



**Installation Manual**

# **Ultegra Junior™ Bench Scale**

## **USB Interface**





## Amendment Record

# **Ultegra Junior Bench Scale – USB Interface**

## **Document 51119**

Manufactured by Fairbanks Scales Inc.

821 Locust St.

Kansas City, Missouri 64106

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## Disclaimer

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# Section 1: General Information

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## 1.1. Introduction

The Ultegra Junior Parcel / Shipping scale is a fully electronic, low profile scale that is designed for shipping and general industrial weighing applications.

- General weighing, non-washdown environments
- Pound and kilogram annunciators
- USB Interface to computers
- ROHS Compliant

## 1.2 Specifications

Feature	Description
Display	4-digit, LCD, 0.5" tall
Capacity	70 lbs / 32 kg
Division Size	0.05 lbs / 0.02 kg
Load Cell	1 – 350 Ohm
Power Requirement	117 VAC, Wall Transformer – Output 9 VDC, 20mA (min)
Dimensions	11" x 11" x 1.5"
Interfaces	USB for computer (HID-10 protocol)
Other	RJ-45 for remote display
Units	Pounds and Kilograms
Approvals	ROHS compliant

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## Section 2: Service Policy Information

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### 2.1. General Service Policy

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



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

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

## W A R N I N G !

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

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

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

## 2.2. Conferring with Our Client

- The technician must be prepared to recommend the arrangement of components which provides the most efficient layout, utilizing the equipment to the best possible advantage.
- Explain and review the warranty policy with the customer.

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

- All electrical assemblies must be returned intact for replacement credit using the standard procedures.
- At the time of installation, all electronic and mechanical adjustments are considered to be part of the installation, and are included in the installation charge(s).
- The AC receptacle/outlet shall be located near the Indicator and easily accessible.
- Electrical connections other than those specified may not be performed.

### 2.2.1. Service technician's responsibilities

- All electronic and mechanical calibrations and/or adjustments required for making this equipment perform to accuracy and operational specifications are considered to be part of the installation.
  - They are included in the installation charge.
  - Only those charges which are incurred as a result of the equipment's inability to be adjusted or calibrated to performance specifications may be charged to warranty.
- The equipment consists of printed circuit assemblies which must be handled using ESD handling procedures, and must be replaced as units.
  - Replacement of individual components is not allowed.
  - The assemblies must be properly packaged in ESD protective material and returned intact for replacement credit per normal procedures.



### 2.2.2. Users' responsibility

- ✓ **Absolutely no physical, electrical or program modifications other than selection of standard options and accessories are to be made to this equipment.**

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## Section 3: Installation

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### 3.1. Prior to installation

1. Pre-Installation checklist
2. Powering up the scale
3. Computer interface
4. Weighing

#### 3.1.1. Pre-installation checklist

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

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



#### 3.1.2. Unpacking

Follow these guidelines when unpacking all equipment:

- Check in all components and accessories according to the customer's order.
- Remove all components from their packing material, checking against the invoice that they are accounted for and not damaged.
  - Advise the shipper immediately, if damage has occurred.
  - Order any parts necessary to replace those which have been damaged.
  - Keep the shipping container and packing material for future use.

#### ✓ **Check the packing list.**

- Collect all necessary installation manuals for the equipment and accessories.
- Open the equipment and perform an inspection, making certain that all hardware, electrical connections and printed circuit assemblies are secure.
- Do not reinstall the cover if the final installation is to be performed after the pre-installation checkout.



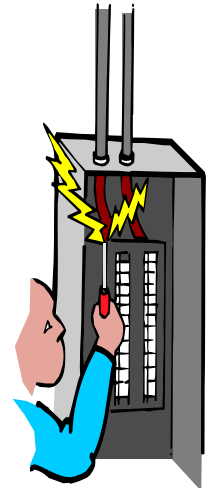
### 3.1.3. Finding the best location

Position the equipment with these points in mind:

- Intense direct sunlight can harm the display.
- Do not locate near magnetic material or equipment/Indicators which use magnets in their design.
- Avoid areas which have extreme variations in room temperatures. Temperatures outside the Indicator's specifications will affect the weighing accuracy of this product.
- Do not open the Indicator if there is any evidence of damage to it or any other scale component or supporting structure.
- When selecting the right location for the Indicator and the scale, keep the components completely away from all high water, such as low-lying areas that may flood, and away from any drain pipes.

