

## Integra Feed-Link

Installation and Operation Manual

PNEG-1323NT

Version: 4.0

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PNEG-1323NT



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**All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.**

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# 1. Getting Started

## Introduction

READ THIS MANUAL carefully to learn how to properly use and install equipment. Failure to do so could result in personal injury or equipment damage.

INSPECT the shipment immediately upon arrival. The customer is responsible for ensuring that all quantities are correct. The customer should report and note any damage or shortage on the bill of lading to justify their claim to the transport company.

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your equipment and should be easily accessible when needed.

This warranty provides you the assurance that the company will back its products when defects appear within the warranty period. In some circumstances, the company also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the factory specifications, the warranty will become void and field improvements may be denied.

## Selecting the Load Cell

Use the proper load cell for the application. Two (2) sizes of load cells are available, a 5000 lbs. per leg load cell and 10000 lbs. per leg load cell. To determine which load cell to use, add the empty bin weight to the maximum weight of feed the bin will hold in lbs. Divide this total maximum weight by the number of legs the bin has. If this number is 5000 lbs. or less, use the 5000 lbs. cell, (INT-4809). If this number is over 5000 lbs., use the 10000 lbs. load cell (INT-4810). This system cannot be used if the weight is greater than 10000 lbs.

$$\frac{\begin{array}{l} \text{Empty bin weight (lbs.)} \\ + \\ \text{Max. weight of feed bin will hold (lbs.)} \end{array}}{\text{Number of bin legs}} = \text{Load cell weight}$$

## Tools Needed for Installation

### Tools

Tools that can be used during installation may include:

1. Drill
2. Crescent wrench
3. Reciprocating saw
4. Wire cutters
5. Jack lift
6. Impact or ratchet
7. Wire ties

**NOTE:** Follow all operating and safety guidelines that were provided with the tools.

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## **Safety Guidelines**

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in **SERIOUS INJURY** or **DEATH**.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

**ST-0001-3**

### Cautionary Symbol Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.



This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**



This symbol is used to address practices not related to personal injury.



This symbol indicates a general hazard.



This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

## Safety Cautions

### Use Personal Protective Equipment

- Use appropriate personal protective equipment:

**Eye Protection**



**Respiratory Protection**



**Foot Protection**



**Hearing Protection**



**Head Protection**



**Fall Protection**



**Hand Protection**



- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

### Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.



ST-0002-1

## 2. Safety

### Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.



ST-0003-1

### Install and Operate Electrical Equipment Properly

- Electrical controls must be installed by a qualified electrician and must meet the standards set by applicable local codes (National Electrical Code for the US, Canadian ElectricCode, or EN60204 along with applicable European Directives for Europe).
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Make sure all equipment is properly grounded.

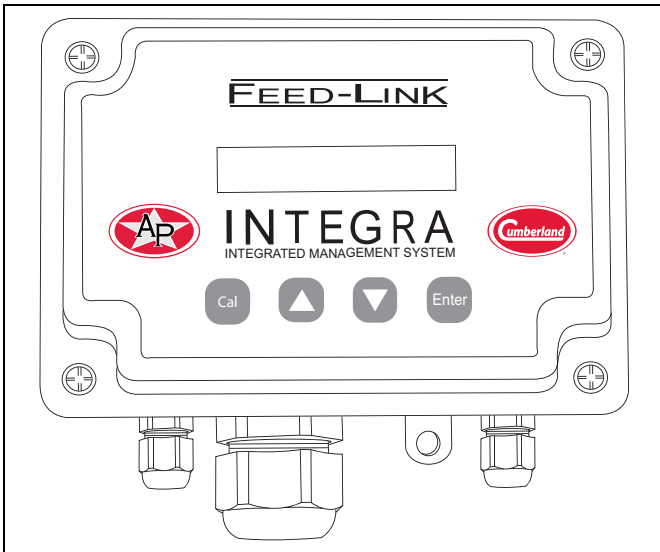


ST-0027-4

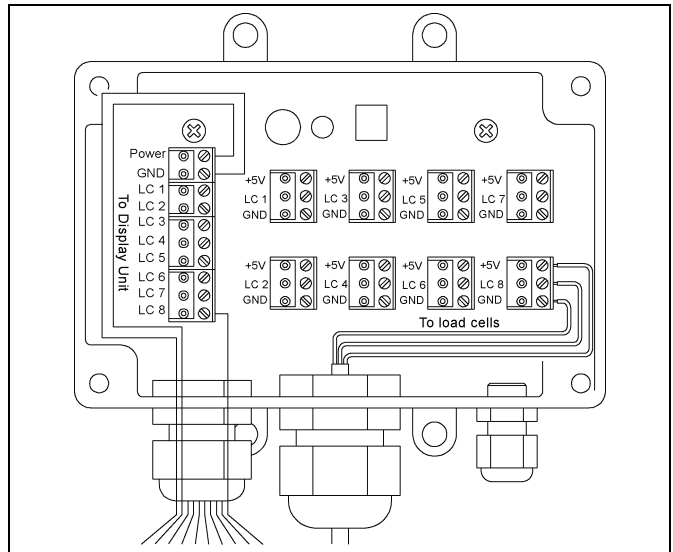




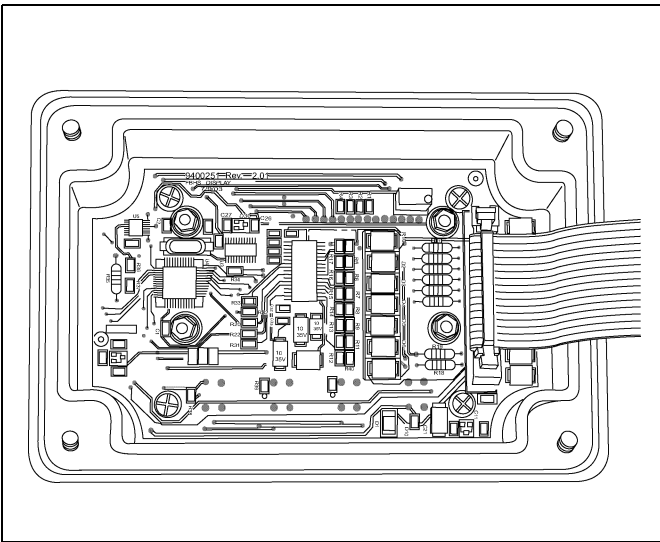
### 3. Part Identification



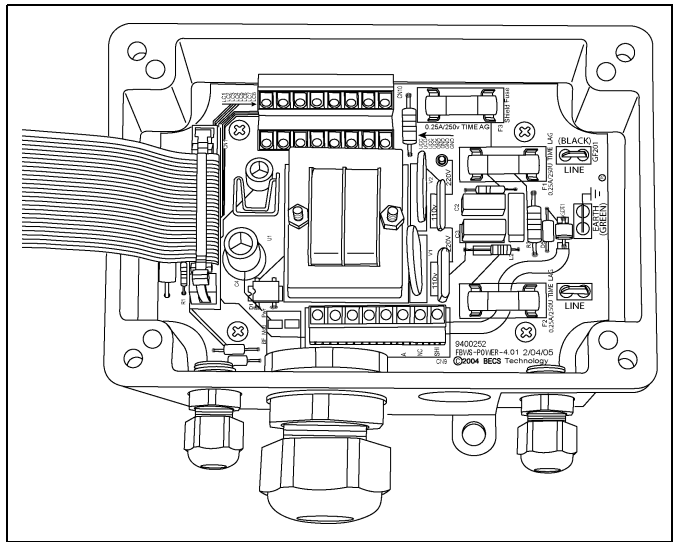
**Figure 3A** Display Unit (INT-4807)



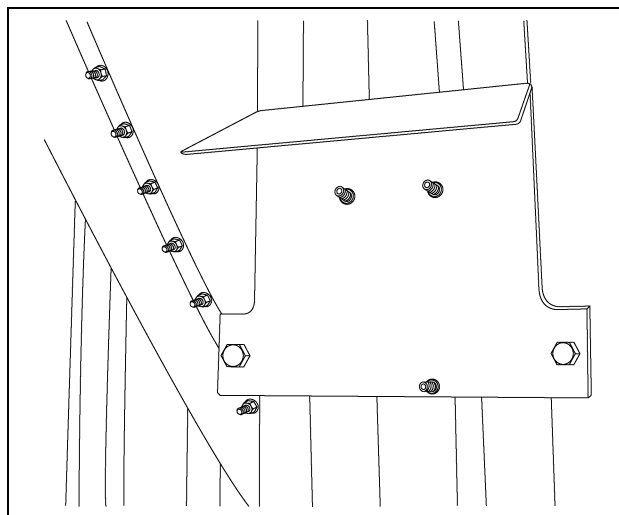
**Figure 3C** Junction Box (INT-2100330)



