Air Cargo

Caster Deck Container Scale

Installation and Service Manual

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(8/00).00

METTLER TOLEDO

Publication Revision History

An overview of this manual's revision history is compiled below.

Publication Name: Air Cargo Caster Deck Container Scale Installation and Service Manual

Publication Part Number: 15348300A **Publication Date:** 10/97

Part Number	Date	Revisions
A15348300A	8/00	Revised caster deck installation procedure.

INTRODUCTION

This publication is provided solely as a guide for individuals who have received Technical Training in servicing the METTLER TOLEDO product.

Information about METTLER TOLEDO Technical Training can be obtained by writing, calling, or faxing:

METTLER TOLEDO
1900 Polaris Parkway
Columbus, Ohio 43240 USA
Phone: (614) 438-4511
Fax: (614) 438-4958
www.mt.com

FCC Notice

This device complies with Part 15 of the FCC Rules and the Radio Interference Requirements of the Canadian Department of Communications. Operation is subject to the following conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

METTLER TOLEDO RESERVES THE RIGHT TO MAKE REFINEMENTS OR CHANGES WITHOUT NOTICE.

Precautions

READ this manual BEFORE operating or servicing this equipment.

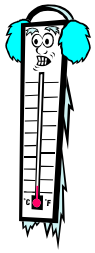
FOLLOW these instructions carefully.

SAVE this manual for future reference.

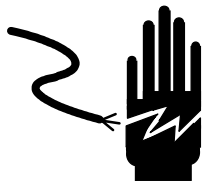
DO NOT allow untrained personnel to operate, clean, inspect, maintain, service, or tamper with this equipment.

ALWAYS DISCONNECT this equipment from the power source before cleaning or performing maintenance.

CALL METTLER TOLEDO for parts, information, and service.



Note: If the unit has been stored or transported in below freezing temperatures, allow the unit to warm up to room temperature before turning on AC power.

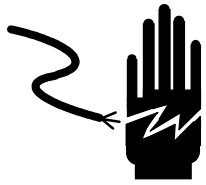


⚠ WARNING

PERMIT ONLY QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

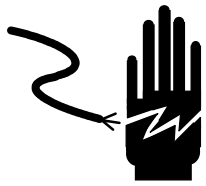
⚠ CAUTION

OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES.



⚠ WARNING

DISCONNECT ALL POWER TO THIS UNIT BEFORE INSTALLING, SERVICING, CLEANING, OR REMOVING THE FUSE. FAILURE TO DO SO COULD RESULT IN BODILY HARM AND/OR PROPERTY DAMAGE.



⚠ WARNING

FOR CONTINUED PROTECTION AGAINST SHOCK HAZARD, CONNECT TO PROPERLY GROUNDED OUTLET ONLY. DO NOT REMOVE THE GROUND PRONG.

⚠ CAUTION

BEFORE CONNECTING OR DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT, ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN BODILY HARM OR DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT.

CONTENTS

1 Introduction

The METTLER TOLEDO Air Cargo Caster Deck Container Scale is designed to weigh cargo containers for air freight carriers. It consists of a weighing platform with a caster deck surface and a Lynx® terminal. The FedEx weighing platform incorporates CENTERLIGN™ weigh modules, which feature a low-profile rocker pin suspension with a high restoring force. The upper platform is supported by an adjustable subframe.

A METTLER TOLEDO Lynx terminal assimilates scale data as the system weighs containers prior to boarding the aircraft. Information from the system helps FedEx load aircraft in accordance with acceptable weight and balance specifications.

The Caster Deck Container Scale meets FedEx requirements of 0.1% applied load accuracy specifications. The scale uses METTLER TOLEDO 10,000-pound capacity stainless steel hermetically sealed load cells. Overall scale capacity is 20,000 lb.

2 Installation and Wiring

This chapter explains how to install the Caster Deck scale and Lynx terminal. Please read this chapter thoroughly before you begin installation.

Inspection

When the Caster Deck Container Scale is delivered, inspect it for any damage that might have occurred during shipping and handling.

Inspect the following areas:

- Platform assembly
- Load cells
- Load cell cables
- Junction box

If any damage is found, contact your freight carrier.

Also inspect the Lynx terminal for damage. If the container is undamaged, remove the terminal from its protective package, noting how it was packed, and inspect each component for damage. If it is necessary to ship the terminal, use the original shipping container if possible. The Lynx terminal must be packed correctly to ensure its safe transportation.

Package contents for all Lynx units include:

- Lynx terminal
- Screwdriver
- Post mounting bracket (shrink-wrapped to the outside of the Lynx terminal box)
- Set of capacity labels

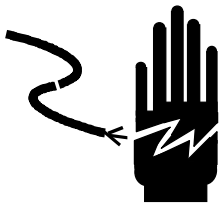
Safety Considerations

Do not place forklift blades beneath the scale assembly. Subframe damage could result.

To move the scale, use a forklift with a jib pole attached. Position the jib pole properly on the forks. Observe all safety procedures. The forklift must be capable of safely lifting 4,000 pounds.

⚠ WARNING

USE EXTREME CAUTION WHEN LIFTING AND MOVING THE SCALE TO THE DESIRED LOCATION. DO NOT ATTEMPT TO LIFT AND MOVE THE SCALE BY YOURSELF OR INJURY COULD OCCUR.



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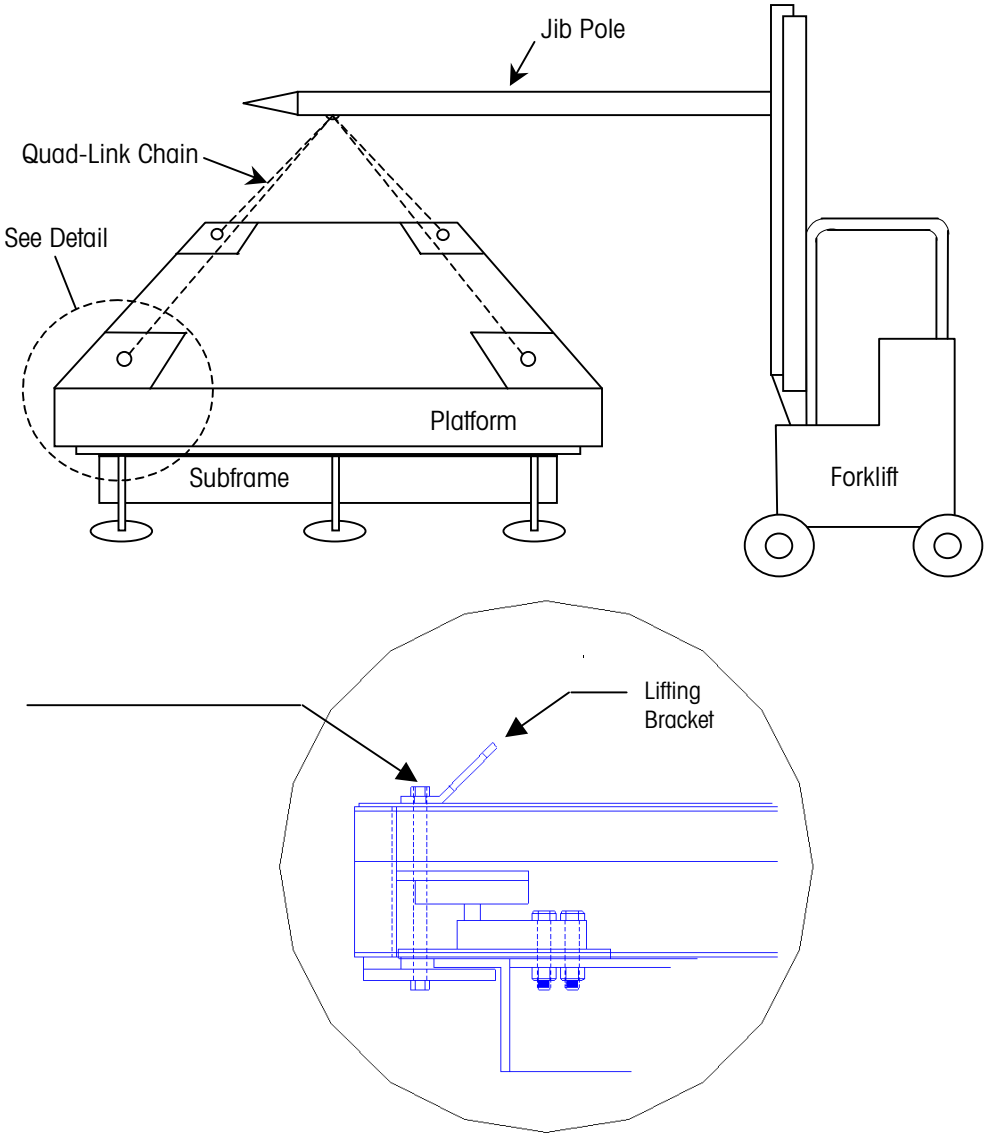
Installing the Scale Platform

Transport the Caster Deck Container Scale to the desired site, using rigging such as a quad link chain or sling attached to the forklift blades. Attach the chain to the four lifting brackets located in each corner of the platform (see Figure 2-1).

Do not place the forklift blades beneath the subframe assembly.



Once the scale has been installed, remove the 1/2-inch bolt and replace it with the 5/8-inch bolt (shipped loose) to secure the corner access cover.

Figure 2-1: Lifting the Air Cargo Caster Deck Container Scale

Position the scale so that the corner in which the junction box is located is nearest to the location selected for the scale indicator.

1. When you have moved the scale to its final location, measure the distance from the floor to the deck at each corner of the scale. Adjust each corner to the desired height (the scale can be adjusted ± 2 inches). Each corner of the scale can be adjusted independently by jacking up the corner and screwing the all-thread support legs in or out. The surface of the scale deck should be level and should match the surrounding platforms as closely as possible. Make sure there is a gap of at least 1/2 inch around the entire perimeter of the scale deck. **The caster deck weighing surface can tolerate a slope of 1 percent, maximum, in any direction.**
2. With the scale in position, remove the lifting brackets and access covers at all four corners of the scale. Save the lifting brackets and their 1/2-inch bolts in case you need to move the scale at some time in the future.
3. Loosen the overload stop/jacking bolt at each corner of the scale, raising each bolt 1/4 inch (see Figure 2-2). **The scale platform should now move back and forth freely.**

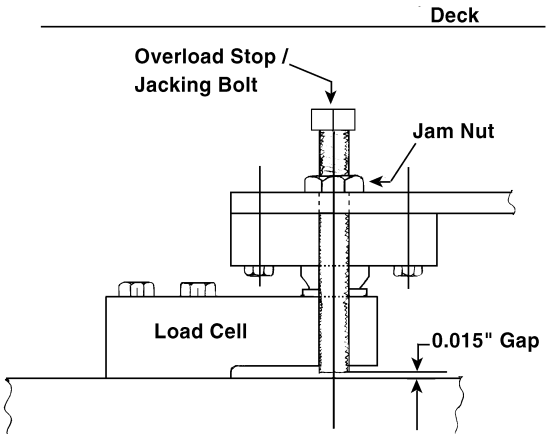
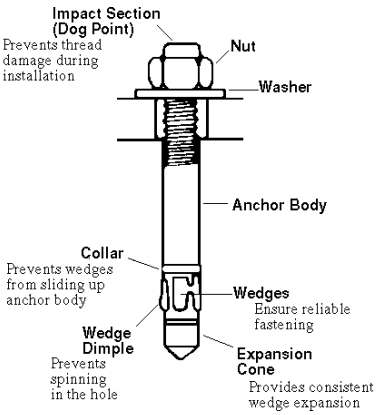


Figure 2-2: Overload Stop/Jacking Bolt

4. Once the scale has been adjusted to the correct height, bolt its support feet to the floor, using 5/8" anchor bolts positioned 180° apart (see Figure 2-3). Use a wedge-design expansion anchor such as Hilti's Kwik Bolt II, KB II 58-434 (Item no. 00045371), 5/8" x 4.75" long carbon steel anchor.
   - Drill two 5/8" diameter x 3.5" deep holes into the concrete floor using a hammer drill.
   - Clean each hole.
   - Drive each anchor through the support foot into the drilled hole using a 2-pound hammer. Approximately 1" of thread should be exposed above the support foot.
   - Install the washer and nut and torque each anchor to 85 ft-lb or two to three turns past the finger-tight position.