### ★ ★ IMPORTANT INSTALLATION NOTICE ★ ★

- All load cells, load cell cables and interconnecting cables used to connect all scale components shall be located **a minimum distance of 36" inches away** from all single and multiple phase high energy circuits and electric current carrying conductors.
- This includes digital weight indicators, junction boxes, sectional controllers, and power supplies.
- This includes any peripheral devices, such as printers, remote displays, relay boxes, remote terminals, card readers, and auxiliary data entry devices.
- Also included is the scale components themselves, such as 120 volt AC, 240 volt AC, 480 volt AC and electric supply of higher voltage wiring runs and stations, AC power transformers, overhead or buried cables, electric distribution panels, electric motors, florescent and high intensity lighting which utilize ballast assemblies, electric heating equipment, traffic light wiring and power, and relay boxes.
- All scale components, including digital weight indicators and peripheral devices are not designed to operate on internal combustion engine driven electric generators and other similar equipment.



- ✓ **Electric arc welding can severely damage scale components such as digital weight indicators, junction boxes, sectional controllers, power supplies, and load cells.**

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**NOTE:** For additional information, please contact your **Fairbanks Scales Service Representative.**

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## 3.2. Powering up the scale

- The scale performs a warm-up cycle. During the warm-up cycle . . .
- The display scrolls from 1 to 9 in sequential order using all available digits while toggling between the available annunciators.
  - The program number will display briefly (PXXXXX), followed by the software revision.
  - Then “U.L.T.E.G.R.A J.U.N. I.O.R” scrolls across the display.
  - “-----” for a few seconds
  - “[ 0.00]”, Scale is ready to weigh
  - After approximately 30 seconds with no weight on the scale it will go into a sleep mode. The display will continuously scroll “U.L.T.E.G.R.A J.U.N. I.O.R”. Simply applying any weight to the platform will wake-up the scale.

## 3.3. Computer interface

### 3.3.1 Connections:

The USB Type A port is a hard-wired connection inside the scale. Connect the other end of the USB cable to an unused USB port on your computer. Use the configuration procedure supplied with your freight provider’s computer software.

### 3.3.2 Computer interface driver

The USB port will only function with a computer running Windows 2000 or higher operating system. When the scale’s USB cable is connected to the computer’s USB port, the computer will prompt “a device has been found” and it will automatically install the driver. Check with your software manufacturer or freight provider for compatible computer software.

### 3.3.3 USB data output

The Ultegra Junior uses the HID-10 USB protocol.

## 3.4. Weighing

With the platform empty, press the [ZERO] key.  
The display will indicate zero.



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### Note:

*The “C” to the left of the “0.00” indicates true center of zero.*

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Check that the correct units are indicated; press the **[UNITS]** key to change to "lb" or "kg".

Place the item to be weighed centered on the platform.

Read the Gross weight from the display.



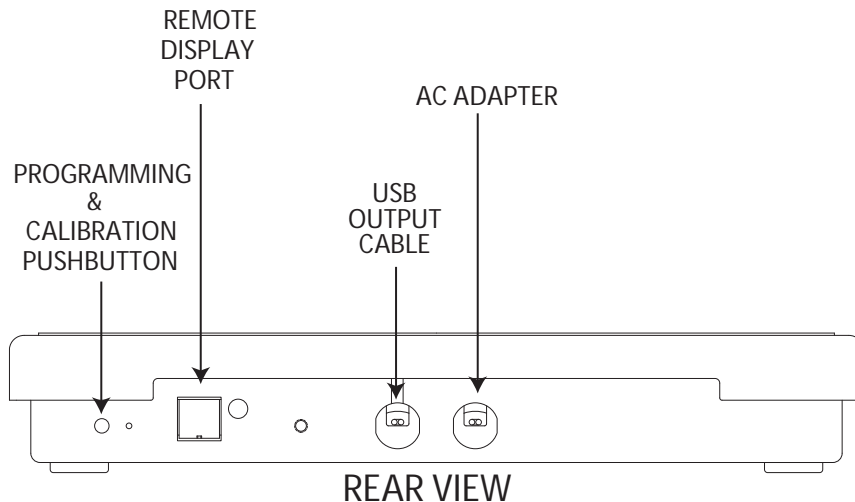
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## Section 4: Programming Configuration

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### 4.1. Gaining Access to the program mode:

There is a pushbutton installed on the internal printed circuit board assembly. Press the CAL button, S1 on the PCB, accessed through hole in back.