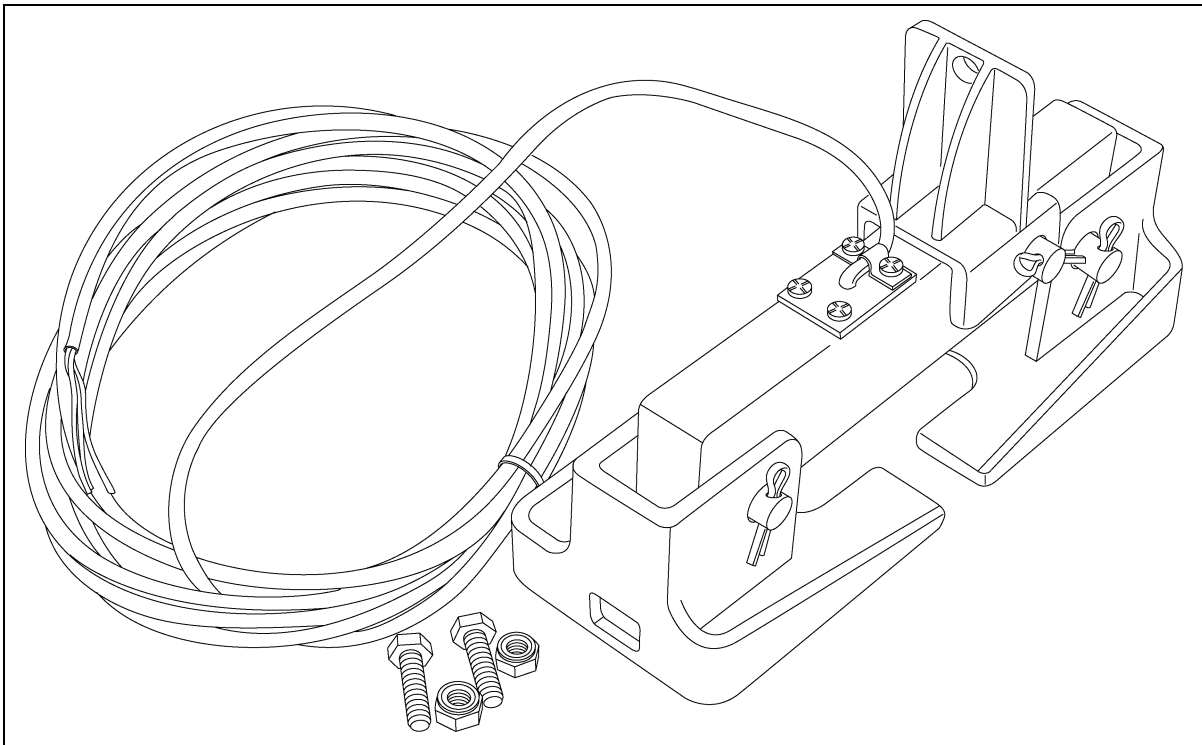
**Figure 3B** Display Unit Lid Board (INT-4813)



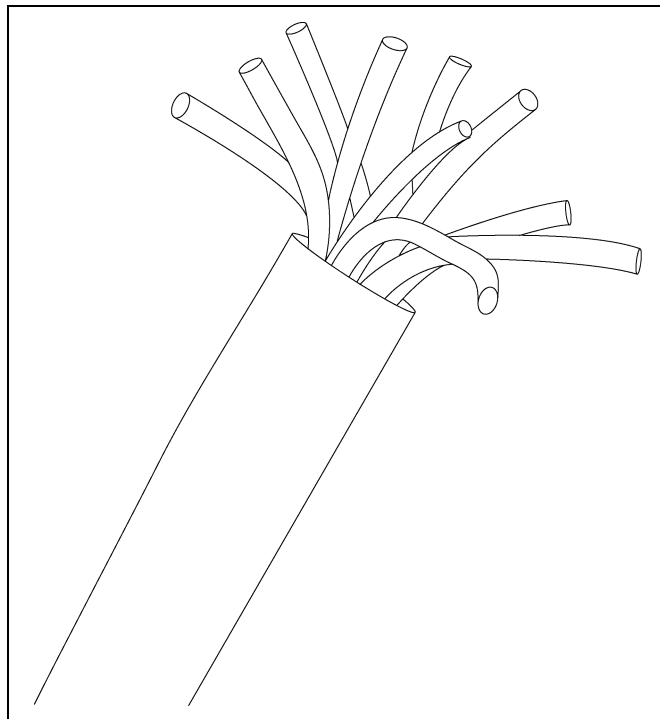
**Figure 3D** Display Unit Base Board (INT-4814)



**Figure 3E** Bin Leg Mounting Bracket (for display unit) (INT-4812)



**Figure 3F**  
5000 lbs. Load Cell (INT-4809)  
10000 lbs. Load Cell (INT-4810)

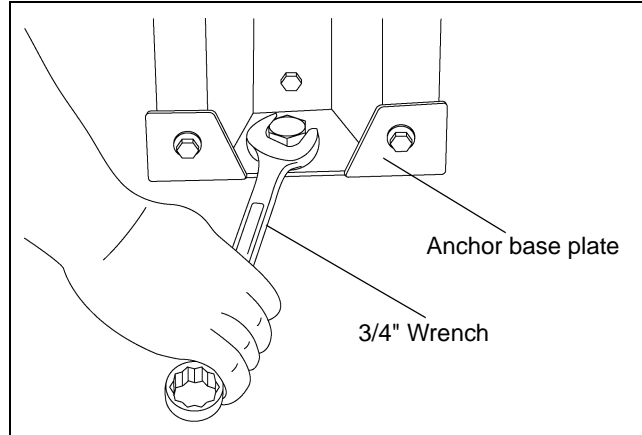


**Figure 3G**  
25' of 10 Wire Cable for Junction Boxes (INT-4818-25)  
50' of 10 Wire Cable for Junction Boxes (INT-4818-50)  
75' of 10 Wire Cable for Junction Boxes (INT-4818-75)  
100' of 10 Wire Cable for Junction Boxes (INT-4818-100)

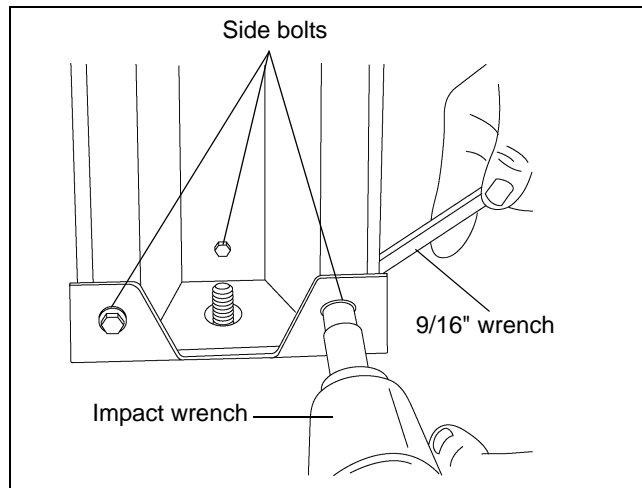
## 4. Load Cell Installation

### Removing Anchor Nuts

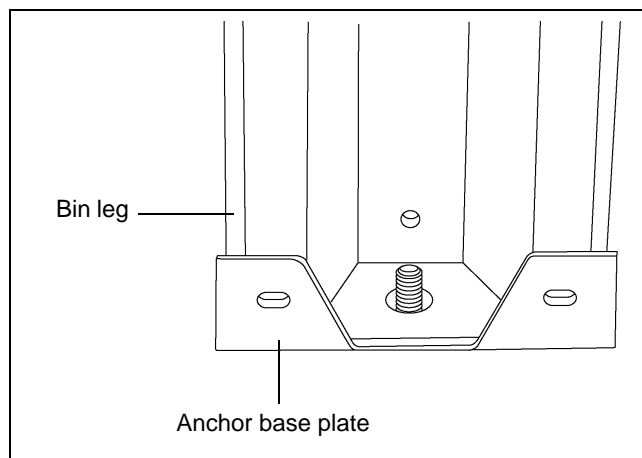
1. Use a 3/4" wrench or crescent to remove the nut and washer from the anchor bolt on the bin leg. (See [Figure 4A.](#))
2. Remove side bolts using 9/16" wrench and impact wrench or ratchet. (See [Figure 4B](#) and [Figure 4C.](#))
3. Repeat on all bin legs.



**Figure 4A** Removing Nut from Anchor Bolt



**Figure 4B** Remove leg anchor base plate side bolts using impact wrench and wrench.



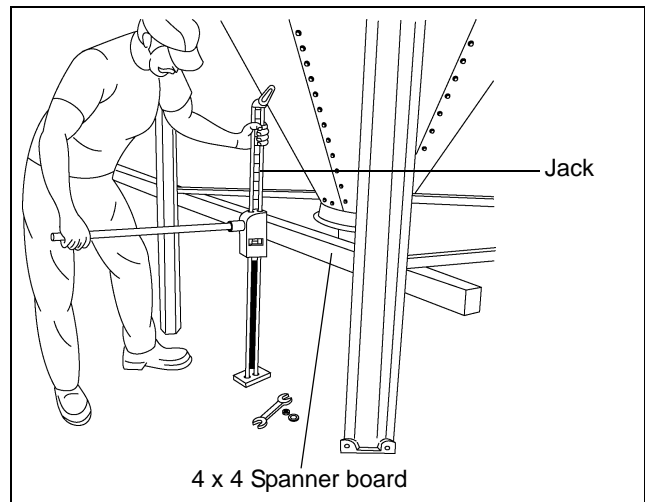
**Figure 4C** All bolts, nuts and washers removed from anchor base plate.

