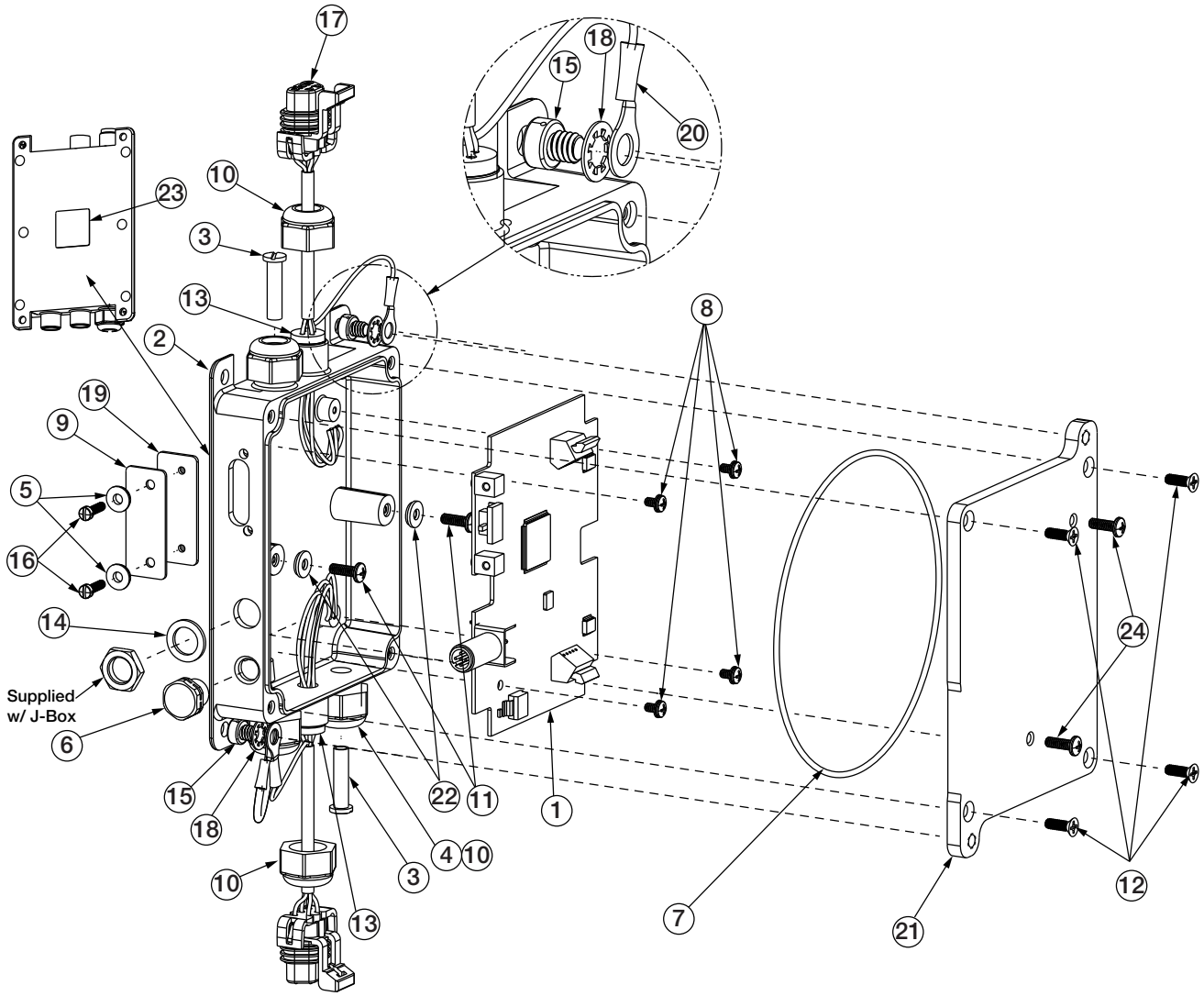


Figure 9-7. Junction Box Assembly

Item No.	Part No.	Description	Qty
	159589	Junction Box Assembly, Carriage CLS	1
1	132726	Board, CLS Junction Box Rev C	1
2	125640	Enclosure, Machined CLS	1
3	19528	Post Only, Slotted Black	2
4		Seal, Cable Gland	Ref
5	75062	Washer, Bonded Sealing SST	2
6	128022	Vent, Breather Sealed	1
7	125650	O-Ring, Buna N 70 160	1
8	14839	Screw	Ref
9	125564	Cover, Junction Box Setup Switch	1
10		Cable Gland	Ref
11		Screw	Ref
12	100968	Screw, Mach 8-32NC x ½	4
13	125376	Seal, Cable Gland	2
14	125942	Gasket, Rubber CLS	2
15	42640	Screw, Mach 1/4-28NF x ¼	2
16	81220	Screw, Mach 6-32NC x 1/2	2
17	125559	Cable Assembly, CLS Carriage	2
18	31546	Washer, Lock 1/4 Internal	2
19	125565	Gasket, Access Port Cover	1
20	126167	Wire, Ground 4 In	1
21	125494	Plate, Adapter CLS	1
22		Washer	Ref
23	52342	Label	1
24	125649	Screw, Cap 10-32 x 1 SST	2