Anchor Bolt Detail

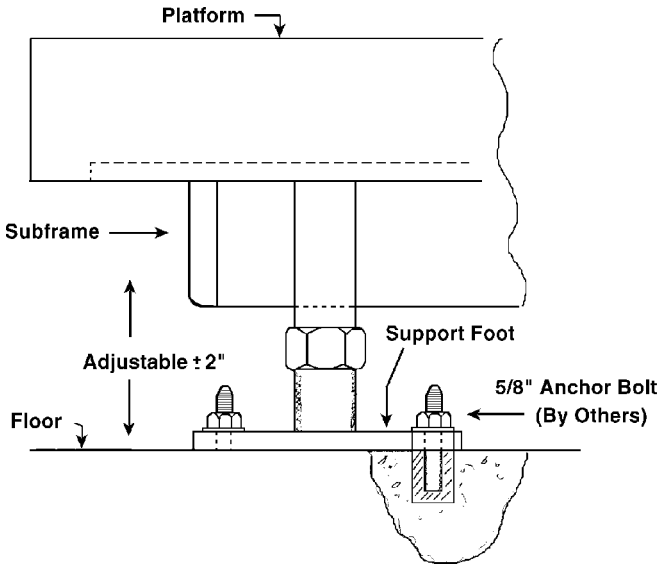


Figure 2-3: Anchoring the Scale Subframe

Replace each 1/2-inch lifting bracket bolt with one of the 5/8-inch access cover screws, which are shipped loose.

5. Adjust the overload stop/jacking bolt at each corner of the scale to provide a 0.015-inch overload stop gap for the load cells (see Figure 2-2). Then tighten the jam nuts to hold the bolts in place.
6. Make sure that the scale deck moves back and forth freely in all directions. Replace the access covers at all corners of the deck except the one where the junction box is located. Then proceed to the instructions for installing the Lynx terminal.

Platform Junction Box Wiring

Refer to the following diagrams and wiring code table for basic junction box wiring information.

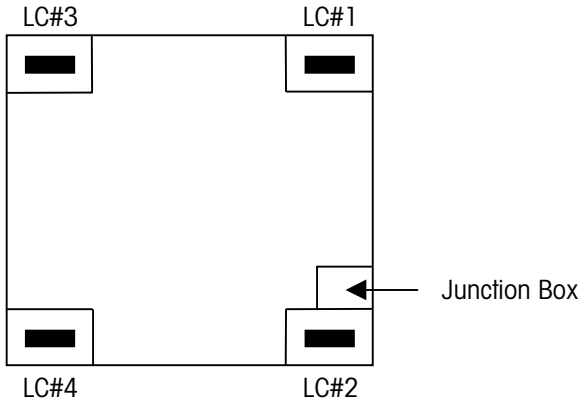


Figure 2-4: Plan View Load Cell Orientation—Single Platform

		Analog Junction Box	
Load Cell Wiring		**Instrument Cable Wiring**	
Function	**Color**	**Function**	**Color**
+ Excitation	Green	+ Excitation	White
		+ Sense	Yellow
+ Signal	White	+ Signal	Green
Shield	Yellow	Shield	Orange
- Signal	Red	- Signal	Black
		- Sense	Red
- Excitation	Black	- Excitation	Blue
		Based on METTLER TOLEDO cable number 510620370	

Table 2-1: Wiring Codes for Caster Deck Container Scale

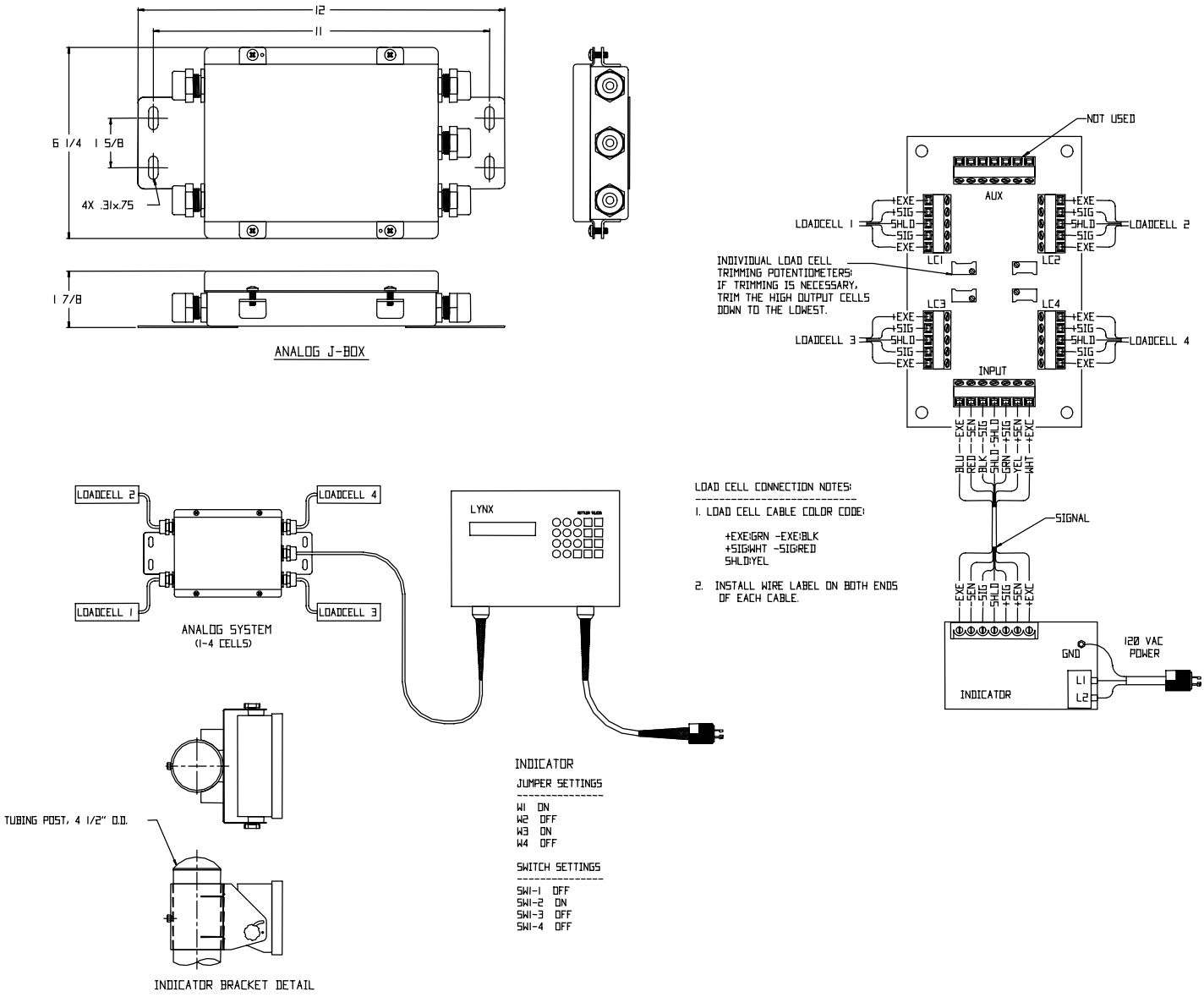


Figure 2-5: Analog System Wiring Diagram

Installing the Lynx Terminal

Once the scale platform has been installed, mount the Lynx terminal and wire it to the scale's junction box. Refer to Figure 2-5 for wiring details and color coding.

Mount the Lynx Terminal

The Lynx terminal comes with bracket mounting hardware for installation on a pole. Figure 2-6 shows mounting hardware.

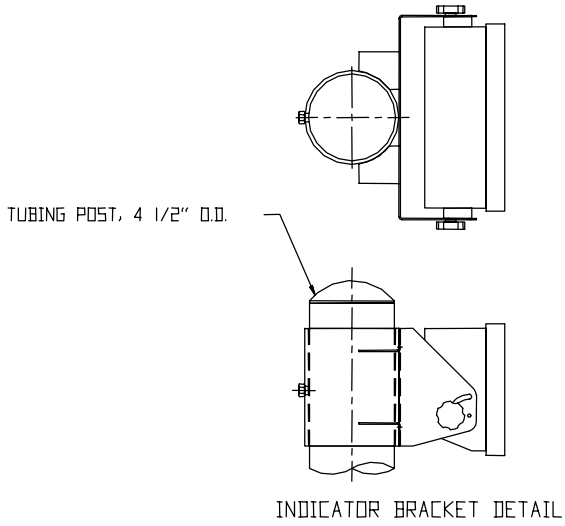


Figure 2-6: Lynx Bracket Mounting Hardware

To mount the Lynx terminal:

1. Connect the bracket to the back of the terminal.
2. Slip the bracket/terminal assembly over the tube post and tighten it so that the terminal is secure. The terminal can be adjusted horizontally and vertically to place it in the best position for viewing.

Open the Lynx Terminal

The Lynx terminal uses four spring clips to lock the front panel in place and seal the enclosure to NEMA 4X specifications. These clips are attached to the enclosure body.

1. Separate the front panel from the enclosure by inserting the tip of a flat-blade screwdriver into one of the two slots located on the bottom of the front panel assembly and gently push in toward the enclosure.

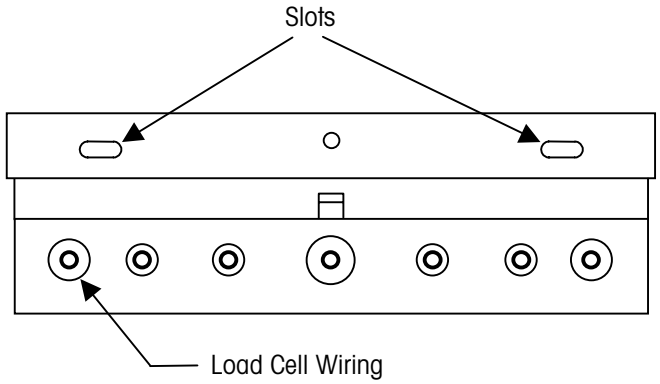


Figure 2-7: Lynx Bottom View

You should hear a quiet "pop" when the cover has been released. Push in on the side of the slot closest to the bottom of the cover. Repeat for the other slot.