## Raising the Bin

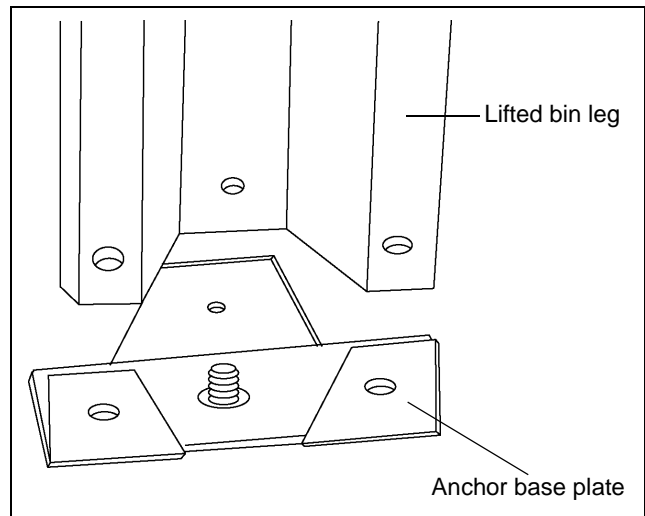
1. Place 4 x 4 spanner board under bin hopper braces. (See Figure 4D.)
2. Center lift jack under 4 x 4 spanner brace. (See Figure 4D.)
3. Lift bin with jack about 4". This should lift two (2) bin legs. (See Figure 4E.)
4. Remove leg anchor base plate.



**Only install load cells on an empty bin. Lifting a bin with feed in it can result in damage to the bin and potential personal injury.**



**Figure 4D** Jacking Up the Bin

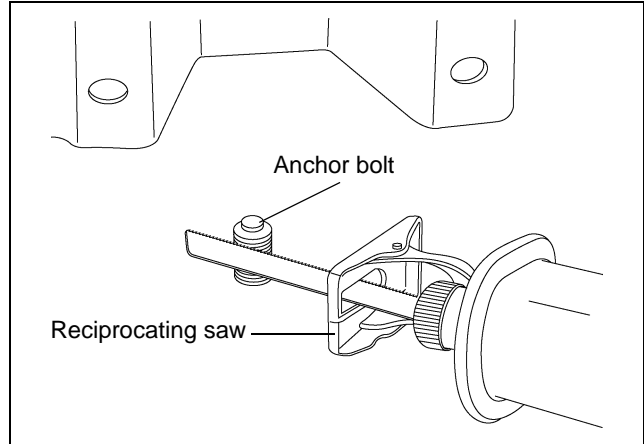


**Figure 4E** Lift Bin about 4"

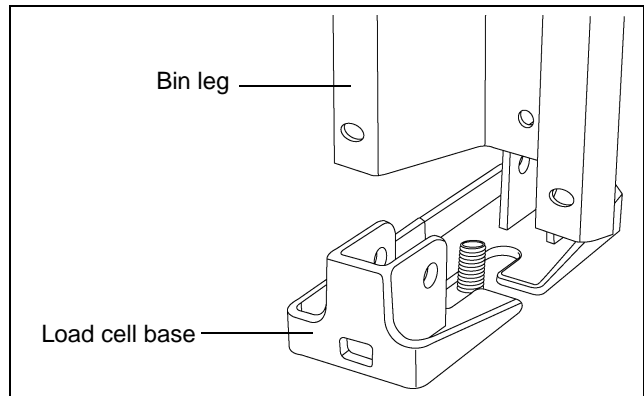
## 4. Load Cell Installation

### Installing the Load Cell Base

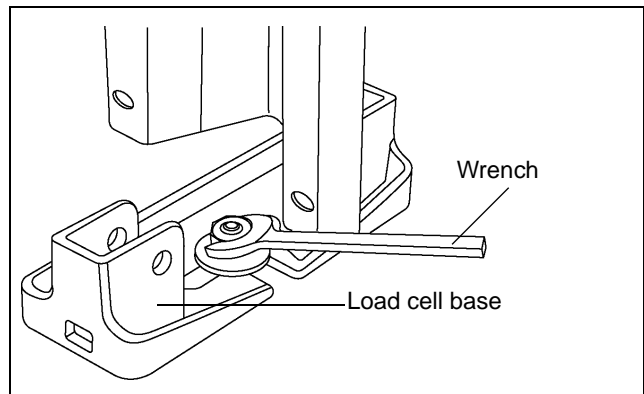
1. Shortening the anchor bolt may be required. It can protrude no more than 1-1/4" above the foundation. (See Figure 4F.) **NOTE:** You may find it easier to put the nut on the bolt and cut the bolt flush with the nut. This way the threads are not stripped on the bolt and there is not a problem getting the nut on.
2. Position load cell base under bin leg and around anchor bolt as shown. (See Figure 4G.)
3. Replace washer and nut onto anchor bolt. DO NOT tighten fully until assembly is complete. (See Figure 4H.)



**Figure 4F** Cut anchor bolt so it sticks up less than 1-1/4" from foundation.



**Figure 4G** Slide Cell Base Under Leg

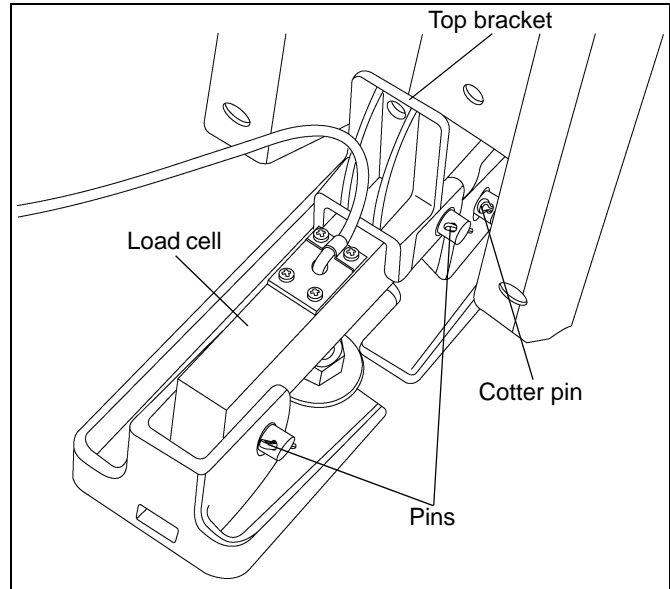


**Figure 4H** Leave anchor bolt loose until assembly is complete.

### Install Load Cell and Attach to Bin Leg

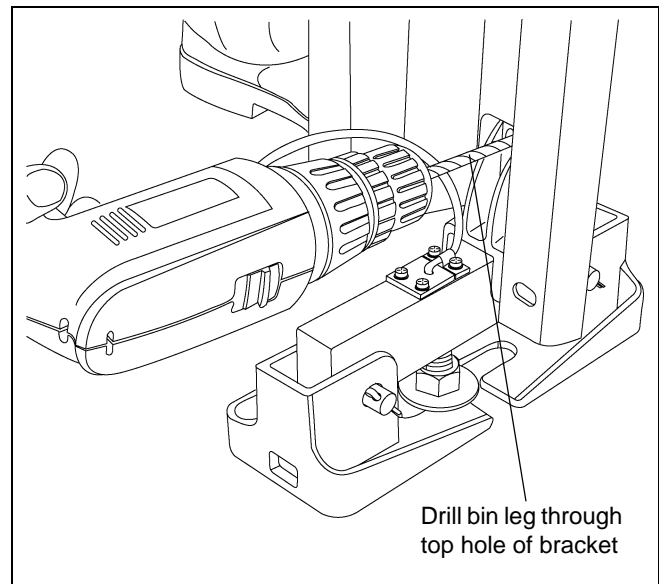
1. Place load cell into load cell base, lining up the holes. Line up the holes in the side of the load cell with the holes in the side of the load cell base.
2. Place pins through the holes and fasten with a cotter pin. (See Figure 4I.)
3. Attach load cell top bracket to the load cell by lining up the holes on the side and fastening with a pin and cotter pin. Make sure the tongue on the bracket is on the inside side of the bin leg.

**NOTE:** The bin leg should rest on the load cell bracket. **DO NOT** drill mounting holes too high on the leg or the bolts will be supporting the weight of the bin rather than the load cell bracket.



**Figure 4I** Install Load Cell

4. Fasten load cell top bracket to the bin leg using bolt, washer and nut through the slot in the bracket. (See Figure 4J.)
5. Drill a hole into the leg through the top hole (hole above slot) fastening to leg using bolts, washers and nuts included.
6. Tighten nut on anchor bolt.