Table 9-7. Junction Box Assembly Parts List

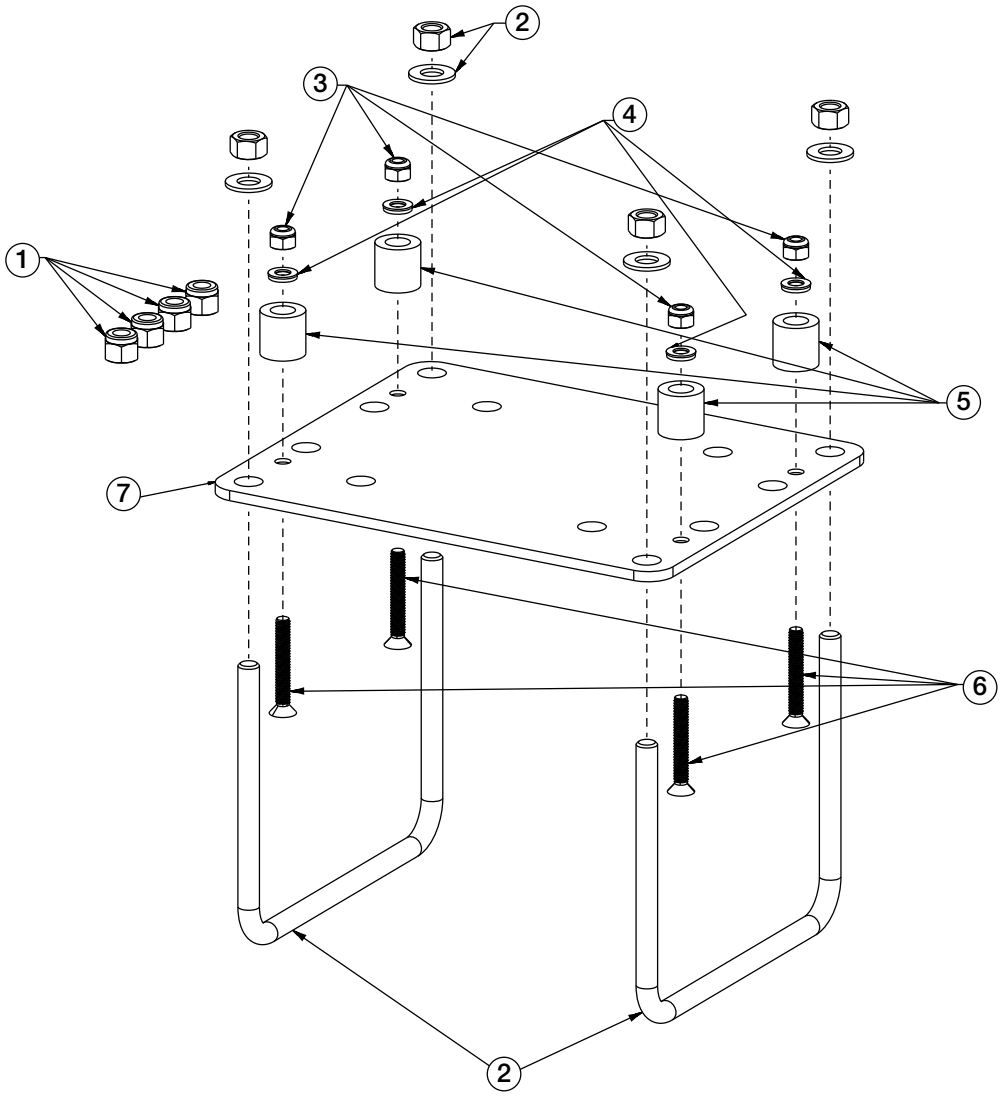


Figure 9-8. Plate Assembly, Power/Communication Box Cage Mount (For PN 125394)

Item No.	Part No.	Description	Qty
	126743	Mounting Assembly, Compow Box U-Bolt Plate	1
1	22072	Nut, Lock 3/8-16NC Hex	4
2	126742	U-Bolt, Square 3/8-16	2
3	14634	Nut, Lock 1/4-20NC Hex	4
4	44676	Washer, Bonded Sealing	4
5	98537	Bumper, Recessed Flat Top	4
6	126740	Screw,Mach 1/4-20 x 1 3/4	4
7	126738	Plate, U-Bolt Mounting	4

Table 9-8. Plate Assembly, Power/Communication Box Cage Mount Parts List

9.2 Troubleshooting Table

Symptom	Possible Cause	Action
Scale displaying negative weight	Forks are resting (even slightly) on the floor	Lift forks up off floor
Scale reading high against test weight.	Material, like wood debris, between the scale and the forklift carriage	Remove debris
	Material (like wood 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 your 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
	Calibration is required	Calibrate the scale using Revolution™
Scale reading low against test weight.	Zero key has been pressed with a negative weight reading, while forks are on the floor	Lift forks off ground, press the Zero key
	Material, like wood debris, between the scale and the forklift carriage	Remove debris
	Material, like wood 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 your 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
	Calibration is required	Calibrate the scale using Revolution
Scale not returning to zero (0)	Forks are touching the ground.	Lift forks off ground, press the Zero key
	Material, like wood debris, between the scale and the forklift carriage.	Remove debris
	Material, like wood 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"
	Scale is in motion, it won’t zero if the forklift is moving: Forks moving up and down Forklift is being driven	Bring forklift to a complete stop and ensure forks are still
	If all these steps do not resolve your 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
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