2. After releasing the front panel, lift the bottom of the front panel out until it completely clears the enclosure, then squeeze the top of the front panel to the enclosure slightly and raise it to clear the two top clips. The cover will swing down hinged by two wire cables at the bottom.

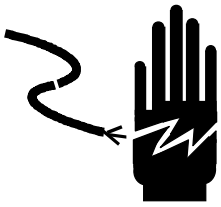
Connect the Lynx Terminal to the Scale

Connect the terminal to the scale, using the home run cable that is coiled under the scale deck near the junction box:

1. Pass the cable that enters the enclosure through the cable grip **before** connecting the wires.
2. Tighten the cable grip sufficiently to provide a water-tight seal around the cable only after resecuring the back cover. This will allow any internal cable slack to be received through the cable grip.
3. Connect the caster deck scale to the terminal block labeled load cell. See Figure 2-5 for connections and color codes.
4. Replace the Lynx cover.

Apply Power

Apply power to the Lynx terminal by plugging the line cord into a **properly grounded** AC power outlet.



⚠ WARNING

AC POWER SOURCES MUST HAVE PROPER SHORT CIRCUIT AND OVER CURRENT PROTECTION IN ACCORDANCE WITH LOCAL AND NATIONAL ELECTRICAL REGULATIONS. FAILURE TO PROVIDE THIS MAY RESULT IN BODILY INJURY.

The Lynx terminal goes through a series of self tests when it is turned on. These tests confirm normal operation. The power-up sequence is as follows:

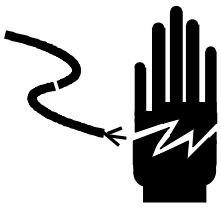
1. All segments of the display windows are lit. This verifies operation of all segments. The display then alternately illuminates blocks of segments.
2. The display reads "Mettler" then "Toledo" then "Lynx" while the terminal performs internal diagnostic self tests on memory and identifies optional boards that are installed. The terminal also checks the location of setup parameters and memory fields. If these have been moved or changed (as when loading software), an error message appears.
3. Next, the terminal tests communication with the load cell. The terminal displays weight when successful communication is established. If the terminal is unable to establish communication, an error is displayed.
4. After a delay, the terminal displays the software part number and advances to normal operation mode. If the Power-up Timer is enabled (refer to Chapter 3), the terminal counts down the designated period before advancing to normal operation mode.

The total power-up sequence requires approximately 30 seconds. The power-up sequence is analogous to the time required to "boot" a personal computer.

Calibration

A METTLER TOLEDO service technician will perform the initial scale calibration per Federal Aviation Administration (FAA) Guidelines using certified test weights (20,000 lb) that are traceable to the National Institute of Standards and Technology (NIST). The system will be calibrated for an analog junction box.

Calibration procedures for FedEx maintenance after the initial calibration are given in Chapter 4 of this manual.



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3 Operating Instructions

Before You Begin

The following tips will ensure accurate weighing:

- Inspect the scale to be sure nothing is on the platform. Clear the vicinity to prevent incidental interference.
- Check the Lynx display to be sure it is on, and then press the →0← key to zero the scale. The display should read 00. If the terminal does not return to zero after several attempts, contact the scale maintenance representative.

Basic Weighing Sequence

Loading and Weighing Procedure

Follow the steps given below when loading and weighing a container initially.

1. Place the empty container on the scale. Make sure the container is completely on the scale and not touching any other equipment. This is necessary to ensure accurate weight readings.
2. Load the container, and then take the weight reading from the Lynx display. The Lynx displays the weight reading when there is no motion on the scale.
3. Remove the container. Repeat the procedure for subsequent containers.

Reweigh Procedure

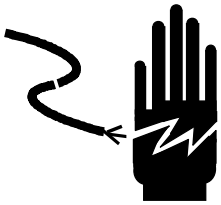
To reweigh a container or verify an initial weight reading, place the loaded container on the scale. When motion on the scale has stopped, the terminal displays the container weight.

4

Maintenance

The METTLER TOLEDO service technician will install your Caster Deck scale system initially, making sure it is calibrated correctly and accurately and conforms to all FedEx specifications. This chapter describes routine care and maintenance that should be performed regularly by FedEx.

If you need assistance at any time, contact your local METTLER TOLEDO service office.



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Calibration and Maintenance Intervals

Inspect the Caster Deck scale and check its calibration every 30 days.

Routine Maintenance

Routine maintenance tasks for the Caster Deck Container Scale are generally limited to inspecting the scale and scale location, cleaning debris, and cleaning the Lynx terminal.

Inspecting the Scale

Use the following information as a guide during periodic scale inspection.

- Check the torque on all load cell and anchor bolts. Load cell bolts should be torqued to 250 ft-lb. Anchor bolts should be torqued to 85 ft-lb.
- Verify that the junction box lid is properly sealed and all cable connectors are tight against the enclosure.
- Check for moisture or foreign material in or around the junction box assembly.
- Ensure the load cell and instrument cables are not damaged.
- Perform shift adjustments and final calibration using the Chapter 4 of this manual or the Lynx Service Manual as a reference.
- Ensure the platform is checking properly against the bumpers and that the overload stops are clear. Overload gap should be 0.015 inch (see Figure 7-1).

Cleaning the Lynx Terminal

You may wipe the keyboard and covers with a clean, soft cloth that has been dampened with a mild glass cleaner. Do not use any type of industrial solvent such as toluene or isopropanol (IPA) on the keyboard/display assembly. Solvents may damage the finish. Do not spray cleaner directly onto the unit.

Regular maintenance inspections by a qualified service technician are also recommended.

FedEx Calibration Procedures

1. Apply power to the Lynx terminal.
2. Using 7500 pounds, check the scale span. If span is out of tolerance, continue with the calibration procedure as described in steps 3 through 7.

Check the shift characteristics to determine if any shift adjustment is required. Shift adjustment to a level scale should be minimal, if required.

3. Access the Scale Interface program block, then calibrate Zero and Span values. Refer to the next section entitled "Configuring the Lynx Scale Interface." Calibrate the span by placing 7500 pounds of certified test weight in the center of the platform.
4. In the standard weighing mode, check the shift adjustment of each scale platform by successively placing a 1000 pound test weight in each corner (see Figure 4-1). Note and record each weight value.

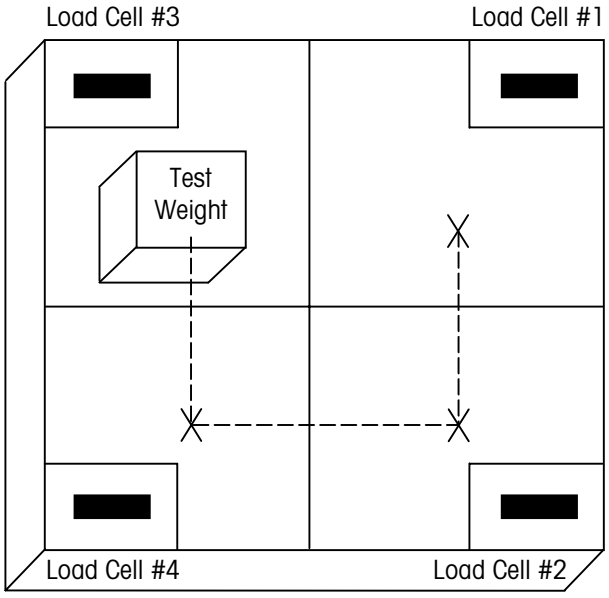


Figure 4-1: Shift Adjust

Because the trim potentiometers interact with each other, any adjustment will affect all corner readings.

5. Determine the corner with the lowest out of tolerance indication. Place the test weight on that corner and record the weight value.
6. Proceeding clockwise from the lowest indicating corner, place the test weight at each of the other corners. To adjust a corner reading, remove the junction box lid and turn the trim potentiometer corresponding to that corner until the reading agrees with the lowest indicating corner.
7. Repeat steps 1-6 until all platform corners indicate the same value.
8. Recheck the calibration by placing 7500 pounds at the center of the platform. Make span adjustments as required.
9. Place a desiccant in the junction box and reinstall the lid.
10. Affix a sticker to the scale indicating date and calibrator.

Configuring the Lynx Scale Interface

The Lynx terminal that comes with the Air Cargo Caster Deck Container Scale is a full-featured indicator. As you become familiar with the Lynx terminal, you will notice that it has functionality and capability beyond the scope of the FedEx application.

This section describes the Scale Interface program block for configuration and calibration of the Air Cargo Caster Deck Container Scale. The first six sub-blocks within the Scale Interface program block should not require adjustments. The Calibration, Zero Adjustment, and Span Adjustment sub-blocks will be used during periodic calibration and maintenance.

For detailed information on other Lynx features not described in this manual, please refer to the Lynx Service Manual.

Keystroke Functions

You will use the following keys when configuring the Scale Interface program block:

Numeric Keys input numeric entries such as threshold values and scale capacity. These keys are also used for alphanumeric entries.

SELECT scrolls forward through a list of choices. As the SELECT key is pressed, programming items are listed and appear in the display area.

ENTER completes a response. Press ENTER after you have used the numeric keys to input data or used the SELECT key to display an option.

ESCAPE exits the current location. The parameters you have configured prior to pressing escape are saved when you exit. Each time you press ESCAPE you exit back to the previous level of setup. You may have to press ESCAPE several times to return to a desired location.

CLEAR clears the previous current entry and allows you to rekey the response.

ZERO allows you to back up in the current program block and return to the previous step if you are in the first two levels of setup. The ZERO key scrolls backward through a list of choices.

FUNCTION moves the cursor one character to the right, allowing you to change one character in a text string (such as a literal) without clearing and reentering the string.

MEMORY moves the cursor one character to the left, allowing you to change one character in a text string (such as a literal) without clearing and reentering the string.

Access the Scale Interface Program Block

Before configuring Scale Interface program block parameters, you must enter the setup mode:

1. Press the FUNCTION key.
2. Press SELECT until the prompt **Setup?** is displayed, then press ENTER.
3. If the **Setup?** prompt is not displayed and the terminal returns to Normal Operation mode, try the following steps:
   - Remove AC power
   - Turn SW1-1 (on the Controller PCB) to the ON position
   - Power the terminal and repeat steps 1 and 2.

The Scale Interface (Scale I/F) program block should be displayed. Figure 4-2 on the next page provides an overview of the Scale Interface program block.