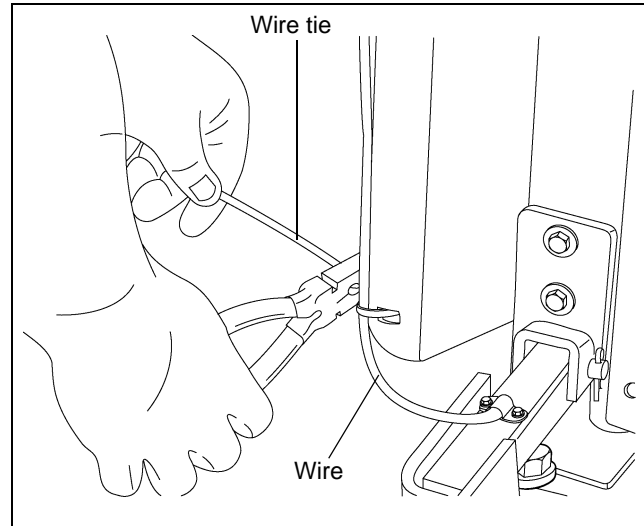


**Figure 4J** Drill top hole through bin leg, using top bracket as a guide.

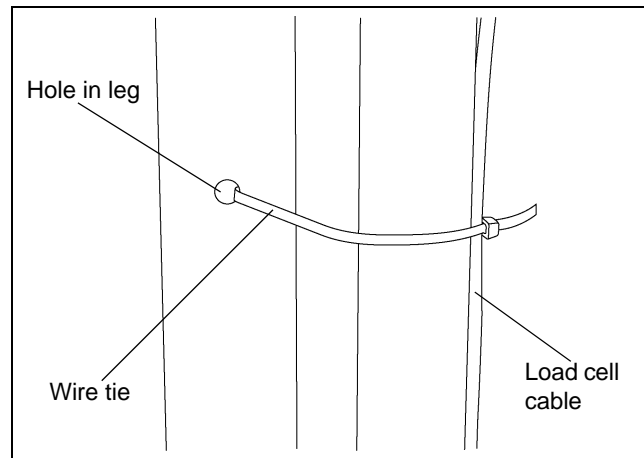
## 4. Load Cell Installation

### Running Load Cell Cables

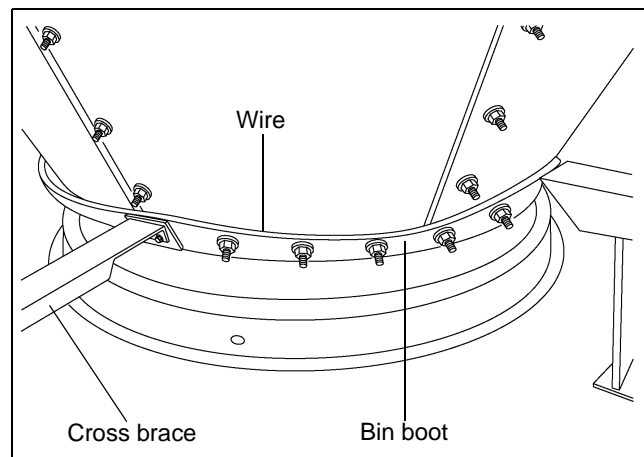
1. Label both ends of the load cell cable with the load cell number. Numbers will range from 1 through 8. Labeling the load cell cables will identify what terminals to use when connection wires to display unit in installing stand alone display units [on Page 17](#). It will also expedite troubleshooting if any problems should arise.
2. Run cable from load cell up bin leg using wire ties (not included) to fasten into place. Run cable along the cross brace to the center of the bin. Then take cable around bin boot and back up the leg that the display or junction box is mounted to [Figure 4K](#), [Figure 4L](#) and [Figure 4M](#).
3. Repeat [Step 1](#) and [Step 2](#) for each load cell.



**Figure 4K** Fasten Wires with Wire Ties



**Figure 4L** Run wire tie through holes in bin legs to attach cable to legs.



**Figure 4M** Run wires around the boot of the bin.



## Mounting Display and Junction Boxes

The display can be mounted either directly onto the bin leg or remotely, up to 100' away, such as inside a nearby building.

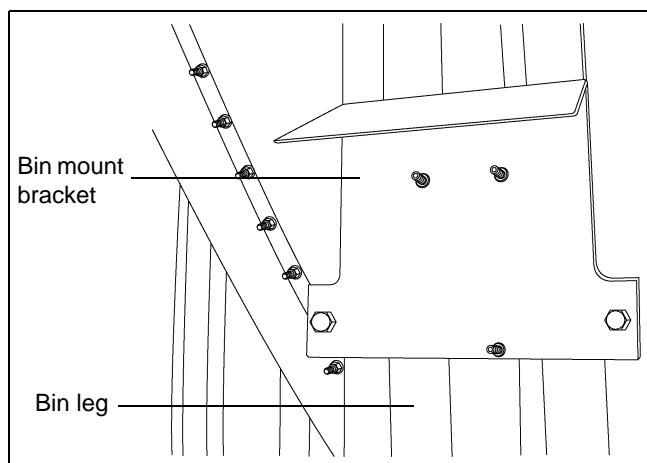
When mounted remotely, a junction box must be used to extend the load cell wires from the bin to the display unit. The junction box can be mounted to the bin leg similar to the display shown.

(See Figure 5C.)

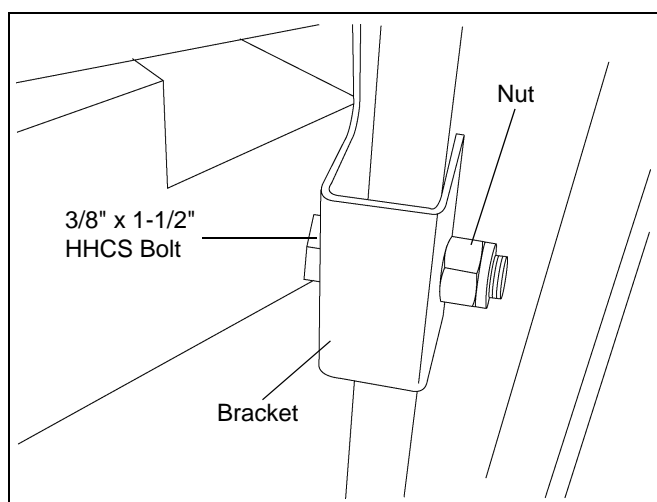
1. Attaching mount to bin leg.
  - a. Take mount and slide it around the bin leg. (See Figure 5A.)
  - b. Attach to leg using 3/8" x 1-1/2" HHCS bolt and hex nylock nuts. No drilling is required. (See Figure 5B.)
  - c. Attach display or junction box to the mount using the three (3) #10 nuts provided.



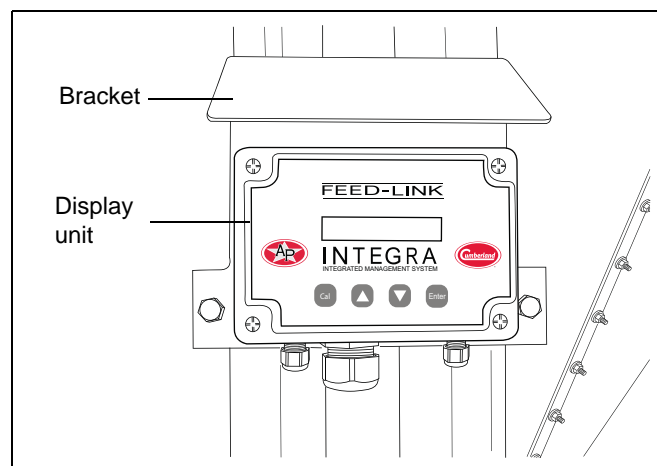
**Always make sure all power is disconnected and locked out while display unit cover is OFF.**



**Figure 5A** Bin Mount Bracket Attached to Bin Leg



**Figure 5B** Close-Up of Bin Mount Bracket on Leg



**Figure 5C** Display Mounted Outside on Bin Leg

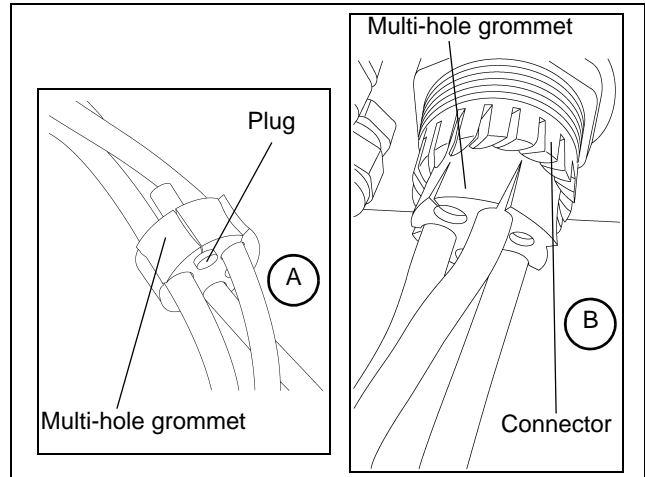
## 5. Installing Stand Alone Display Units