Table 9-9. Troubleshooting Symptoms

Symptom	Possible Cause	Action
No weight being displayed on the hand-held device.	Power switch off	Turn on power switch
	Coiled cable has loose connections or wear	Fasten coiled cable connections Replace coiled cable, if damaged
	Connected to Bluetooth on AWT indicator	Disconnect on MC75, scan new MAC ID barcode label
	MAC ID barcode label does not scan	Order new MAC ID barcode labels from Rice Lake Weighing Systems
	Check LED status	See “Compow box LEDs” below
	If all these steps do not resolve your 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 ohms
	Calibration is required	Calibrate the scale using Revolution
Intermittent weight readings, weight reading high and low.	Material, like wood debris, between the scale and the forklift carriage	Remove debris
	Material (like wood 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	Adjust to proper gap using jam nuts, 0.02"
	Check alignment of load cells	Adjust load cells
	Low forklift battery	Charge forklift battery, disconnect power prior to charging
	Check coiled cable for loose connections & wear	Fasten coiled cable connections Replace coiled cable, if damaged
	If all these steps do not resolve your issue, check the following:	
	Load cell connections on junction box	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 ohms using Revolution/Live Weight Data/Cell 1 and 2 MV
	Calibration is required	Calibrate the scale using Revolution
Weight on forks, no displayed weight.	Material (like wood debris), between the scale and the forklift carriage	Remove debris
	Material (like wood 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	Adjust to proper gap using jam nuts, 0.02"
	Low forklift battery	Charge forklift battery
	Coiled cable error	Check coiled cable loose connections and wear
	If all these steps do not resolve your issue, check the following:	
	Junction box sealing switch is in calibration mode	Move switch to weighing mode
	Load cell connections on junction box 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 ohms
	Calibration is required	Calibrate the scale using Revolution