### 4.2. Keys in Programming/Calibration Mode

Each program step has more than one choice. The [UNITS] key will toggle the displayed value, the [ZERO] key will accept the current displayed value, and move to the next step.

### 4.3. Programming Steps

- 4.3.1. **First program step: Zero range** -- The display will show USA or CAN.
- The zero range is set at 2% or 1.4 lbs when programmed for Canadian use
  - The zero range is set at 100% or 70 lbs when programmed for USA use

Press the [UNITS] key to change, [ZERO] key to accept.

- 4.3.2. **Second program step: Active Units** -- Diamonds on the bottom of the display will point to the currently enabled units. Selections available are lb only, kg only, or lb/kg selectable.

Press the [UNITS] key to change, [ZERO] key to accept.



4.3.3. Third program step: Weighing Mode: Display will show rAngE or 2000d.

2000d will set the weighing mode to 70 lb capacity by 0.05 lb / 31.75 kg by 0.01 kg.

rAngE will set the weighing mode to automatically change its increment size as follows:

Scale will weigh from 0 lb to 28 lb by 0.02 lb increment (0-14 kg by 0.01 kg)

Scale will weigh from 28 lb to 70 lb by 0.05 lb increment (14 kg to 31.75 kg by 0.02 kg)

Press the [UNITS] key to change, [ZERO] key to accept.

4.3.4. Fourth program step: Output mode: The display will show COnt or POLLEd.

COnt will establish a continuous output stream to the computer.

POLLEd will establish a demand output to the computer.

Press the [UNITS] key to change, [ZERO] key to accept.

**NOTE:** The following steps will calibrate the scale. If you do not wish to alter the calibration, press the CAL button to leave the programming area.

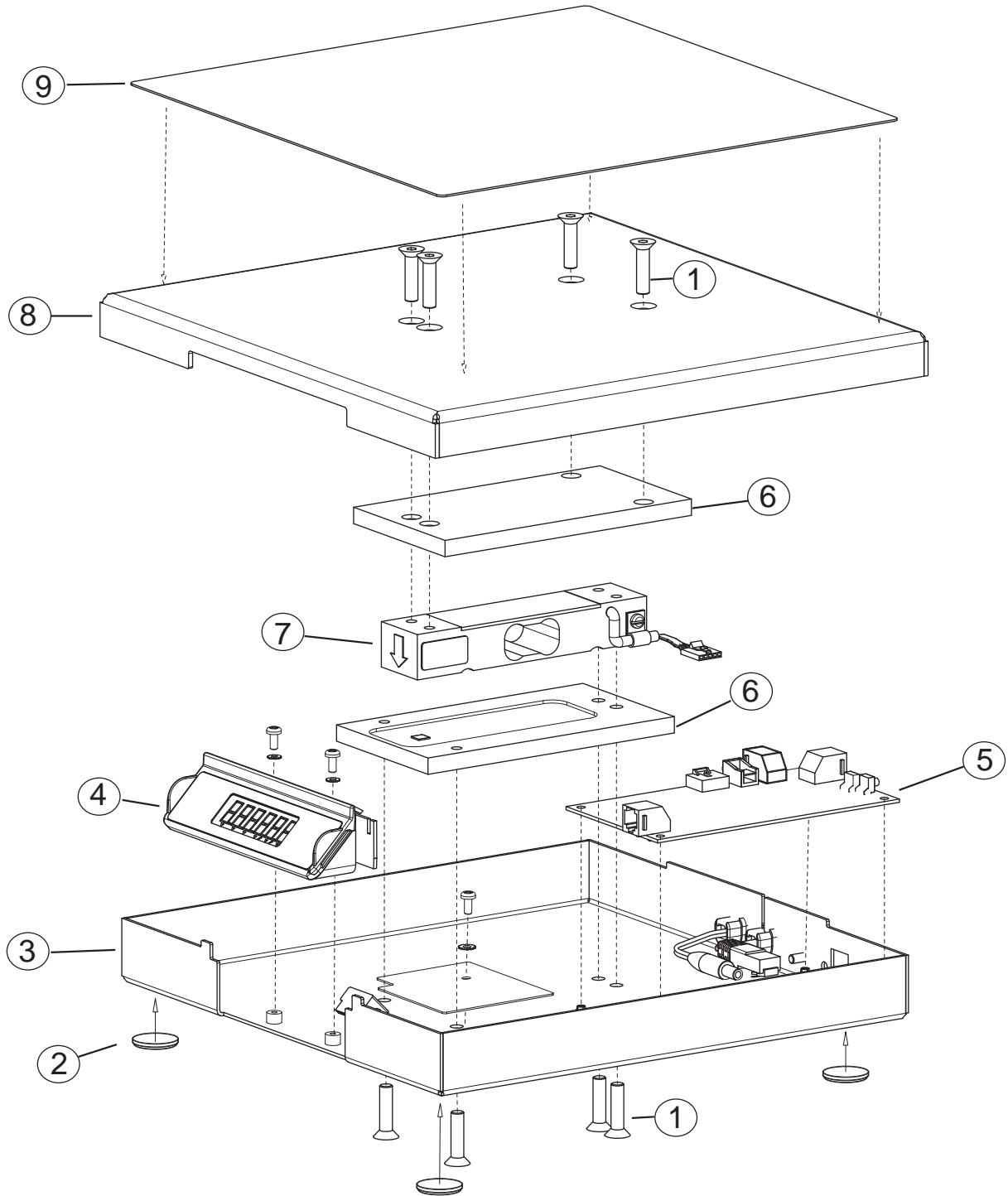
4.3.5 . Fifth program step:: Zero reference: The display will show ----- . Ensure the scale is empty of any objects and press the [ZERO] key. A "0: digital count will now be displayed. If necessary, the [ZERO] key can be pressed repeatedly to establish clean zero reference.