### Installing Stand Alone Bin Mounted Display Units

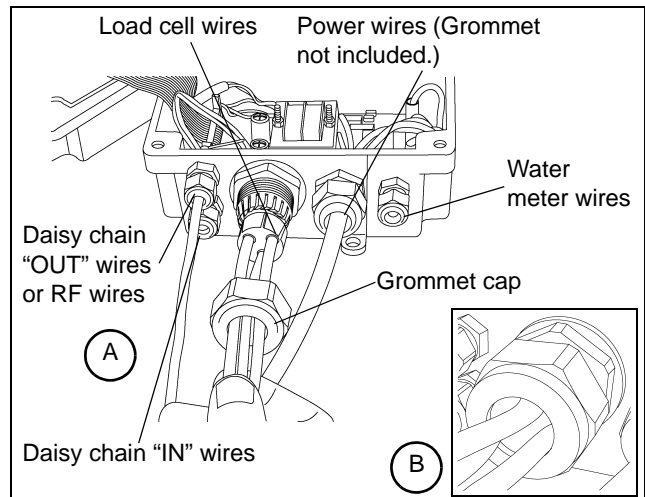
#### 1. Load cell wires

- a. Slide all load cell cables through grommet cap. (See Figure 5E-A.)
- b. Run load cell cables into multi-hole grommet by sliding cables through slit on side of grommet. (See Figure 5D-A.)
- c. Run cables through hole in display box, giving some extra cable length for easier installation.
- d. To make load cell connections, remove terminals strips. Insert wires into correct terminals and tighten lugs. (See Figure 5F and Wiring Diagram on Page 19.)
- e. Gently pull out any excess length of cable out through the grommet.
- f. Wedge grommet into hole. (See Figure 5D-B.)
- g. Tighten grommet nut cap. (See Figure 5E-B.)

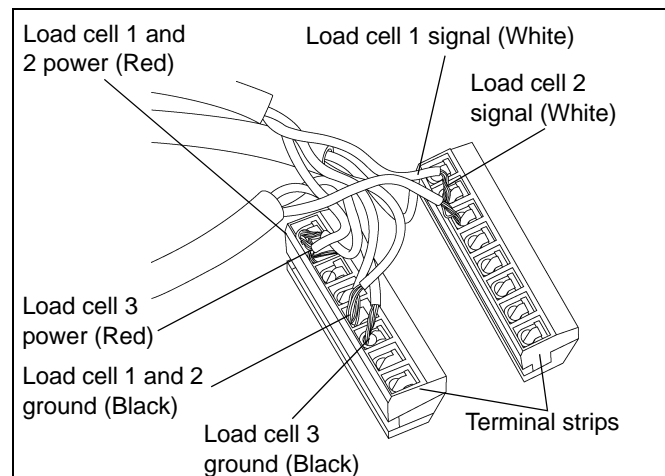
**NOTE:** If only three (3) or four (4) holes are used in the grommet, you need to seal the open holes using the plugs supplied to make it water tight. (See Figure 5D-A.)



**Figure 5D** A) Load cell wire in multi-hole grommet. B) Grommet wedged into connector.



**Figure 5E** A) Load cell wires going into display box. B) Cap tightened onto load cell wires.



**Figure 5F** Load Cell Connections to Display Box

# Installing Stand Alone Bin Mounted Display Units (Continued)

Load cell and RS-485 wiring to display units with screw terminals  
(when junction box is not used.)

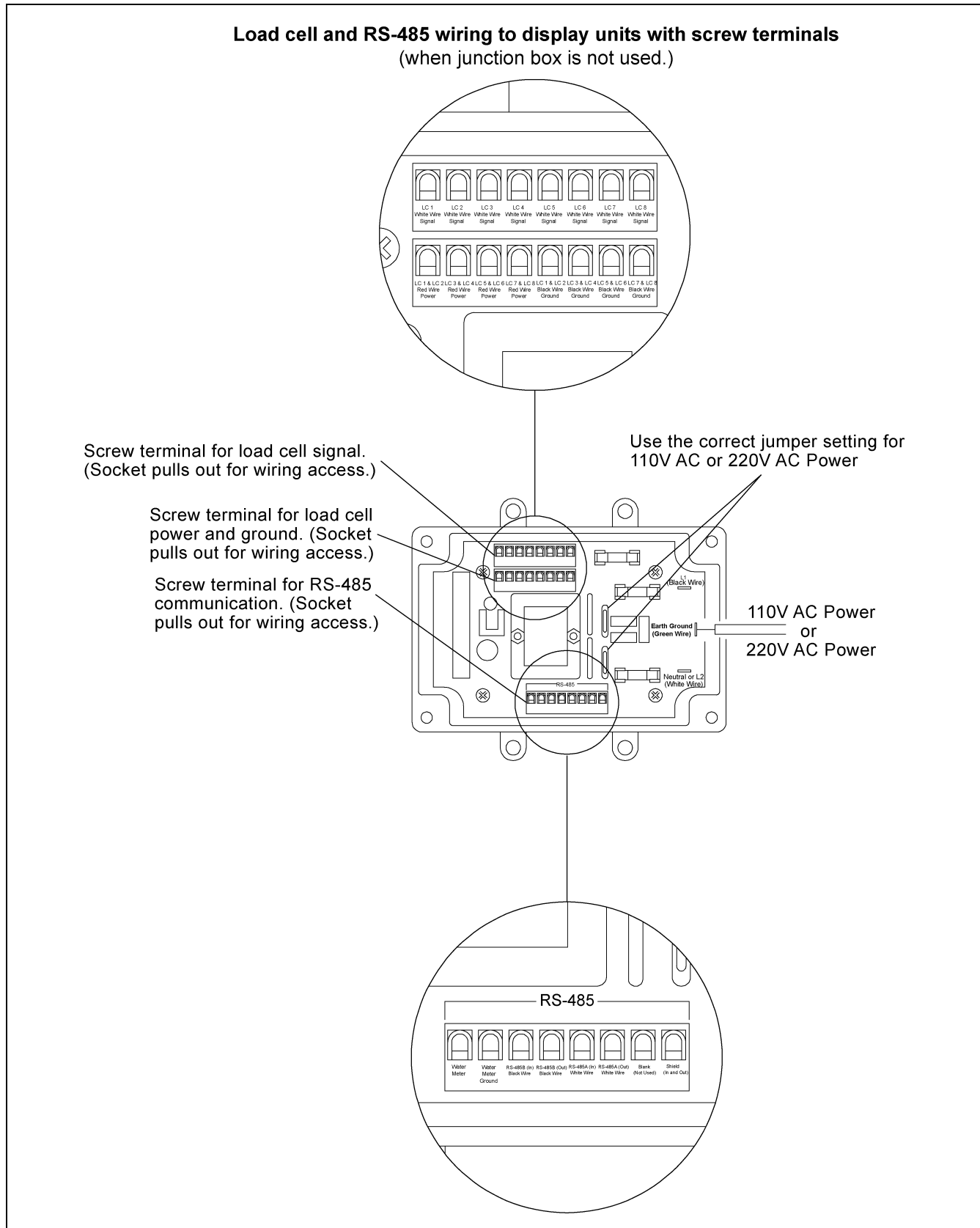
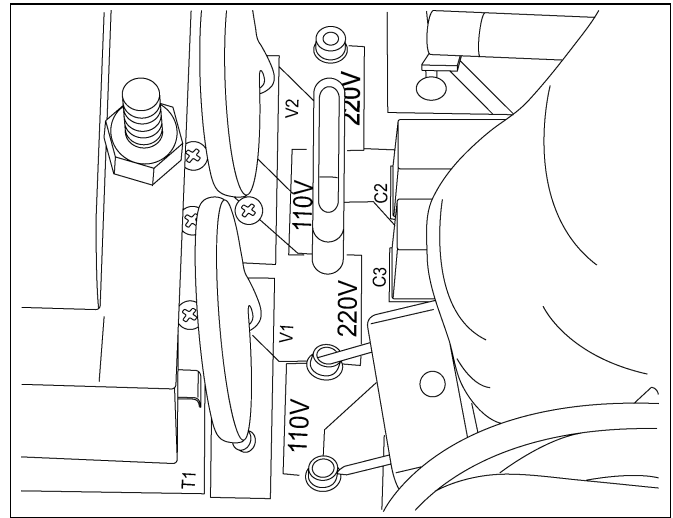


Figure 5G

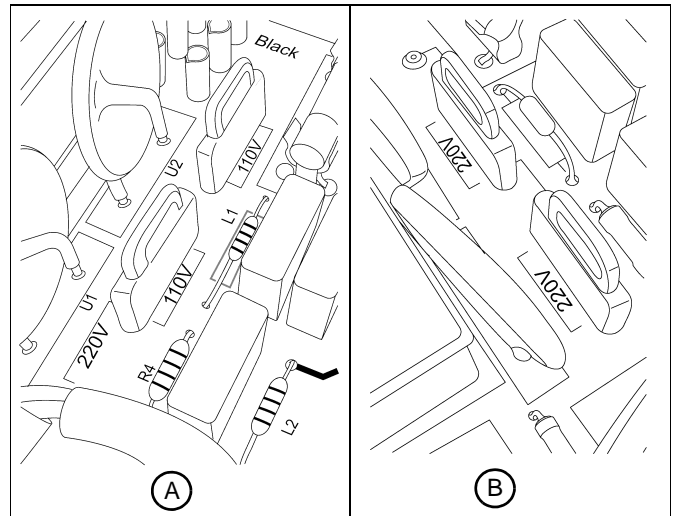
## 5. Installing Stand Alone Display Units