Table 9-9. Troubleshooting Symptoms (Continued)

Symptom	Possible Cause	Action
COMPOW Box LEDs	**Power Supply PCB**	
	Green LED “PWR LED1”	
	On	COMPOW box turned on, power from battery cable is good
	On, blinking	Check power cable for short Check for low battery voltage
	Off	Turn COMPOW box power switch ON Check fuses on battery connection and power supply PCB
		Low forklift battery
		Replace power supply PCB
	USB/Bluetooth PCB - Version 1 (PN 130552)	
	Green LED “HB LED4”	
	On, flashing	Junction box is transmitting valid data Coiled cable and junction box are working
	On, solid	Change junction box
	Off	Check coiled cable and tighten connections
		Check power switch
		Check PWR LED1
		Check load cell connections
		Check junction box
	Red/Green LED “RS-232 LED5”	
	On	Responding to commands from Revolution software
	Off	Not responding to commands from Revolution software
	Blue LED “Bluetooth LED2”	
	On	Successful connection
	Off	Disconnect AWT Bluetooth, scan RLWS barcode.
		Check “HB LED"
		Check PCB cables
		Replace Bluetooth PCB

Table 9-9. Troubleshooting Symptoms (Continued)

Symptom	Possible Cause	Action
Scale identifies itself as a “0” serial number or incorrect serial #	Service technician is required to store the correct serial # using the “Download Configuration” feature of the Revolution software	
Error message on MC75 handheld “No connection could be made because the target machine actively refuses it”	The handheld device may be currently connected to a Weigh-Tronix forklift scale; cycle power on the Weigh-Tronix indicator to disconnect from handheld	
MC75 handheld on Bluetooth will not connect to scale	The handheld device may be currently connected to a Weigh-Tronix forklift scale; cycle power on the Weigh-Tronix indicator to disconnect from handheld, or manually disconnect from the MC75 device	
Scale carriage is not fitting securely on forklift during installation	May have to use electric grinder to grind down centering pin on forklift scale or center slot on forklift	Discuss with local terminal manager to determine if scale dealer is to perform this chargeable service
	May have to grind or torch down the area where the top cleats of the forklift scale are mounted	
	May have to grind or torch side of forklift carriage due to previously installed side shift protection method	
Handheld displays weight, but will not transmit data.	Serial number is not six-digits	Using Revolution, download correct serial number
Loose screws on junction box		Apply Loctite 242 or 243 for greasy environments, to screws and tighten
Bluetooth disconnects upon start-up of forklift	Power to the Compow box has dropped below 8.8 volts, this is typical of newer forklifts with fork positioners installed on the front of the scale	Replace with Part Number 167218, Bluetooth PCB with super caps; super caps will hold a charge for approximately two seconds
Hand-held will not connect upon start up	Primarily found on newer forklifts with fork positioners installed on the front of the scale which may have LVDs installed; LVD has not provided enough power to turn on the Compow box	Start forklift and drive the unit until the lights turn on; this is an indication that there is enough power provided to the Compow box
Bluetooth disconnects while driving	Primarily found on newer forklifts with fork positioners installed on the front of the scale which may have LVDs installed; LVD is not providing consistent power to turn on the forklift.	Check battery voltage if possible
	On older forklifts	Check power cable and connections; check power supply PCB