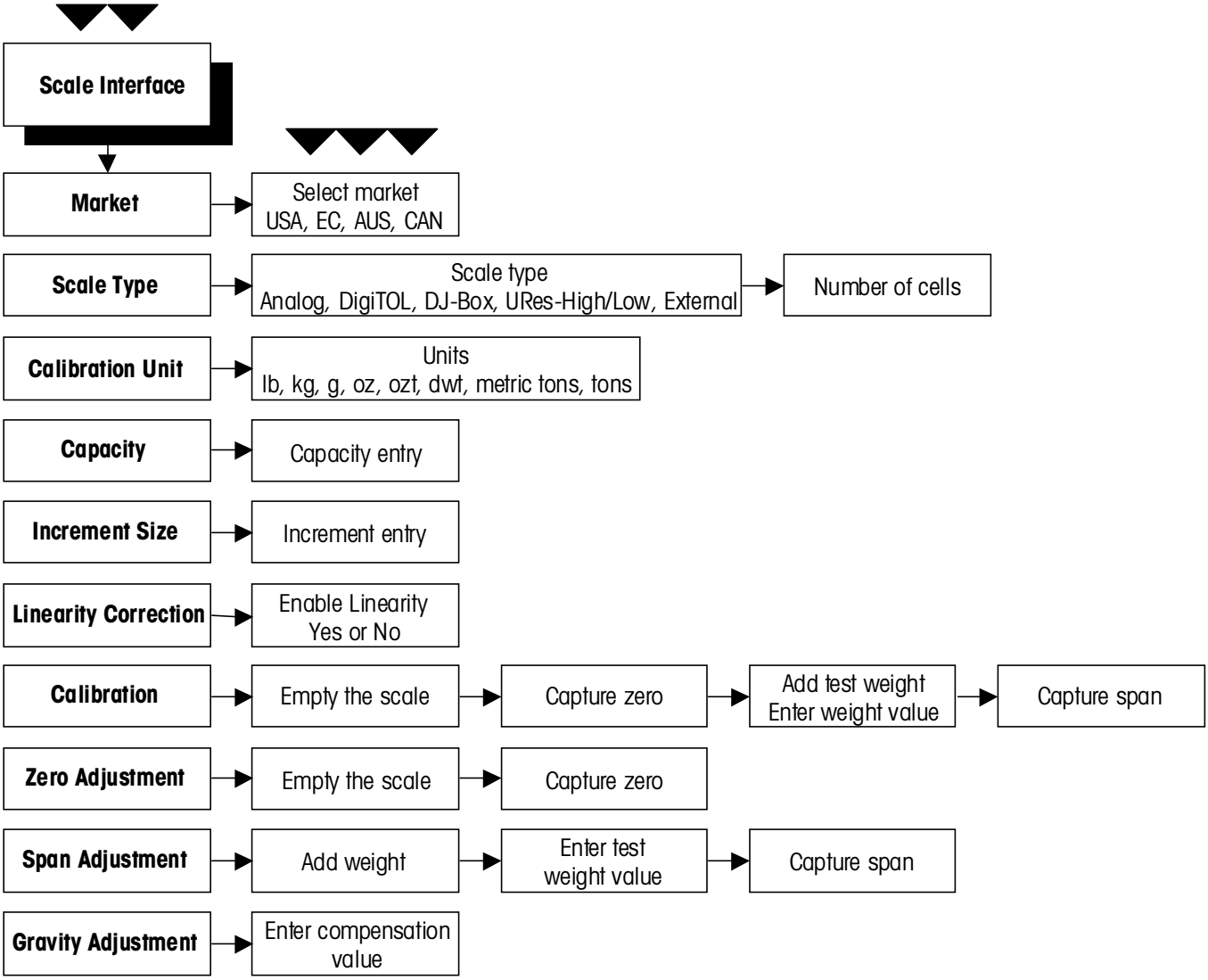


Figure 4-2: Scale Interface Program Block

Configure the Scale Interface Parameters

Enter setup mode and press ENTER at the **Scale I/F** prompt to access the Scale Interface program block. Configure the following sub-blocks.

Market Sub-block

The Market sub-block lets you select a country or market area where the scale will be used.

1. Press ENTER at the **Market** prompt to access this sub-block.
2. Press SELECT until the desired Market area is displayed, then press ENTER. Market areas include:
   - USA — United States
   - EC — European Community
   - Aus — Australia
   - Can — Canada
3. The Lynx terminal automatically continues to the next sub-block, or you can press ESCAPE twice to exit the setup mode.

Scale Type Sub-block

The Scale Type sub-block prompts you for the type of scale that will be used.

1. Press ENTER at the **Scale Type** prompt to open the sub-block.
2. Press SELECT to display **Analog**. Although other scale types are available, Analog is the only valid selection for the Air Cargo Caster Deck Container Scale.

   If you change the scale type, the Lynx terminal displays the message **PleaseWait** as it exits setup mode and goes through the power-up sequence. You must reenter setup mode to continue configuring the program block.
3. Continue to the next sub-block or exit the setup mode.

Calibration Unit Sub-block

This sub-block lets you enter the units of measure to use when calibrating the scale and configuring capacity and increment size. **Recalibration is required if you change the calibration unit.**

1. Press ENTER at the **Calib Unit** prompt to open the sub-block.
2. At the **Unit?** prompt, press SELECT until **lb** is displayed. Then press ENTER. Other calibration units include

Pounds (lb)	Ounces (oz)	Tons (t)
Kilograms (kg)	Troy Ounces (ozt)	Metric Tons (ton)
Grams (g)	Penny Weight (dwt)	Pounds/Ounces (lb/oz)

3. Continue to the next sub-block or press ESCAPE to exit the setup mode.

Capacity Sub-block

The Capacity sub-block lets you enter the maximum scale capacity. The capacity is given in the calibration units. The weight display will indicate **OVER RANGE** at 5 increments above this weight.

1. Press ENTER at the **Capacity** prompt to open the sub-block. The Lynx terminal displays the current scale capacity (20000).
2. If scale capacity is other than 20000, key 20000 using the numeric keys.
3. Press ENTER to set the capacity.
4. Continue to the next sub-block or exit the setup mode.

Increment Size Sub-block

This sub-block lets you specify the increment size for the scale. An increment size is the smallest change in weight value that the terminal is able to display.

1. Press ENTER at the **Increment** prompt to open the sub-block. The Lynx terminal displays the current increment size.
2. Enter 2, then press ENTER to set the increment.

Linearity Correction Sub-block

Linearity correction lets you calibrate the scale using calibration reference weights at mid-scale and full-scale ranges. Linearity correction allows for compensation of the non-linear performance of a load cell(s) or weighing system. If linearity correction is enabled, the calibration process requires additional steps. The terminal must be calibrated or recalibrated **after** you enable linearity correction.

1. Press ENTER at the **Linearity** prompt to open the sub-block.
2. Select **N** to disable linearity correction.
3. Continue to the next sub-block or exit the setup mode.

Calibration Sub-block

Calibration involves emptying the scale then placing a known test weight on an empty platform and allowing the Lynx terminal to capture values for zero and span. The terminal prompts you through the calibration.

1. Press ENTER at the **Calibrate** prompt to open the sub-block.
2. At the **Empty Scale** prompt, remove any weight on the platform, then press ENTER. The terminal automatically captures zero while the display reads **Cal Zero**. The cursor moves across the display indicating the operation is in progress.
3. At the **Add Weight** prompt, place a 7500-lb test weight on the platform.
4. Key 7500, then press ENTER. The terminal automatically captures span while the display reads **Cal Span**. A cursor moves across the bottom of the display indicating the operation is in progress.
5. The terminal indicates **Cal Done**, then continues to the next sub-block.

Zero Adjustment Sub-block

The zero value is the scale-empty reference as determined during calibration. The Zero Adjustment block lets you re-establish this value to compensate for any change since the last calibration. The scale must be empty before resetting the zero value.

1. Press ENTER at the **Zero Adj.** prompt to open the sub-block.
2. At the **Empty Scale** prompt, remove any weight on the platform and press ENTER. The terminal automatically captures zero while the display reads **Cal Zero**. The cursor moves across the display indicating the operation is in progress. Lynx terminal displays the message **Zero Done** when finished.
3. Continue to the next sub-block or exit the setup mode.

Span Adjustment Sub-block

The Span Adjustment feature lets you make minor span adjustments without completely recalibrating the scale. Adjust the span by placing known test weights on the scale prior to entering span adjust. The terminal guides you through the procedure.

1. Press ENTER at the **Span Adj.** prompt to access the sub-block.
2. At the **Add Weight** prompt, place a test weight on the platform.
3. Enter the amount of weight placed on the platform in step 2. The display reads **Cal Span** while the terminal captures the new span. The cursor moves across the display indicating the operation is in progress. When finished, the terminal displays the message **Span Done**.
4. Continue to the next sub-block or exit the setup mode.

Exit Setup

When you have finished configuring the Scale Interface program block and wish to return to normal operation, press ESCAPE several times until the prompt **Exit?** is displayed, then press ENTER to confirm.

When you exit setup mode, the terminal may go through the power-up sequence before returning to normal operating mode depending on the changes you made.

If you wish to protect the setup parameters from being inadvertently changed by an operator, you can turn SW1-1 (on the Controller PCB) to the OFF position.

Reset to Factory

The Lynx terminal has a Diagnostics and Maintenance program block that lets you reset **all parameters in all blocks** to factory default values, including Scale Interface values.

Scale Interface program block default values are given below. A complete list of Lynx default values is given in the Appendix of this manual.

Scale Interface Program Block	
Default	**FedEx Configured**
Market – USA	
Scale Type Type – Analog # Load Cells – 4 Cell #1 shift factor – 1.000000 Cell #2 shift factor – 1.000000 Cell #3 shift factor – 1.000000 Cell #4 shift factor – 1.000000	
Calibration Unit – pounds (lb)	
Capacity – 100 lb	20,000
Increment Size – 0.01 lb	2
Linearity Correction – No	
Shift Adjust Zero counts – 74000 Mid weight – 100.000 Mid counts – 1040600 High weight – 100.000 High counts – 1040600	
Calibration No Defaults **Zero Adjustment** No Defaults **Span Adjustment** No Defaults	
Geo Value – 16	

To reset Scale Interface parameters to factory default values:

1. While in setup mode and with the Scale Interface program block prompt displayed, press SELECT to scroll to the Diagnostics and Maintenance program block.
2. Press ENTER to access the Diagnostics and Maintenance program block.
3. Press ENTER at the **Factry Rst** prompt.
4. At the **Sure?** prompt, select Y to confirm your intention to reset.
5. At the **Rst Cal?** prompt, select Y to reset all parameters including Scale Interface parameters. The terminal displays the message **Resetting** while the parameters are reset to factory values.

Resetting Scale Interface values resets all calibration values. You must recalibrate the system after a reset.

After values have been reset, the terminal goes through its power-up sequence and returns to normal operating mode. **You must recalibrate the system after a master reset**.

Updating Lynx Software

The Lynx terminal is designed to allow easy software installation and upgrade. Using the METTLER TOLEDO "Flashpro" installation program from a personal computer, you can easily load the latest version of Lynx software and burn it into the terminal's flash memory. Upgrade software will be available from Mettler Toledo as enhancements are made.

To extract Lynx software onto a personal computer:

1. Create a directory on the PC where the new files will be stored, then go to that directory. Use the DOS MD command if you need to create a new directory to hold the Lynx files, and the CD command to change directories.
2. Insert the diskette with the new software files into the floppy disk drive. The files on this diskette are compressed into a single file named LYNX_X.EXE where "X" represents the revision.
3. At the DOS prompt, type **A:LYNX_X** or **B:LYNX_X** depending on where you inserted the diskette, then press ENTER.