### Installing Stand Alone Bin Mounted Display Units (Continued)

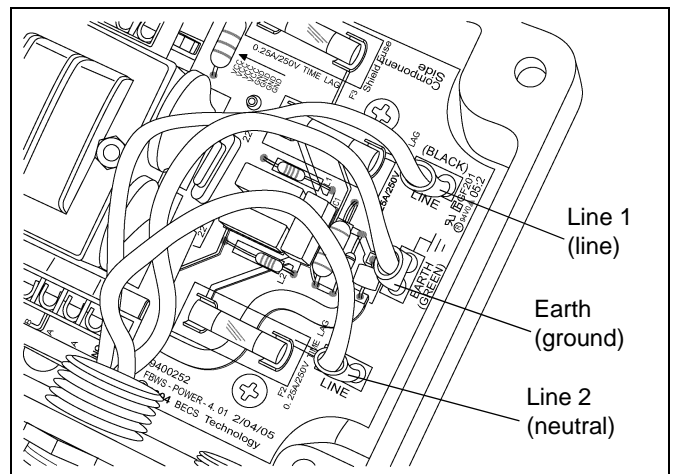
2. Set voltage jumpers
  - a. For 110V line up the two (2) jumpers with 110V holes. (See [Figure 5H](#) and [Figure 5I-A.](#))
  - b. For 220V line up the two (2) jumpers with 220V holes. (See [Figure 5H](#) and [Figure 5I-B.](#))
3. Connect power wires
  - a. Run power wire ends through water tight heyco nut cap and then into display box as shown in [Figure 5E-A on Page 18.](#)
  - b. Place line wire (black) onto line 1, ground wire (green) onto earth and neutral wire (tan or white) onto line 2. (See [Figure 5J.](#))
  - c. Pull excess length of wire down through water tight heyco nut and tighten.
  - d. Close display box lid and fasten using supplied hardware.



**Figure 5H** Voltage Jumper Location



**Figure 5I** A) Close-Up of 110V Jumper Setting.  
B) Close-Up of 220V Jumper Setting.



**Figure 5J** Power Connections

### Junction Box



**Always make sure all power is disconnected and locked out while any electrical work is being performed.**

**NOTE:** *If display units are mounted inside, then you will need a junction box.*

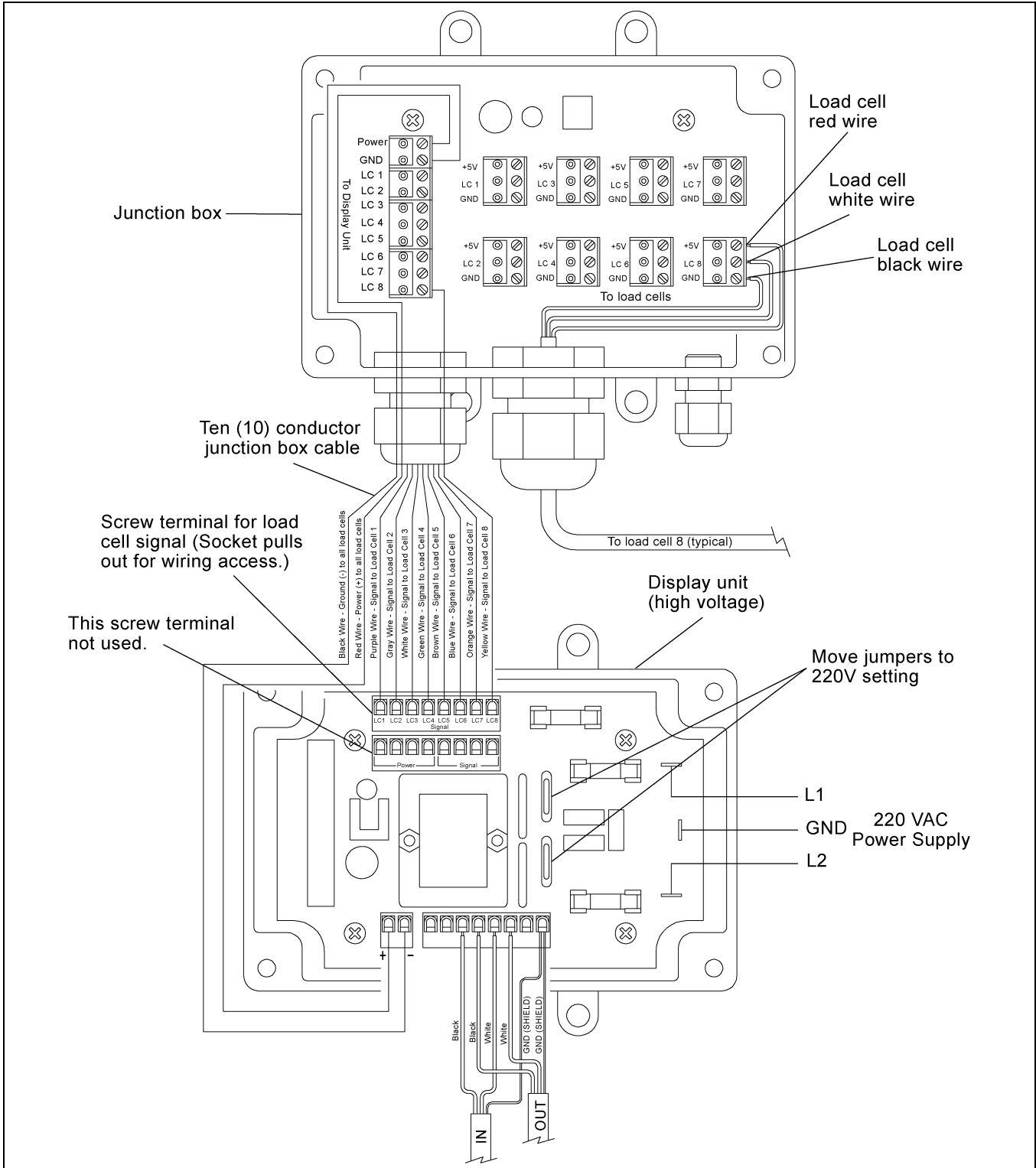
1. Starting with the load cell that you have labeled load cell 1. Take the red wire from that load cell and connect it to the blue three (3) connector for load cell 1 (upper left of all the three (3) terminal connections) in the +5V position. Take the white wire for load cell 1 and connect it in the same terminal in the LC1 position. The Black wire would go in the same terminal in the GND position. Continue similar connections for load cell 2-8 as needed for this tank.
2. From the junction box connect the Feed-Link junction box extension wire (INT-4818-XXXX) to the left hand side of the display box labeled "To Display Unit". Starting with the red wire going power, black going to gnd, purple to LC1, gray to LC2, white to LC3, green to LC4, brown to LC5, blue to LC6, orange to LC7 and yellow to LC8.
3. In the display unit you will need to connect the red to the plus (+) side of the two (2) terminal plug (in the 110V/220V display located toward the bottom left of the display unit) and the black to the negative (-) side of that same terminal. The rest of the wires connect to the top terminal of the display unit starting with the purple wire on the left for LC1 and working back through the colors for all eight (8) LC wires. ([See Figure 6A on Page 22.](#))

## 6. Stand Alone Remote Mounted Display Units

### Junction Cable to Inside Mounted Display Unit



**Always make sure all power is disconnected and locked out while any electrical work is being performed.**



**Figure 6A** Display Unit and Junction Box Wiring Diagram

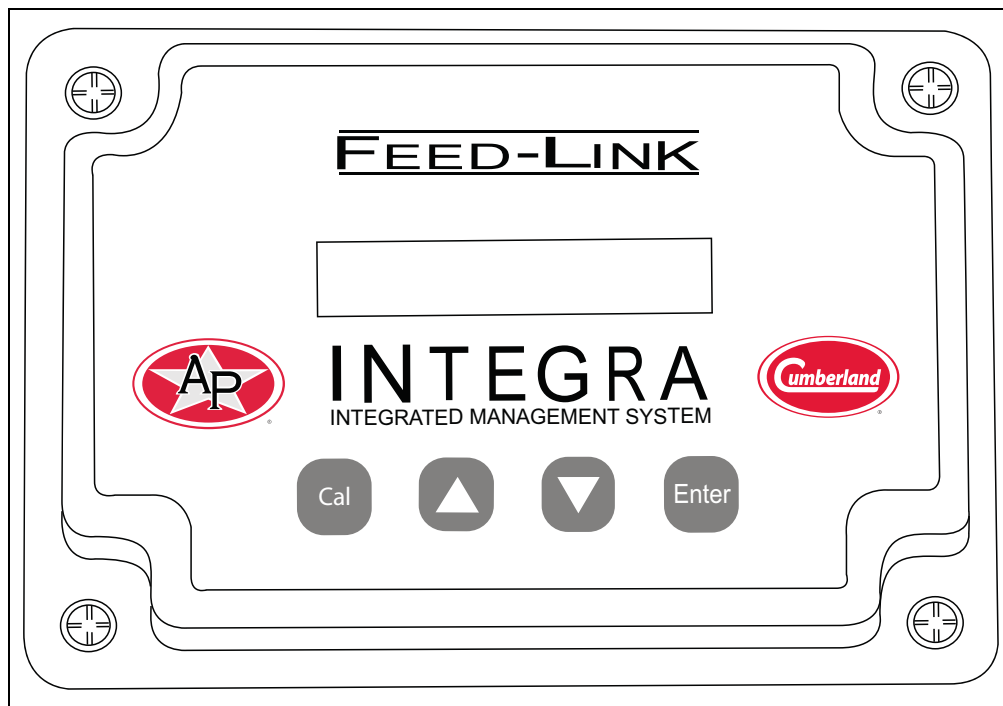


Figure 7A Display Unit Calibration and Setup

### FOR CUSTOMER USE

Enter the serial number located on the side of the display unit below for future use.