Table 9-9. Troubleshooting Symptoms (Continued)

9.3 Troubleshooting iQube2 LEDs

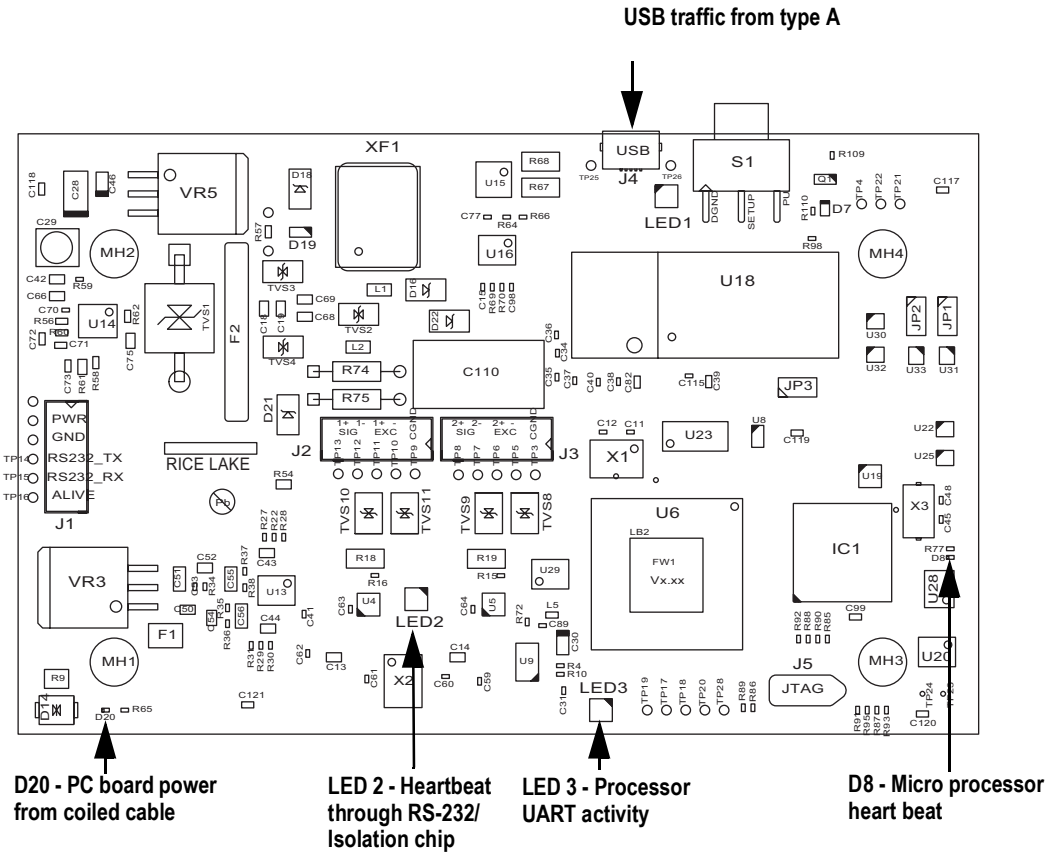


Figure 9-9. Troubleshooting iQube2 PCB Assembly LEDs (PN 162508)