4.3.6 . Sixth program step: Test Weights: Apply a known test weight value that matches one of the following choices. When the test weight(s) are applied, the displayed digital counts value will increase in relation to the applied load. Press the [UNITS] key repeatedly until the correct Test weight value is displayed, 5,10,15,20,30,40,50,60,70 lbs; 10,20,30, KG . You can continue to press the [UNITS] key to cycle through the choices again if required.

4.3.7. Seventh program step: Calibration: Press the [ZERO] key or the CAL switch to complete scale calibration. The display will show good if the calibration is successful, and error if not. The scale will then return to weight mode.

# Section 5: Parts

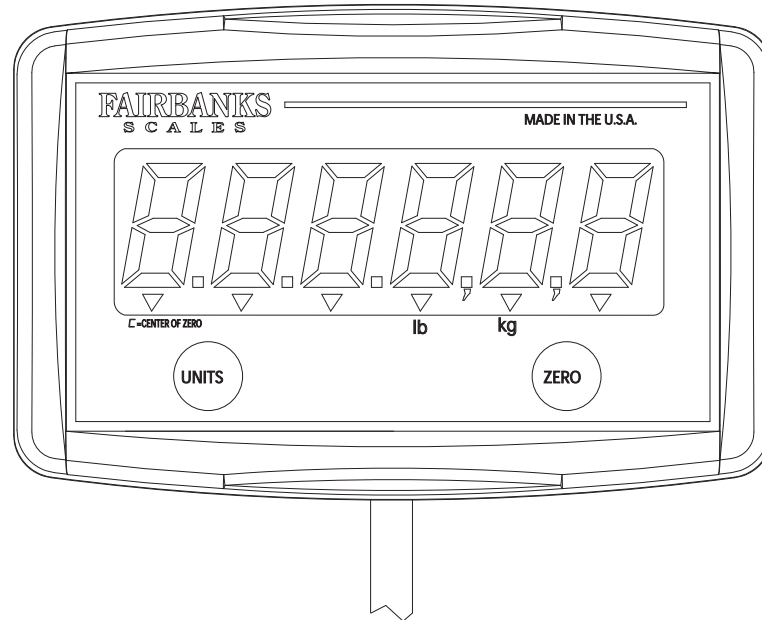
## 5.1. Diagrams and parts list



**Product Number: 25701**

Key #	Part #	Description
1	25709	Socket cap screw, flat head, M6 x 25
2	20190	Foot
3	25697	Base frame
4	25706	Display assembly (Complete assy, includes pushbuttons and overlay.)
5	25808	Main PCB assembly
6	25695	Plates, upper and lower
7	25698	Load cell
8	25696	Weigh platter
9	25699	Top mat