Model: FLX-4807

Serial number: \_\_\_\_\_

Bin node ID: \_\_\_\_\_  
(Between 1 and 50)

Bin node name: \_\_\_\_\_  
(Actual bin description. Alpha numeric characters.)

### Features

The INT-4807 is a display unit used to display the weight of feed in a bin. The INT-4807 has eight (8) load cell inputs and a water meter input. The user can calibrate the display at empty and full feed weights through a one time start-up selection, after which the display unit will display the weight of feed remaining in pounds or kilograms. In addition, the unit can be hooked up to a RS485 network with up to 50 other bins.

## 7. Display Unit Calibration and Setup

### Display Unit Setup

**NOTE:** After installation, an EMPTY BIN and a FULL BIN calibration must be performed.

#### Normal Display

The display unit will normally be displaying the weight of the bin in pounds or kilograms. The display in normal mode will read as follows depending on the units selected: “Weight lbs nnnnn”, “Weight kg nnnnn” where nnnnn is a number. (See Figure 7B.)

**NOTE:** When entering or changing a parameter, pressing the “CAL” key will abort that operation.

#### Initial/Empty Bin Configuration

Press the UP and DOWN arrow buttons at the same time to enter the initial configuration setup. There are four (4) menu items in the setup mode: empty bin calibration, units selection (kg, lbs), the ID for this display on the RS485 network and re-init bin to reset to defaults. Once the setup mode is entered, pressing the CAL button will scroll to the next menu item. This is a one time operation and will only need to be done when new load cells are installed.

The first menu item is: “Empty Bin 00000”

1. To calibrate the load cells with the empty bin weight, make sure the bin is empty and press ENTER five (5) times as the cursor scrolls under each digit.
2. When an empty bin calibration has been performed the display will return to the normal display. (See Figure 7C.)

The second menu item is: “Units”

1. Press the UP and DOWN arrow buttons at the same time to enter the initial configuration setup, then press the CAL button one time and this menu item will appear on the screen.
2. Press the UP or DOWN arrow to select whether the weight should be in pounds or kilograms.
3. Once the desired units are selected, press the ENTER button to save the selection. The display will return to the normal display once ENTER was selected. (See Figure 7D.)

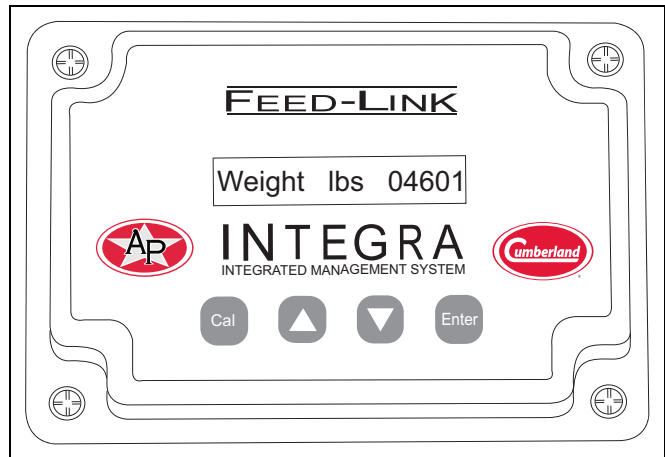


Figure 7B Normal Display Screen

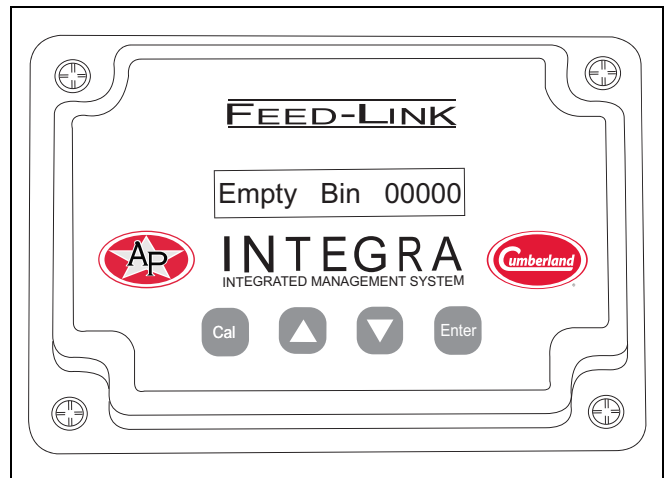


Figure 7C Empty Bin Display Screen

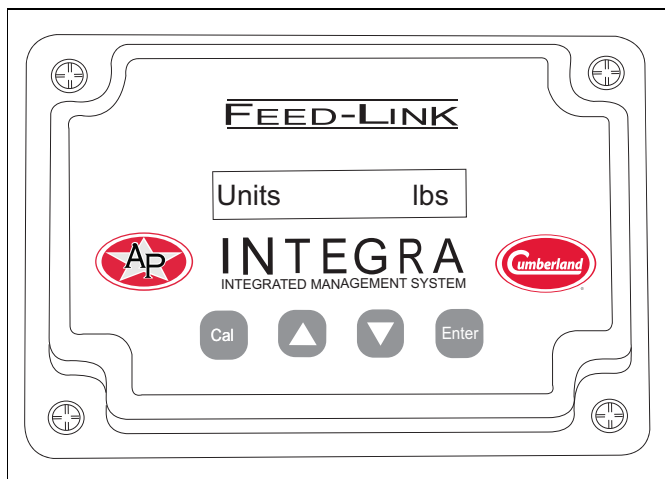


Figure 7D Units Display Screen



The third menu item is: “ID”

1. Press the UP and DOWN arrow buttons at the same time to enter the initial configuration setup, then press the CAL button twice and this menu item will appear on the screen.
2. If all the bins are to be used with the RS485 network collector they must each have a unique bin node ID. Use the UP/DOWN arrow buttons to select the first digit and press ENTER. (See Figure 7E.)
3. Use the UP/DOWN arrow buttons to select the second digit and press ENTER. The bin node ID entered must be between 1 and 50. The bin node ID should be recorded for each bin to be used later during network configuration. The unit will return to the normal display once the second digit has been selected.

The fourth menu item is: “Re-Init Bin”

1. This will return settings to factory default values in the setup menus. By pushing the Up and Down arrow buttons at the same time, the display unit enters the Initial configuration setup, then press CAL button three (3) times and this menu item will appear in the screen.
2. Push the UP/DOWN arrows to toggle between “Yes” and “NO” menu selection. Selecting “Yes” will set the display unit back to its factory default values.
3. This can be used when a load cell is marked bad, it can only be recovered by going back to factory defaults. Additionally, if a load cell is ever replaced, a return to factory defaults must be performed. (See Figure 7F.)

The last procedure to perform to properly initialize the display unit is to perform a calibration when the bin is full. (See [Full Bin Calibration on Page 26.](#))

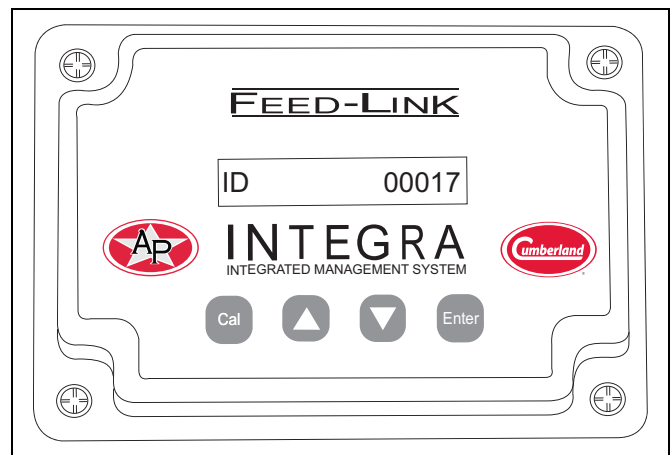


Figure 7E ID Display Screen

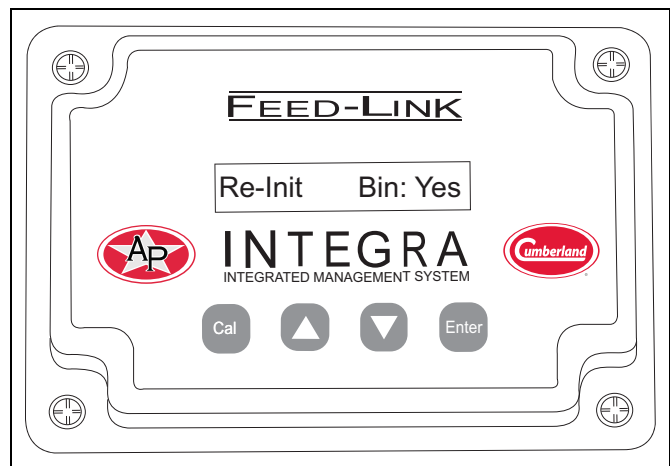


Figure 7F Re-Init Bin Display Screen

## 7. Display Unit Calibration and Setup

### Full Bin Calibration

1. Once an empty bin calibration has been performed, a full bin calibration must be performed after filling the bin the first time. This procedure can also be done more than once, but should only be necessary the first time. A full calibration will not be allowed if the feed is not added. (See Figure 7G.)