9.4 RS-232/Bluetooth LED Functionality and Troubleshooting

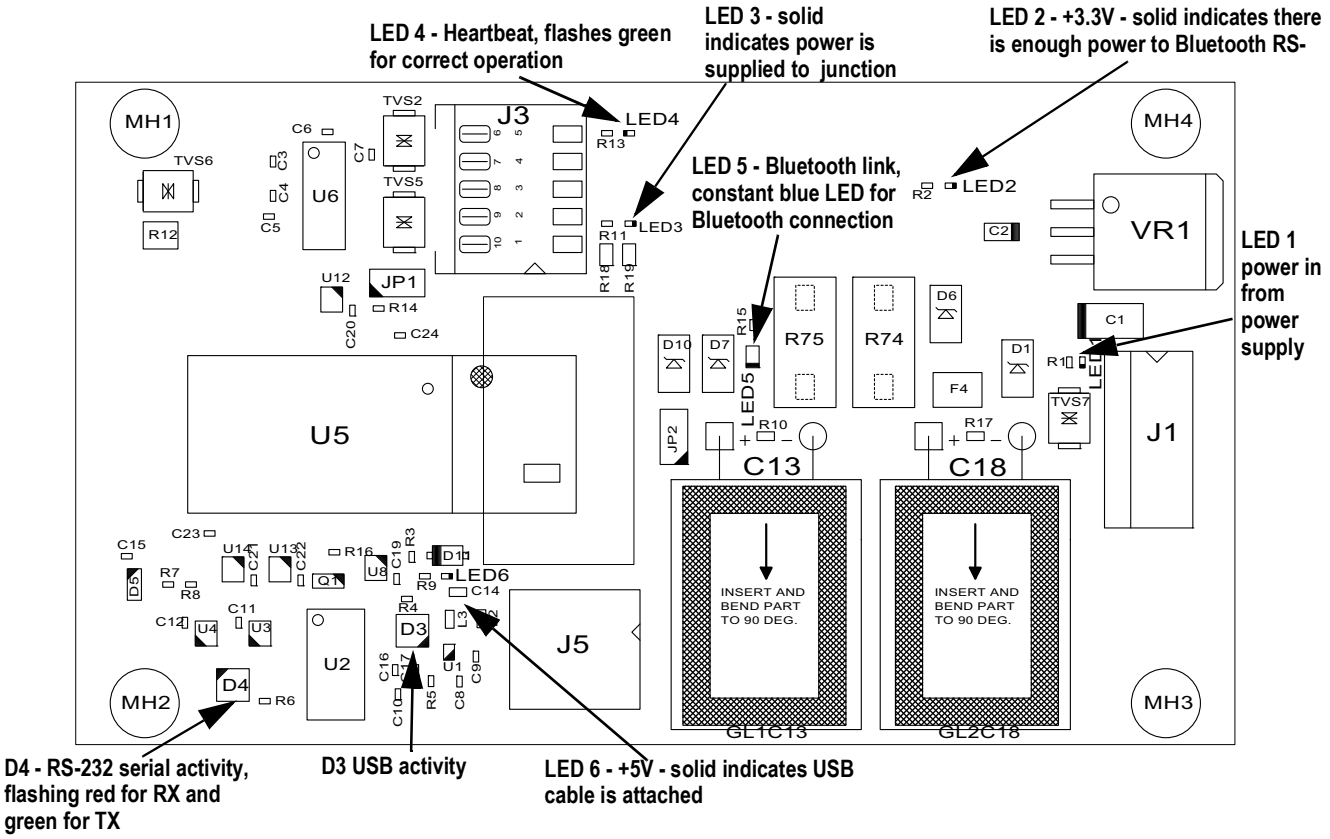


Figure 9-10. Bluetooth / USB PCB Schematic with Super-caps (PN 167218)