   The compressed files will automatically extract themselves from LYNX_X.EXE into the designated directory on the computer. The extracted files require approximately 1.3 MEG of storage space on the PC's hard drive.
4. Edit the FP.BAT file using the DOS text editor or another and verify the new software name and serial port are correct. The FP.BAT file resembles the following example. Edit only the -t and -com elements.

   Example:

   flashpro -tA145828R -b115.2 -com1 -pe -d7 -s1

   where:
   -t is followed by the file name to be saved such as A145828R.

   -b is the baud rate (in kbaud). The software is transferred at 115.2 kbaud. DO NOT CHANGE THIS PARAMETER.

   -com is the serial com port on the personal computer that will be used to transfer the new software to the Lynx terminal.

   -p is the parity. The parity is set to even. DO NOT CHANGE THIS PARAMETER.

-d is the number of data bits used. Data bits are set to seven. DO NOT CHANGE THIS PARAMETER.

-s is the number of stop bits used. Stop bits are set to one. DO NOT CHANGE THIS PARAMETER.

You are now ready to use the flashpro batch file (FP.BAT) to load the software into the Lynx's flash memory.

To load Lynx software:

1. Disconnect power to the Lynx terminal.
2. Open the Lynx terminal as described in Chapter 2. Turn Switch 1-3 ON.
3. Connect a bi-directional RS-232 cable from a personal computer to the Lynx terminal's COM1 serial port. Wire the cable as follows:

Lynx COM 1	9-pin COM	25-pin COM
TxD	2	3
RxD	3	2
Gnd	5	7

4. Carefully reinstall the front panel.
5. Apply power to the Lynx terminal and wait until the unit has completed its power-up sequence and displays the **Download** prompt.
6. With the cursor in the directory containing the Lynx program files, type FP at the DOS prompt, and press ENTER to execute the command.

   The computer monitor flashes the message **Wake Up** three times, then **Acknowledge** before a framed box scrolling a string of A's appears on the computer monitor indicating the installation has begun.

   The box will continue to scroll A's until the installation procedure is complete. This process will continue with brief pauses occasionally for about 5 to 7 minutes depending on your computer. If the box with A's does not appear, press ESCAPE on the computer and remove power from the terminal. Repeat steps 4 through 6.

   If the new software was downloaded successfully, the message FILE SUCCESSFULLY TRANSFERRED is displayed in the framed box on the computer monitor. The terminal then displays **SW1-3 ON?**

   During the power-up sequence, the storage locations for setup parameters and memory fields are checked. If any have been moved or added in the new version of software, the terminal responds with the following error messages:

   BRAM Bad
   EEPROM Bad

7. Press ENTER to acknowledge the messages. In this case, the terminal automatically resets the configuration data to factory defaults.
8. Disconnect power from the terminal, then open the unit and turn Switch 1-3 OFF.
9. Carefully close the terminal.

5 Parts

Chapter 5 provides diagrams and parts lists for the Air Cargo Caster Deck Container Scale and the Lynx terminal.

Caster Deck

Figure 5-1 shows the Air Cargo Caster Deck Container Scale platform, model ACWS0001, 8 ft-11 in. x 10 ft-11 in. x 20 in. deck, 20K lb capacity.

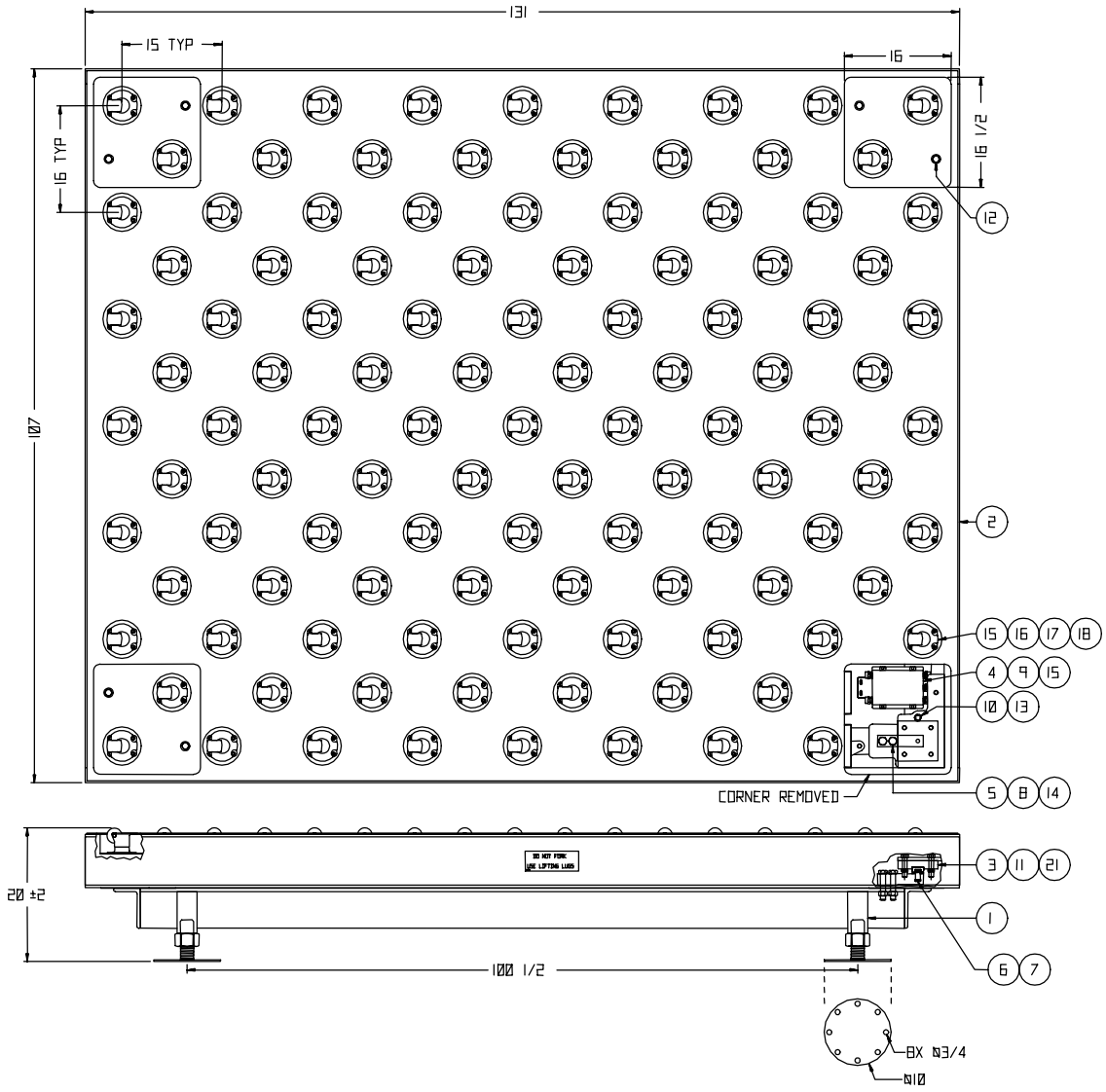


Figure 5-1: Caster Deck Container Scale Platform

Parts List—Model ACWS0001				
Item	**Qty**	**Part Number**	**Description**	**FedEx Part No.**
1	1	TB600580	Frame 20K, 8ft-11in. x 10ft-11in. x 20in.	
2	1	TB600582	Platform 20K, 8ft-11in. x 10ft-11in.	
3	4	TN600552	Weigh Module, Top Plate	
4	1	TB100395	Junction Box, Analog	
5	4	TB600364-1	Load Cell, 10K	
6	8	MZ0909000050	O-Ring	
7	4	TN201975	Rocker Pin	
8	8	MZ0901010385	Screw 3/4 – 10x3.5, GR. 8	
9	4	MZ0901010247	Screw 5/16 – 18x1.00, HHCS	
10	4	MZ0901010486	Screw 5/8 – 11x6.00, Sq-Hd	
11	16	MZ0901010373	Screw 5/8 – 11x2.50, HHCS	
12	8	MZ0901010487	Screw 5/8 – 11x1.00, HHCS	
13	4	MZ0901020024	Nut 5/8-11, Hex	
14	8	MZ0901020074	Nut 3/4-10, Hex	
15	448	MZ0901020034	Nut 5/16-18, Hex	
16	444	MZ0901030055	Washer 5/16, Plain	
17	444	MZ0901030065	Washer 5/16, Lock	
18	111	-	Caster Assembly	
19	4	TN800623	Label (Not Shown)	
20	4	TN800624	Tag (Not Shown)	

Lynx Terminal

Figure 5-2 shows the parts assembly drawing for the Lynx terminal.