**NOTE:** *This load cell technology is a patented calibration and calibration is not actually complete until a bin has cycled through its contents one complete time.*

2. Fill the bin to as close to the maximum weight as practical. The unit will interpret to above the full bin calibration if the weight of feed added at a later time is more than at the time of calibration. The display unit will interpolate up to twice the full bin calibration weight. If the weight is more than this, then a “Perform FullBin” message will be displayed.

3. Press the CAL button from the normal display mode. “FullBin: lb nnnnn” will display. Use the UP/DOWN arrow buttons to select each digit. Pressing the ENTER button will select that digit and the cursor will scroll to the next position. After ENTER has been pressed for the last digit, the unit will return to the normal display and the weight entered will be displayed. (See Figure 7H.)

4. Please note that to abort this operation, pressing the CAL button will leave this mode and return to the normal display.

5. Possible error messages:

- a. “Perform: FullBin”
- b. “FullBin: Add Feed”
- c. “FullBin: Dec Feed”
- d. “FullBin: Do Empty”
- e. “FullBin: No Cells”
- f. “Perform Empty”

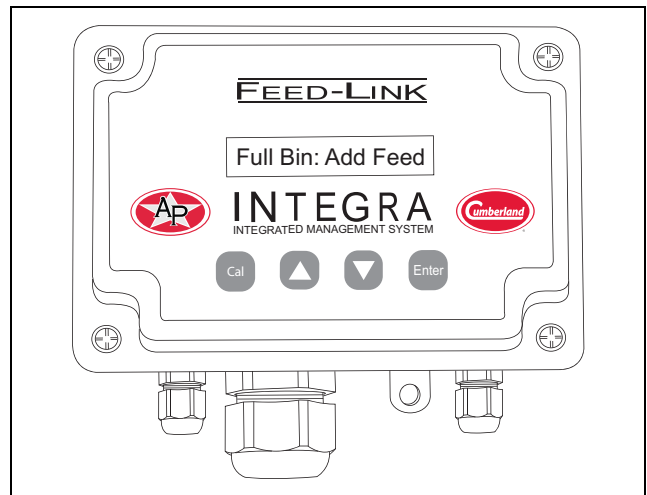


Figure 7G Load Cell Error (Cell 4)

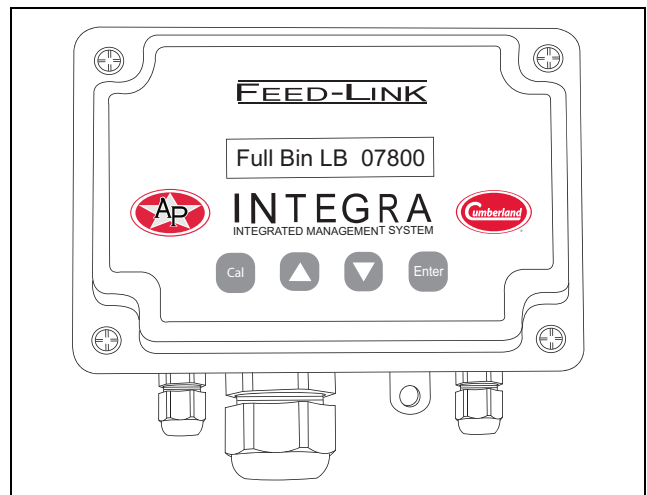


Figure 7H Load Cell Error (Cell 4)

# Troubleshooting Display Unit

## Load Cell Error Messages

### “LC Error n”

The display unit recognizes the number of load cells connected to the display when an empty bin calibration is performed. After that operation, if a bad load cell is detected for any reason, the normal display will flash the weight from the remaining good load cells and display an error message indicating which load cell is bad. For instance “LC Error 5” indicates load cell 5 is no longer working. In the base of the display unit, the connector labeled LC5 would be connected to load cell 5.

### Display is Blank

Possible cause is load cell red and black wires have been switched, shorting out power and ground. Verify wiring. The voltage between the red and black wires on a load cell should be 5 VDC.

### Load Cell Errors

Possible cause is a miswired load cell. Remedy-measure voltages between red (power) and black (ground) on the load cell and verify the 5 VDC. Next measure the voltage between signal (white) and ground (black) this voltage should be between 2.5 VDC and 5 VDC. All three (3) wires must be hooked up properly to receive the signal wire voltage reading. If the signal voltage reading is around zero, this probably means the signal wire has not been wired properly.

## Testing Feed-Link Load Cells with a Volt/Ohm Meter

### With the Meter on Ohms and dial on 2K setting

With black meter probe on black load cell wire and red meter probe on red load cell wire the meter should display around 350 to 360 Ohms.

If low reading 1-100 Ohms or really high reading = **BAD CELL**.

### With the Meter on Ohms and dial on 20K setting

With the black meter probe on black load cell wire and the red meter probe on the white load cell wire the meter should have no reading = **GOOD CELL**. It would be same reading as if the probes were touching nothing. If you get a reading = **BAD CELL**.

**NOW:** With the black meter probe on white load cell wire and the red meter probe on the black load cell wire the meter should display around 2K Ohms or greater. If no reading or very low reading = **BAD CELL**.

### With the Meter on Ohms and dial on 20K setting

With the black meter probe on red load cell wire and the red meter probe on the white load cell wire the meter should have no reading = **GOOD CELL**. It would be same reading as if the probes were touching nothing. If you get a reading = **BAD CELL**.

**NOW:** With the black meter probe on white load cell wire and the red meter probe on the red load cell wire the meter should display around 3K Ohms or greater. If no reading or very low reading = **BAD CELL**.

## 7. Display Unit Calibration and Setup

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### Full Bin Error Messages

#### “Perform: FullBin”

Is displayed when the weight is twice that of the full bin calibration. The display will not display weight, but this message will be displayed all the time.

Empty bin calibration has been performed, but the full bin calibration has not yet been performed. The display will toggle between this message, the weight default value weight display and any load cell error messages.

#### “FullBin: Add Feed”

Empty calibration has been performed and a full bin calibration is being attempted, but there is not enough of a difference from the empty bin weight, so it is saying to add feed.

#### “FullBin: Dec Feed”

Empty calibration has been performed, but the load cells are at their maximum weight and this is saying to decrease feed. This is normally the case when a 5K bar is being used in a 10K application and the 5K bar is seeing too much weight.

#### “FullBin: Do Empty”

An empty calibration has not been performed yet and a full bin calibration is being attempted.

#### “FullBin: No Cells”

When performing a full bin calibration, the display unit is not reading any load cells properly, when a full bin calibration is being performed. Check wiring in troubleshooting section. I saw this happen one time, when they did not cut off the bolt and it dug into the potting material of the load cell and was shorting out the power and ground on the load cell. It just so happened, that at lower feed levels, the bolt was just off the circuit board enough not to short, but with a full bin it did short out. **NOTE:** *Check the bolts with a blank display for this power/ground short.*

#### “Perform Empty”

An empty bin calibration has not been done yet. This error message will scroll between it, weight display and load cell error messages.

## GSI Group, LLC Limited Warranty

The GSI Group, LLC ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

### Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period	
<b>AP Fans and Flooring</b>	Performer Series Direct Drive Fan Motor	3 Years	* Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 25% 5 to 7 years - end-user pays 50% 7 to 10 years - end-user pays 75%
	All Fiberglass Housings	Lifetime	
	All Fiberglass Propellers	Lifetime	
<b>AP and Cumberland</b>	Flex-Flo/Pan Feeding System Motors	2 Years	** Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 50%
<b>Cumberland Feeding/Watering Systems</b>	Feeder System Pan Assemblies	5 Years **	
	Feed Tubes (1-3/4" and 2.00")	10 Years *	
	Centerless Augers	10 Years *	
	Watering Nipples	10 Years *	
<b>Grain Systems</b>	Grain Bin Structural Design	5 Years	† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.
<b>Grain Systems Farm Fans Zimmerman</b>	Portable and Tower Dryers	2 Years	
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years	

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12<sup>th</sup>) month from the date of purchase and continuing until the sixtieth (60<sup>th</sup>) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

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GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.



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