**24532 Remote Display**

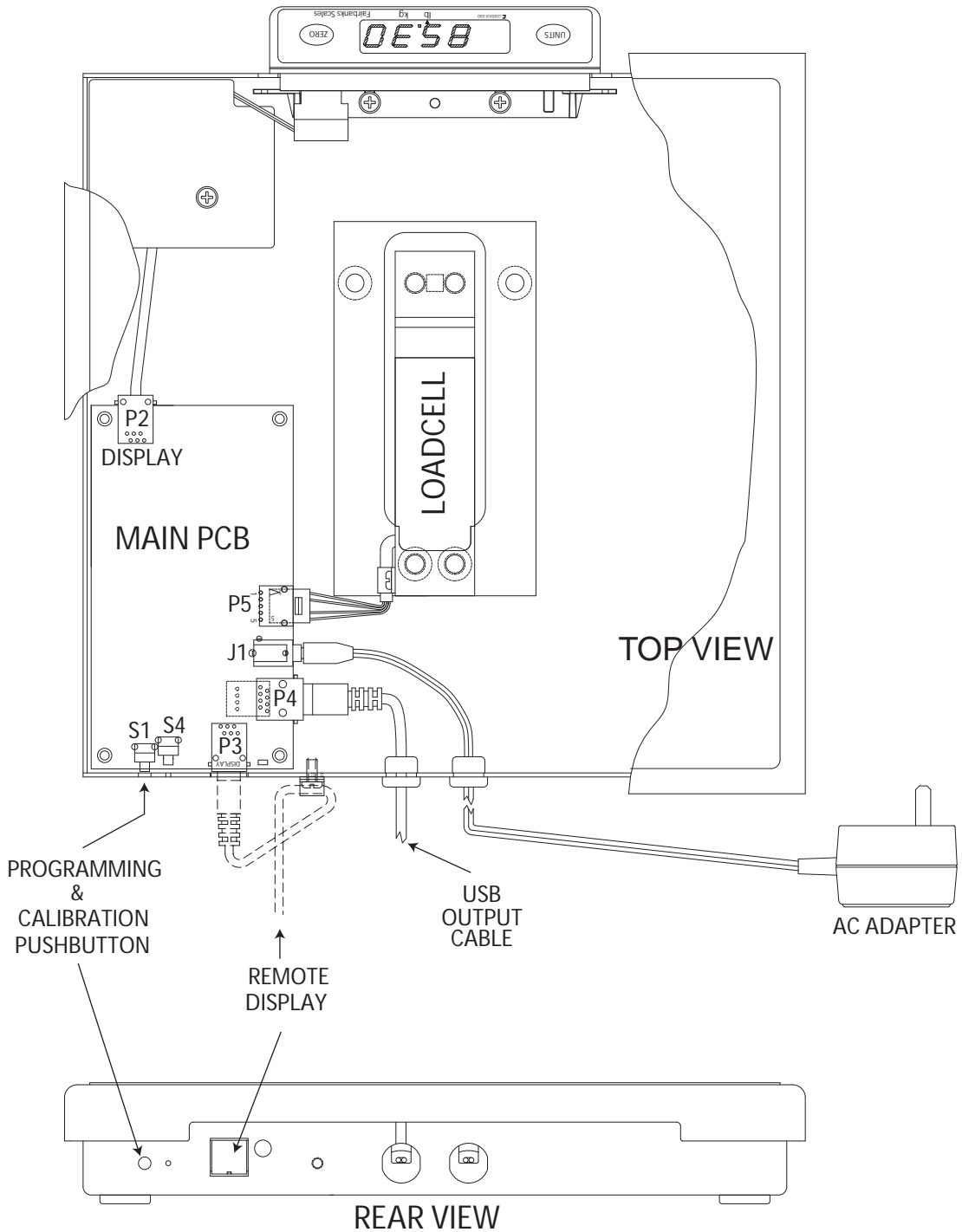


**FRONT VIEW**

**Not Pictured**

15805	Cable assembly, display to main PCB assembly
21852	Cable assembly with connector, USB output
12697	A/C power adapter

# Appendix I: Ultegra Junior Cabling Detail





Manufactured by Fairbanks Scale, Inc.  
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[www.fairbanks.com](http://www.fairbanks.com)

# Ultegra Junior Bench Scale

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**Document 51119**