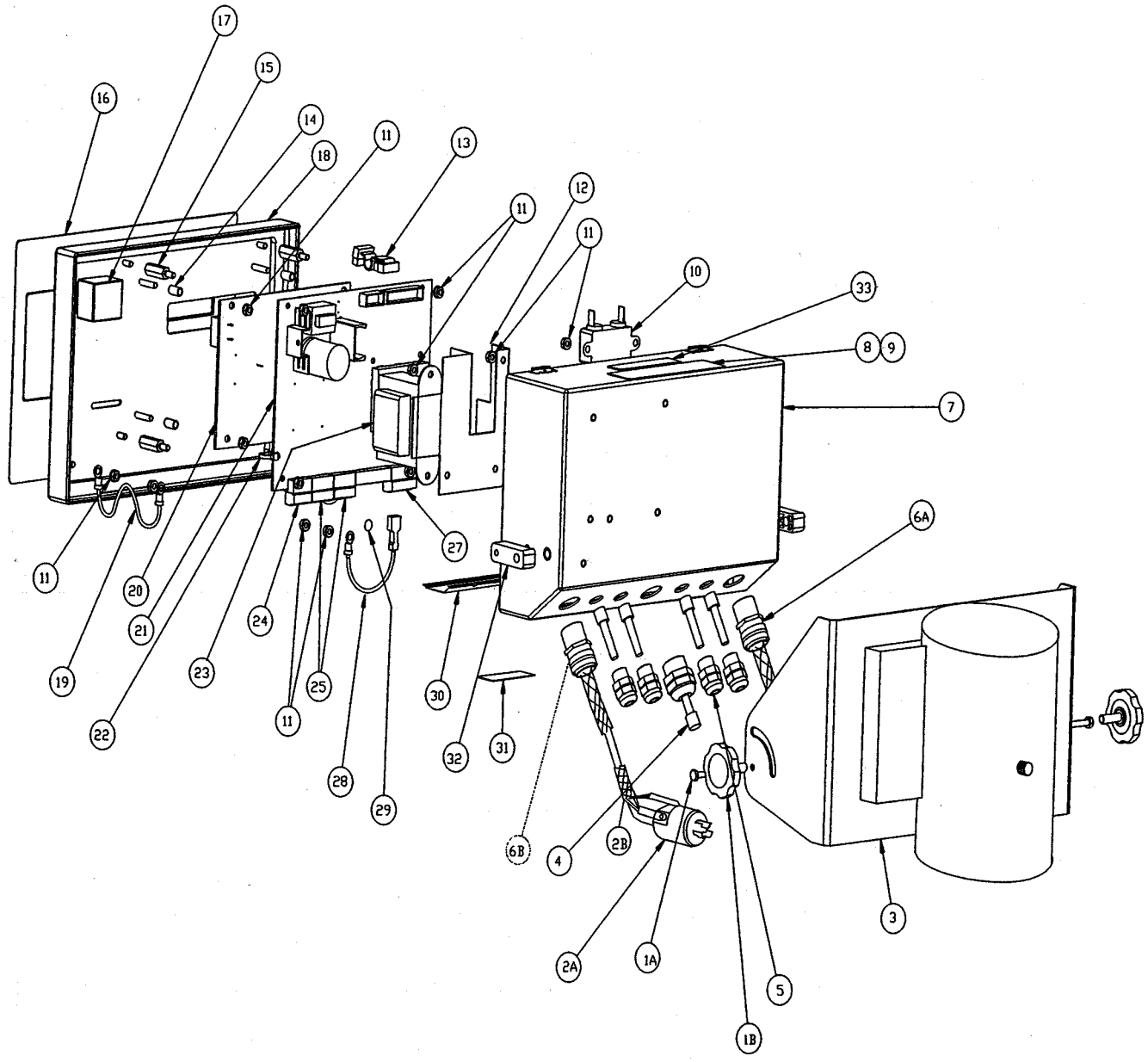


Figure 5-2: Lynx Terminal

Lynx Parts List				
Item	**Qty**	**Part Number**	**Description**	**FedEx Part No.**
1A 1B	2 2	R05280 00A 147346 00A	Screw, M4 x 20, HEX HD (SS) Knob Assembly, M6 x 20 SS	
2A 2B	1 1	152153 00A 152154 00A	Hubbel Twist Lock HBL-4720-C Hubbel Kellums I-Grip	
3	1	TB203342	Indicator Bracket	
4	5	144676 00A	Hole Plug 0.24 – 0.38	
5	4	129018 00A	Grip Bushing, 0.094 – 0.250	
6A 6B	2 2	152168 00A 152155 00A	Hubbel Kellums Deluxe Cord Grip 0.375 – 0.500 Hubbel Kellums Deluxe Cord Grip 0.500 – 0.625	
7	1	B144657 00A	Enclosure Assembly	
8	1	148000 00A	Data Label	
9	1	148018 00A	Shield, Data Label	
10	1	145600 00A	Line Filter	
11	19	R05196 00A	Hex Nut, M4 Keps	
12	1	B144681 00A	Heat Sink	
13	1	145617 00A	Display Harness	
14	4	144659 00A	Spacer, M4 x 11MM, Round	
15	4	144661 00A	Standoff, M4 x 22MM, M-F	
16	1	E144683 00A	Keyboard Assembly	
17	1	145486 00A	Battery, 4.5V Alkaline	
18	1	144656 00A	Cover Assembly	
19	2	144675 00A	Tension Cable, 3 in.	
20	1	C142874 00A	PCB Assembly, VF A/N Display	
21	1	144796 00A	Controller PCB Assembly	
22	1	095915 00A	Cable Tie, small	
23	1	145623 00A 145624 00A	Transformer, 100/120 VAC Transformer, 220/240 VAC	
24	1	143749 00A	Terminal Plug, 5-Pos.	
25	2	141131 00A	Terminal Plug, 6-Pos.	
27	1	141132 00A	Terminal Plug, 7-Pos.	
28	1	145622 00A	Ground Wire Assembly	
29	1	145314 00A	Label, BSI Ground	
30	1	144679 00A	Label, Controller I/O	
31	1	126997 00A	Label, Power Warning	
32	2	147345 00A	Mounting Bracket Spacer	
33	1	D113971 00A	Label, FCC	
N/S	1	A144761 00A	Screwdriver	
N/S	1	136595 00A	Label Set, Capacity	
N/S	4	108397 00A	Foot, Stick-On	

6 Technical Data

Power Supply Requirements

Load cell power supply is provided by a METTLER TOLEDO Lynx terminal. Maximum excitation is 15 VDC.

Scale Specifications

The Caster Deck Container Scale conforms to the following specifications.

Load Cell:

Load Cell Rated Capacity	10,000 lb
Full Scale Output	2.0 ± 0.002 (mV/V)
Excitation Voltage	15 V
Zero Balance	± 0.02 (mV/V)
Input Resistance	385 Ohms
Output Resistance	350 ± 2 Ohms
Non-Repeatability	0.01% of R.C.
Temp. Compensated	+15° to +104°F
Safe Operating Temp. Range	+5° to +180°F
Safe Storage Temp.	+5° to +180°F
Max. Safe Overload	100% of R.C.
Ultimate Overload	300% of R.C.
Max. Safe Side Load	100% of R.C.
Creep (in 20 min.)	0.03% of R.C.

Bolt Torque: Load cells: 250 ft-lb

Overload Gap: 0.015 inch

Bumper Gap: 1/16 inch typical

Lynx Specifications

The Lynx terminal conforms to the following specifications:

Power Requirements

The Lynx terminal can operate from 85 to 132 VAC, with a line frequency of 49 to 63 Hz.

The Lynx terminal requires a true earth ground for reliable operation. To test the quality of the earth ground, measure the AC voltage between neutral and ground at the AC outlet. If the neutral to ground voltage is greater then 0.2 VAC, then the ground connection is inadequate and must be corrected before connecting the Lynx terminal.

The power line for the Lynx terminal must not be shared with equipment such as motors, relays, or heaters that generate line noise. If adverse power conditions exist, a dedicated power circuit or power line conditioner may be required.

Display and Keyboard

The front panel is fabricated stainless steel, and when locked onto the rear enclosure, is sealed to NEMA 4X (IP65) specifications.

The display is a 10-character, 5x7 dot matrix, 0.44 inch (11.2 mm) vacuum fluorescent alphanumeric display.

The keyboard consists of a flat membrane switch covered with a domed polyester overlay.

The Lynx terminal has a one-piece overlay/lens assembly that seals the keyboard and lens areas to NEMA 4X (IP65) specifications.

Temperature and Humidity

The Lynx terminal operates over a temperature range from 14°F to 113°F (-10°C to 45°C) at 10% to 95% humidity, noncondensing.

Storage temperature range is from -40°F to 140°F (-40°C to 60°C) at 10% to 95% humidity, noncondensing.

Environmental Protection

The Lynx terminal's enclosure meets NEMA 4X (IP65) requirements for a dust-tight and splash-proof enclosure.

Conducted and Radiated Emissions (RFI)

The Lynx terminal meets or exceeds FCC docket 80-284 for conducted and radiated emissions requirements as a Class A digital device.

Radio Frequency Interference Susceptibility

The Lynx terminal meets USA, Canadian, and EC requirements for RFI susceptibility as listed in the following table with a maximum of one display increment of change when calibrated for recommended builds.

RFI Susceptibility			
	U.S.A.	Canadian	EC
Radio Frequency Interference	Field Strength	Transmitted Power at Specified Distance	Field Strength
27 MHz	3 volts/meter	4 Watts at 2 meters	N/A
144 MHz	N/A	N/A	N/A
169 MHz	3 volts/meter	N/A	N/A
464 MHz	3 volts/meter	4 Watts at 2 meters	N/A
27-1000 MHz	N/A	N/A	3 volts/meter

AC Power Line Voltage Variation

The Lynx terminal meets NIST H-44, Canadian Gazette Part 1, and OIML-SP7/SP2 line voltage variation specifications as listed in the following table:

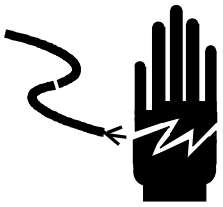
AC Power Line Voltages						
Specification	AC Line Voltage			Line Frequency in Hz		
Line Voltage Variation	Minimum	Nominal	Maximum	Minimum	Nominal	Maximum
NIST H-44	100	120	130	59.5	60	60.5
Canadian	108	120	132	58.8	60	61.2
OIML-SP7/SP2	102 187 204	120 220 240	132 242 264	58.8 49.0 49.0	60 50 50	61.2 51 51

7 Troubleshooting

The Caster Deck Container Scale and Lynx terminal are designed to be virtually error free and reliable. If operational difficulties occur, obtain as much information about the problem as possible. Do not attempt to repair the scale or terminal before you have determined the source of the problem.

If an error occurs, first evaluate the following:

- Determine if the problem is in the scale platform or the terminal.
- Determine if the problem is constant or intermittent. Malfunctions can be caused by mechanical or electrical influences. Be patient and use sound logic when troubleshooting.
- Examine the physical location of the equipment, checking for the presence of water, corrosive materials, unlevel floors, high vibrations, air currents, and/or physical damage to the scale platform.
- Check the instrument cable for damage and check all connections for any loose/incorrect wiring.



⚠ WARNING

PERMIT ONLY QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

⚠ CAUTION

BEFORE CONNECTING OR DISCONNECTING ANY INTERNAL ELECTRONIC COMPONENTS OR INTERCONNECTING WIRING BETWEEN ELECTRONIC EQUIPMENT, ALWAYS REMOVE POWER AND WAIT AT LEAST THIRTY (30) SECONDS. FAILURE TO OBSERVE THESE PRECAUTIONS COULD RESULT IN BODILY HARM OR DAMAGE TO OR DESTRUCTION OF THE EQUIPMENT.

Troubleshooting the Caster Deck

Verify that the system problem lies with the scale platform. Using a 10-step analog simulator (PN 100865 00A) or an analog variable simulator (PN 082451 020):

1. **With power removed**, wire the simulator to the load cell connection on the Lynx terminal.
2. For 10-step simulators, install a jumper between +Excitation and +Sense. Also install a jumper between –Excitation and –Sense.
3. Apply power and monitor the weight display. If the terminal operates normally, the problem probably lies in the load cell or scale base. If the terminal reads in error, the malfunction is likely in the terminal. Refer to the Lynx troubleshooting information given later in this chapter.

Check Wiring

1. Remove power from the system, then remove the cover from the junction box.
2. Check the interior for moisture or any foreign material.
3. Ensure that all wiring connections are tight and that no insulation material is touching the terminal contacts.
4. Check all cable connections for correct wiring using the following wiring color code:

		Analog Junction Box	
Load Cell Wiring		**Instrument Cable Wiring**	
Function	**Color**	**Function**	**Color**
+ Excitation	Green	+ Excitation	White
		+ Sense	Yellow
+ Signal	White	+ Signal	Green
Shield	Yellow	Shield	Orange
- Signal	Red	- Signal	Black
		- Sense	Red
- Excitation	Black	- Excitation	Blue
		Based on METTLER TOLEDO cable number 510620370	

Check Load Cells

1. Check each load cell for proper bridge resistances.

Measuring Points	Resistance
Any lead to shield or ground	Infinity
+ Exc (Green) to – Exc (Black)	385 Ohm minimum
+ Sig (White) to – Sig (Red)	348 to 352 Ohms

2. If bridge resistance is within specification, perform a "shorted signal" symmetry check.

Remove signal leads from terminals to measure output.