9.5 Power/Communication Box Troubleshooting

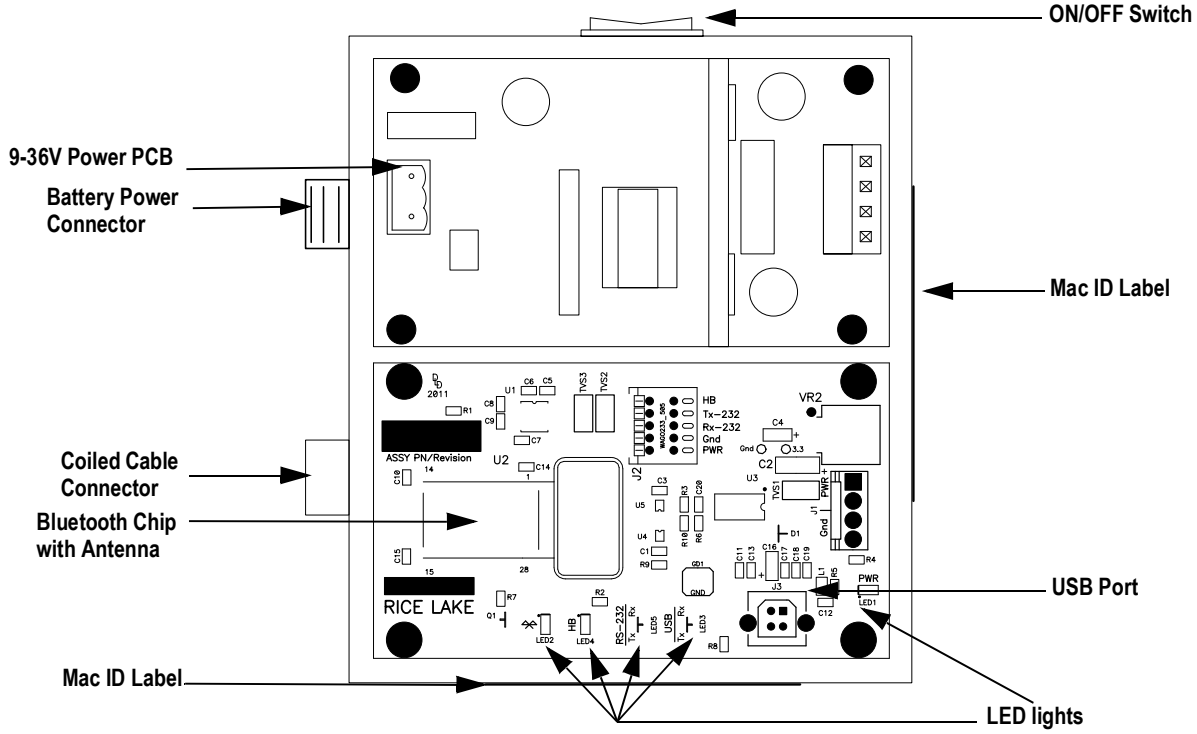


Figure 9-11. Power/Communication Box Schematic (PN 130551)

The <Prodfont>480 **operator label**, (see Figure 9-12) on the box, provides information about the LED lights in the box and basic calibration and service instructions for users of the <Prodfont>480. There is also a help line number to call if more detailed instruction is required.

CLS-M Forklift Scale

RICE LAKE WEIGHING SYSTEMS

Green LED "PWR" LED1
LED indicates COM PCB is receiving power from 9-36v DC board.

Green LED "HB" LED4
LED Indicates heartbeat of the carriage J-Box. If no LED exists, check for coiled cable damage.

Red/Green LED "RS-232" LED5
Green transmit, Red receive, indicates transmission from carriage j-box through the communication box. Flashing indicates successful transmission through coiled cable.

Blue " " LED2
LED to indicate Bluetooth status. Flashing indicates transmission to hand-held device.

Red/Green "USB" LED3
Flashing indicates USB port is active. Bluetooth communication to hand-held device is inactive.

Calibration and Service
Move carriage j-box sealing switch to open position, connect USB cable and wait for device installation. Open CLS-M Revolution Software. When complete, carefully unplug USB cable, move switch back into closed position.

Contact Information
Call 1-888-225-7597 for dedicated forklift scale service and support.

PN 125653

Figure 9-12. Power/Communication Junction Box Label (PN 130551 Only)

230 W. Coleman St. • Rice Lake, WI 54868 • USA
U.S. 800-472-6703 • Canada/Mexico 800-321-6703 • International 715-234-9171 • Europe +31 (0)26 472 1319