   - Short the signal leads together and place one multimeter lead on the shorted signals and one lead on the +Excitation wire. Note the resistance value indicated.
   - Remove the lead from the +Excitation wire and place it on the -Excitation wire. Both resistance values should be equal.

3. If the cells pass the above test, reapply power to the scale platform. Confirm that proper excitation voltage is reaching the load cells by placing multimeter leads on the excitation positions of each load cell terminal. Excitation voltage should be 15 VDC.
4. If proper excitation voltage is reaching the load cells, check the output signal from each cell. If one cell has a particularly high or low dead-load output, it is suspect. The maximum output possible from any cell is 30 mV at 15 VDC excitation and loaded to gross capacity.
5. If any cell has an unusual signal, remove all load from that cell by raising the platform using the overload stop/jacking bolt (see Figure 7-1).

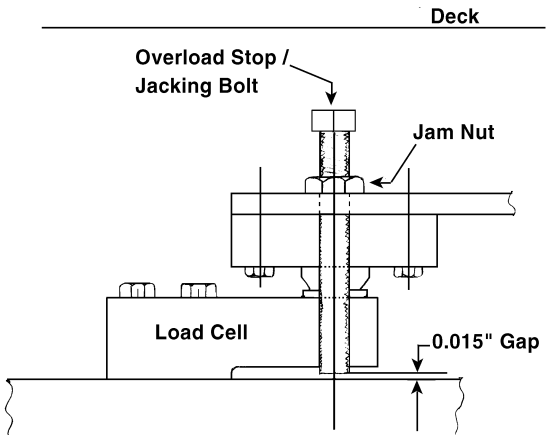


Figure 7-1: Overload Stop/Jacking Bolt

   - With the power still on, measure the output from the suspect load cell. The "no load" zero output should be + 1.5% of the full scale output. For example, if the excitation voltage is 15 VDC then the full scale output is 30 mV. Therefore, the no load zero output should be within + 0.45 mV.

- If the load cell is out of specification, replace it.

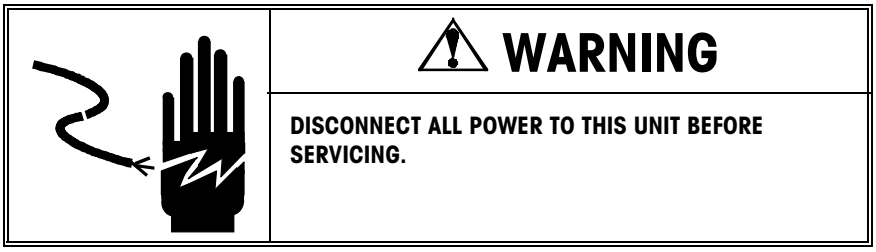
6. If a load cell fails any of the above tests, replace it. Be sure to regap the overload stop bolt to 0.015 inch after servicing the load cell.

Check Mechanical Components

- Check the overload stops for proper adjustment (0.015 inch gap) (see Figure 7-1).
- Check the bumper frame-to-platform gap clearance. This clearance should be 1/16 inch typical.
- Verify that the support feet anchor bolts are tight.

Load Cell Replacement Procedure

1. Remove all loads from the platform.
2. Remove all power.



3. Remove the corner access plates for entry to the junction box and suspect load cell.
4. Disconnect the load cell cable from the junction box terminal and remove the cable from the junction box.
5. Unlock the jacking bolt (also used as overload stop bolt) and turn clockwise to raise the platform corner and remove load from the suspect load cell (see Figure 5-1).
6. Loosen the load cell mounting bolts. Be sure to catch the hex nuts when they disengage the load cell bolts.
7. Tip the load cell nose down to disengage the rocker load pin and remove the load cell.
8. Insert the rocker load pin into the new load cell and secure with load cell bolts. Torque the bolts to 250 ft-lb.

9. Lower the platform onto the load cell with the jacking bolt. Reset the overload stop gap to 0.015 inch and lock into position with the jam nut.
10. Connect the new load cell to the junction box PCB.
11. Reapply power to verify load cell operation.
12. Recheck calibration with a known test weight.

Troubleshooting the Lynx Terminal

If system malfunctions are caused by the Lynx terminal, use the following information to guide troubleshooting activities.

Tools and Supplies

You should keep the following items on hand for service and maintenance of the Lynx terminal. A full set of common hand tools may also be required.

- Volt-Ohm meter
- Analog load cell simulator
- Soft, lint-free cleaning cloth
- Anti-static bags (5 inches x 8 inches) for PCBs (PN 140063 00A)
- Anti-static wrist strap and mat
- Screwdriver (PN 144761 00A)
- Flat and Phillips head screwdrivers
- Allen wrench (2 mm) (PN 144118 00A)

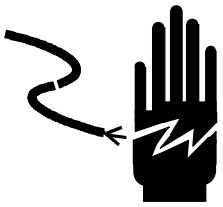
Error Codes and Actions

Error Message	Description	Possible Cause	Remedy
"Shift Abort"	The Lynx is unable to complete the shift adjustment	Incorrect programming or wiring. Defective cell or J-box. Broken wire in cable.	Verify wiring and programming and press clear and try again. Replace defective part(s).
"CAL Abort"	The Lynx is unable to complete calibration	Incorrect wiring, broken wire, defective cell or J-box PCB. Incorrect build. Bad Controller PCB.	Calibrate on simulator. If problem persists, replace Controller PCB. Check build and wiring.
"Zero Abort"	The Lynx is unable to complete Zero Adj	Incorrect wiring, broken wire, defective cell or J-box PCB. Incorrect build, outside capture parameters, bad Lynx Controller PCB.	Check build and wiring. Calibrate on simulator. If problem persists, replace Controller PCB.
"Span Abort"	The Lynx is unable to complete Span Adj	Incorrect wiring, broken wire, defective cell or J-box. Incorrect build, outside capture parameters, load not applied to scale. Bad Lynx Controller PCB.	Check build and wiring. Calibrate on simulator. If problem persists, replace Controller PCB.
"COMM ERROR"	Communication port is experiencing a problem	Parameters selected in communicating unit do not match. Controller PCB defective.	Perform diagnostics tests. Test port for proper communication. Replace Controller PCB.
"EEPROM BAD"	Internal error, EEPROM corrupted	Static, inductive noise, or poor power damaged memory. Possible bad Controller PCB.	Reset to factory defaults. Replace Controller PCB.
"BRAM BAD"	Memory has been corrupted	New software has been loaded. Possible static or power problems. Low battery. Bad Controller PCB.	Reset to factory defaults. Check battery. Replace Controller PCB.
"RAM BAD"	Memory has been corrupted	Possible static or power problems. Low battery. Bad Controller PCB.	Reset to factory defaults. Check battery. Replace Controller PCB.
"ILLEGAL SCALE TYPE"	Program error	Service required.	Power down and back up. If error persists, fax printed setup parameters to Technical Support at 1-800-786-0040. Replace the Controller PCB.
"ILLEGAL SCALE MODE"	Program error	Service required.	Power down and back up. If error persists, fax printed setup parameters to Technical Support at 1-800-786-0040. Replace the Controller PCB.
"MEM ALLOC ERROR"	Program error	Service required.	Power down and back up. If error persists, fax printed setup parameters to Technical Support at 1-800-786-0040. Replace the Controller PCB.

"JAGMSG ALLOC ERROR"	Program error	Service required.	Power down and back up. If error persists, fax printed setup parameters to Technical Support at 1-800-786-0040. Replace the Controller PCB.
"ILLEGAL LOAD CELLS"	The Lynx is unable to accept calibration	Number of load cells is outside the legal limit.	Correct the number of load cells programmed or check programming.
"NO CONN"	No "demand" printer connection has been made	No "demand" printer connection has been made.	Select COM port and configure connection.
"TplCorrupt"	Template has been corrupted	A field has been stored incorrectly.	Clear and reenter template. Reset to factory defaults. Replace Controller PCB.
"TPL FULL!"	Template is full	Template has exceeded the maximum 800 format characters.	Delete unnecessary characters or fields.
"BAD ENTRY!"	Occurs during the editing of a template	Incorrect field code has been entered.	Re-enter field.
"OVER RANGE"	Scale is above capacity	Too much weight on scale. Bad wiring. Defective load cell. Problem with scale base.	Check scale. Install load cell simulator on Lynx.
"UNDER ZERO"	Scale is below zero	Not enough weight on scale. Bad wiring. Defective load cell. Problem with scale base.	Check scale. Install load cell simulator on Lynx.

Testing Operational Voltages

To test voltages on the PCB, you must first open the Lynx terminal and access the Controller PCB.



⚠ WARNING

PERMIT ONLY QUALIFIED PERSONNEL TO SERVICE THIS EQUIPMENT. EXERCISE CARE WHEN MAKING CHECKS, TESTS, AND ADJUSTMENTS THAT MUST BE MADE WITH POWER ON. FAILING TO OBSERVE THESE PRECAUTIONS CAN RESULT IN BODILY HARM.

To open the Lynx terminal:

1. **Remove power!**
2. Insert the tip of a flat head screwdriver into one of the two slots located at the bottom of the enclosure.
3. Push gently until the spring clip is released.
4. Repeat step 2 on the second slot.
5. Gently lift the front panel away. The front panel is connected by two cables to the unit. Let the front panel hinge on these two cables while you test voltages.
6. Reapply power.

Input Voltage Test

1. Unplug the transformer harness from J10 on the Controller PCB.
2. Using the Volt-Ohm meter, check the AC voltage between the two pins. Input voltage should be 28 VAC ± 8 Volts.

Regulated DC Voltage Test

The table below indicates the points to test the regulated DC voltages. Figure 7-2 illustrates the test points.

Regulated DC Voltage Test Points		
Voltage	**Measuring Point**	**Measurement**
19 VDC	Between chassis ground and the positive side D11	Between ± 2.0 VDC
8 VDC	Between chassis ground and the positive side D13	Between ± 2.0 VDC
5 VDC	Between chassis ground and the positive side D10	Between ± 0.25 VDC
+15 VDC	Between chassis ground and U25, pin 1	Between ± 0.25 VDC

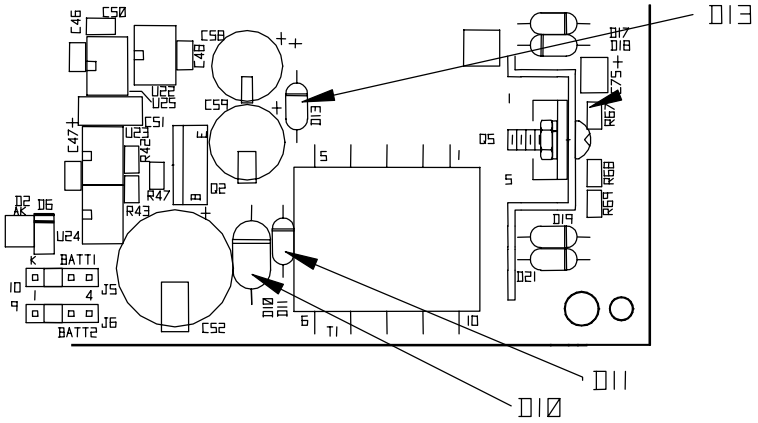


Figure 7-2: Regulated Voltages (on Controller PCB)

The 19 VDC supply provides voltage to the current loop. It is also provides voltage for analog excitation.

The 8 VDC supply provides voltage to the I/O port.

The 5 VDC supply provides voltage for all logic control points.

The ± 15 VDC supply provides voltage to the analog load cell. This voltage can also be measured between J1, pin 1 and J1, pin 7.

Battery Voltage Test

Battery voltage is tested at the battery connector (Batt 1) on the Controller PCB.

Use the Volt-Ohm meter to measure voltage between Pin 1 and Pin 4. This measurement should be approximately 4.5 VDC.

If setup parameters are changing uncontrollably or if programming is lost, check the battery voltage. Replace the battery assembly if the measured voltage is below 3.75 VDC.

Display Voltage Test

The table below indicates the points on J4 of the Controller PCB where display voltage should be tested. Figure 7-3 illustrates the test points.

Display Voltage Test Points	
Test Point	**Voltage Measurement**
Between pin 1 and pin 3 of J4	5 VDC
Between pin 1 and pin 8 of J4	5 VDC

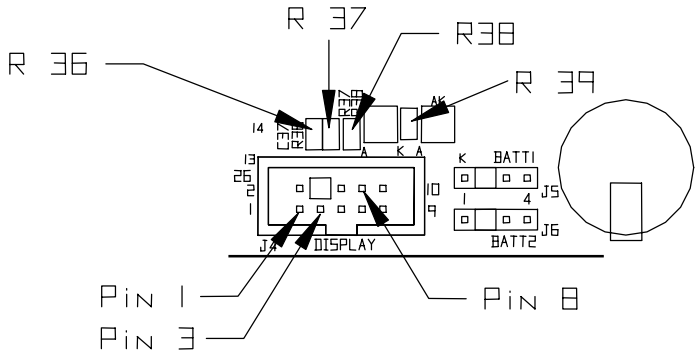


Figure 7-3: Display Voltage Test Points

You can also measure 5 VDC across R36, R37, R38, and R39.

If the display is not functioning and any of these voltages are not present, replace the Controller PCB.

8 FedEx Caster Deck Container Scale Warranty

At delivery, the FedEx Caster Deck Container Scale System shall in all respects conform to the Specification and the Equipment shall be free from defects in design, material, and workmanship for a period of the earlier to occur of one year from installation of the Equipment or eighteen (18) months from shipment of the Equipment to FedEx. In addition, a parts-only warranty will be in effect for a period of the earlier to occur of thirty-six (36) months from the original installation of the Equipment or forty-two (42) months from shipment of the Equipment to FedEx.

Fill out the Equipment information below for reference in the event of a warranty claim.

Warranty Registration
Delivery Date: _____ Inspected By: _____
Installation Date: _____
Caster Deck Model Number: _____
Caster Deck Serial Number: _____
Lynx Indicator Model Number: _____
Lynx Indicator Serial Number: _____

9 Appendix: Lynx Program Block Default Values

The following tables give Lynx program block default values. For reference, use the FedEx Configured column to record any changes you make to the default parameter configurations.

Scale Interface Program Block			
Default	**FedEx Configured**	**Default**	**FedEx Configured**
Market		**Shift Adjustment**	
USA		Zero counts – 74000	
Scale Type		Mid weight – 100.000	
Type – Analog		Mid counts – 1040600	
Number of load cells – 4		High weight – 100.000	
Cell #1 shift factor – 1.000000		High counts – 1040600	
Cell #2 shift factor – 1.000000			
Cell #3 shift factor – 1.000000			
Cell #4 shift factor – 1.000000			
Calibration Unit		**Calibration**	
Pounds (lb)		No defaults	
Capacity		**Zero Adjustment**	
100.00	20,000	No defaults	
Increment Size		**Span Adjustment**	
0.01	2	No defaults	
Linearity Correction		**Geo Value**	
No		16	

Application Environment Program Block			
Default	**FedEx Configured**	**Default**	**FedEx Configured**
Character Set		**Zero Operations**	
USA		Power-up Zero	
Time/Date Format		Positive Range – 0%	
Time Separator – :		Negative Range – 0%	
Time Format – None		Pushbutton Zero	
Date Separator – (-)		Positive Range – 2%	
Date Format – None		Negative Range – 2%	
Weight Units		Under Zero Blanking – 5 divisions	
Enable Second Units – No		Auto Zero Maintenance	
Second Display Units – kg		Range – 0.5 divisions	
Custom Units Factor – 1.0		AZM Enabled in Net Mode – N	
Custom Units Name – ***		Zero Indication – Gross	
Power-up Operations		**Stability Detection**	
Power-up Timer – 0 min.		Stability Range – 1.0 divisions	
Tare Operations		Stability Interval – 0.4 seconds	
Enable Tare – Yes		**Vibration Rejection**	
Tare Interlock – No		Low Pass Filter	
Pushbutton Tare – Yes		Frequency – 2.0 Hz	
Auto Tare – No		Poles – 8	
Tare Threshold – 5		Notch Filter Frequency – 30.0 Hz	
Reset Threshold – 0.5		Noise Filter – No	
Check Motion – No			
Auto Clear Tare – No			
After print – No			
Threshold – 0.5			

Serial I/O Program Block			
Default	**FedEx Configured**	**Default**	**FedEx Configured**
Configure Port		Flow Control – None	
COM 1		Checksum – No	
Port Parameters		Output Mode – None	
Baud Rate – 9600		Input Mode – None	
Data Bits – 7		COM3	
Stop Bits – 1		Port Parameters	
Parity – Even		Baud Rate – 9600	
Flow Control – None		Data Bits – 7	
Checksum – No		Stop Bits – 2	
Output Mode – Demand		Parity – Even	
Net Sign Correction – No		Flow Control – None	
Decimal Point/Comma – DP		Checksum – No	
Format – /ptp01		Output Mode – None	
Input Mode – Command		Input Mode – None	
COM2		**Printer Control**	
Port Parameters		Minimum Print – No	
Baud Rate – 9600		Print Interlock – No	
Data Bits – 7		Auto Print – No	
Stop Bits – 2		Print Threshold – 5	
Parity – Even		Reset Threshold – 0.5	
		Check Motion – No	

Configure Template Program Block

Template 1

Literal #1		
Literal #2		
Current Time	Current Date	CN
Gross Weight:		XX.XX lb
Tare Weight:		XX.XX lb
Net Weight:		XX.XX lb

Template 2

Literal #1		
Literal #2		
Current Time	Current Date	CN
Prompt #1		Response #1
Prompt #2		Response #2
Prompt #3		Response #3
Gross Weight:		XX.XX lb
Tare Weight:		XX.XX lb
Net Weight:		XX.XX lb

Accumulation Totals Report Template

Literal String 9	
Literal String 10	
CURRENT TIME	CURRENT DATE
TRANSACTIONS	XXXXXXXX (units)
SUBTOTAL	XXXXXXXX (units)
TOTAL	XXXXXXXX (units)

ID/Tare Records Report Template (Temporary Registers)

TEMPORARY REGISTERS

TIME DATE

ID	RECORD ID	DESCRIPTION	WEIGHT (unit)
21	XXXXXX	XXX-XXX	XXXXX
22	XXXXXX	XXX-XXX	XXXXX
23	XXXXXX	XXX-XXX	XXXXX

ID/Tare Records Report Template (Permanent Registers)

PERMANENT REGISTERS

TIME DATE

ID	RECORD ID	DESCRIPTION	TARE (unit)	TOTAL (unit)	TRANS
21	XXXXXX	XXX-XXX	XXXXX	XXXXX	X
22	XXXXXX	XXX-XXX	XXXXX	XXXXX	X
23	XXXXXX	XXX-XXX	XXXXX	XXXXX	X

Discrete I/O Program Block			
Default	**FedEx Configured**	**Default**	**FedEx Configured**
Discrete Inputs		**Discrete Outputs**	
Input Point 1 – Tare		Output Points 1 through 5 – None	
Input Point 2 – Clear			
Input Point 3 – Print			

Memory Program Block			
Default	**FedEx Configured**	**Default**	**FedEx Configured**
Configure Literals		**Configure Promts**	
Literal #1 – The New Lynx Terminal		Prompt #1 – OPERATOR?	
Literal #2 – From Mettler Toledo		Prompt #2 – PART NO.?	
Literals #3 through 10 – Blank		Prompt #3 – LOCATION	
Literal #11 – GROSS		Prompts #4 through 10 – Blank	
Literal #12 – TARE		**Configure CN**	
Literal #13 – NET		Enable CN – Yes	
Literal #14 – TIME		Start At – 0	
Literal #15 – DATE		Enable Reset – Yes	
Literal #16 – CNV. FACTOR		Enable Preset – Yes	
Literal #17 – NUMBER			
Literal #18 – WEIGHT			
Literal #19 – SUBTOTAL			
Literal #20 – TOTAL			

Operational Program Block			
Default	**FedEx Configured**	**Default**	**FedEx Configured**
Options		Report Configuration	
Analog Output		Print ID – Yes	
Data Source – Displayed Wt.		Print Record ID – Yes	
Zero Weight – 0.00		Print Description – No	
Full Scale Weight – 100.00		Print Tare – Yes	
BCD Output		Print Accumulator – Yes	
Data Source – Displayed Wt.		Print Transaction No. – Yes	
Accumulation		**Passwords**	
Source – None		Password – 1234	
Auto Clear Total – No		Protect Clear Totals – No	
Enable Subtotal – Yes		Protect Clear Subtotals – No	
Auto Clear Subtotal – No		Protect Permanent Tares – No	
Convert Weight Units – Yes		Protect All IDs – No	
Report Configuration		Protect Single IDs – No	
Print Literal #9 – Yes		Protect Open IDs – No	
Print Literal #10 – Yes		Protect ID Totals/Subtotals – No	
Print Time – Yes		Protect Setpoint Entry – No	
Print Date – Yes		**Dynamic Weighing**	
Print CN – Yes		Enable Dynamic – No	
Print Subtotal – Yes		Time Interval – 5.0 seconds	
ID/Tare Accumulation		Auto Print – No	
Enable ID/Tare – Yes			
Manual Entry – Yes			
Auto Clear – No			
Auto Assign Quick ID – Yes			
Inbound Auto Print – No			
Outbound Auto Print – Yes			
Prompt for Description – None			
Execute Prompt List – None			

Diagnostics and Maintenance Program Block			
Default	**FedEx Configured**	**Default**	**FedEx Configured**
Memory Test – No defaults		Serial Test – No defaults	
Display Test – No defaults		Discrete I/O Test – No defaults	
Keyboard Test – No defaults		Print Setup – No defaults	
Scale Test – No defaults			

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Publication Part Number: A15348300A **Publication Date:** 8/00

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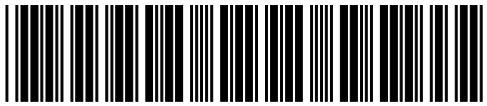

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