

Fairbanks® Scales

ULTRA-LOW PROFILE LIGHTWEIGHT PLATFORM

Model 23-2511A

H23-2511A

23-2512

H23-2512

BULLETIN 50076 / SJ4332-B / Issue #1

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DISCLAIMER

Every effort has been made to provide complete and accurate information in this manual. However, although this manual may include a specifically identified warranty notice for the product, Fairbanks Scales makes no representations or warranties with respect to the contents of this manual, and reserves the right to make changes to this manual without notice when and as improvements are made to the product.

SECTION 1: INTRODUCTION & DESCRIPTION

1.01 Scope Of Manual

This manual provides complete installation and maintenance information for the Fairbanks Ultra-Low Profile Lightweight Platform Model H23-2512 in Hostile (H) environment versions. Site selection and preparation, installation procedures, and all necessary adjustments are described. For instrument interface and operation, refer to the applicable manual. Read this manual thoroughly. A complete understanding of the installation requirements and characteristics of this platform will assure accurate, maintenance-free service.

1.02 Description Of Equipment

A. General

The Ultra-Low Profile Lightweight Platforms with built-in ramps are specially designed load receiving elements for applications which require a platform at floor level without a permanent installation pit. This "pitless" design enables the platform to be installed in a minimum of time, as well as providing relocation capabilities.

The checking system in this platform operates through 360° and is not adjustable.

The platform is suspended from four strain gauge, shear beam-type electronic load cells. The load cells used in this platform are matched which means there are no cornering adjustments. An interface cable is required between the instrument and the platform.

The slightly crowned feature of the platform will be emphasized. The crowned shape is a design feature to enable the easy loading and removal of drums from the platform.

Another feature of the Ultra-Low Profile Lightweight Platform is that they can be used to weigh larger items by placing them across the side rails.

B. Model Designations & Specifications

The Ultra-Low Profile Lightweight Platform consists of one model programmable for different grad sizes. The following chart lists the basic specifications.

30" x 30", 1,000 lb Drum Scales			
Model No.	Min Grad Size NTEP	Min Grad Size NON-NTEP	Material
23-2511A		0.2	Mild Steel
H23-2511A		0.2	Stainless Steel
23-2512	0.5	0.2	Mild Steel
H23-2512	0.5	0.2	Stainless Steel

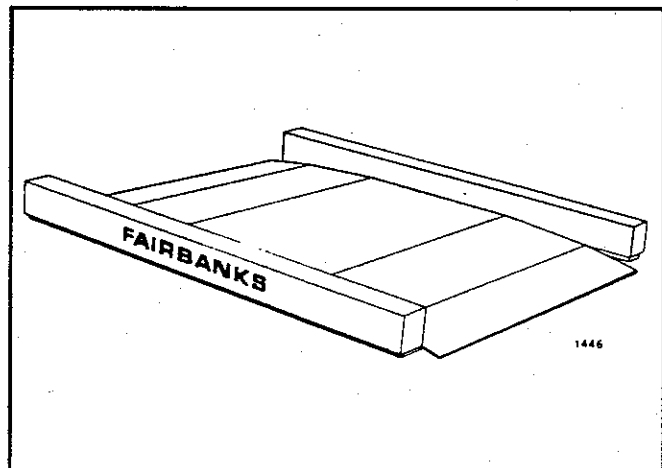


FIGURE 1-1: ULTRA-LOW PROFILE LIGHTWEIGHT PLATFORM

The H-prefix to the model number indicates a hostile environment version which is recommended for use in corrosive or chemical environments where standard materials would fail, and particularly for U.S.D.A. applications. Platform may be moved to allow access to the surface below, for cleaning and/or inspection.

C. Installation

The Platform Assembly is designed to be placed on a level and smooth surface.

The platform must be installed as specified in Section 2. As with all platforms, vibrations at the platform could be transmitted to the instrumentation as weight fluctuations.

D. Construction

The platform is constructed of stainless steel, and is suspended from the Base Weldment Assembly by four shear beam load cells.

E. Interface

The load cell cables are junctioned inside a Waterproof Splice Assembly at the platform, and a single 4-conductor shielded cable interfaces the platform with the instrument.

F. Instrumentation

The Ultra-Low Profile Lightweight Platform is designed for use with Fairbanks Instruments.

1.03 Operating Procedures

The following conditions are required for the proper operation of any system of which this platform is the weight receiving element.

A. Load Cell Excitation

Maximum 15 VDC

B. Instrument Grounding

For systems where the instrument is connected to 117 VAC circuit the instrument must be directly connected to a high quality earth ground. The ground interface cable should not present more than 3 ohms resistance throughout its length and connections.

C. Requirements

1. Temperature:

Operating: -10°C to 40°C (14°F to 104°F)

Storage: -20°C to 70°C (14°F to 158°F)

Change Rate: 20% per hour

2. Humidity:

10% to 100%, washdown

1.04 Accuracy

The platform is accurate to $\pm 0.1\%$ of its capacity.

SECTION 2: INSTALLATION PROCEDURES

2.01 Introduction

This Section describes installation procedures and application notes for the Ultra-Low Profile Lightweight Platform.

The platform is shipped fully assembled.

The platform design is to be portable and does not require mounting to a surface (floor).

2.02 Site Selection

The platform is placed directly on the surface where it is to be used. The site selected for installation must have the following specifications:

A. Smooth And Level Surface

The base weldment of the platform is made as a single unit. The surface that the platform rests on must be smooth within 1/8" and level within 1/4" across both the length and width of the platform. Uneven (rough) and/or non-level surfaces will distort the platform and non-accurate readings will result.

The four corners of the platform must rest firmly on a solid surface to prevent a "rocking" condition of the platform. An out of level condition may occur if there are bumps in the surface, or if foreign material has accumulated under the platform.

Check the surface using a carpenter's level to insure that the area is level within 1/4". The area must also be smooth within 1/8".

B. Vibrations

Vibrations at the platform may affect weighing accuracy. Where possible, locate the platform as far as possible from heavy, low frequency vibrations such as caused by punch presses, etc.

C. Ease Of Access

Avoid locations which require excessive maneuvering of vehicles; a straight on and off aisle is preferred. Also consider the location of the readout instrument and connecting cable.

D. Ease Of Installation

Allow room for maneuvering any installation equipment required (forklift truck, mobile crane, etc.).

E. Outdoor Installation

Outdoor and indoor installations follow the same procedures except that Platform out of doors must be installed so that snow, ice accumulation, rain, etc. cannot affect the operation of the platform.

2.03 Electrical Interface

The matched shear beam load cells are connected to a common water-proof splice on one side of the platform.

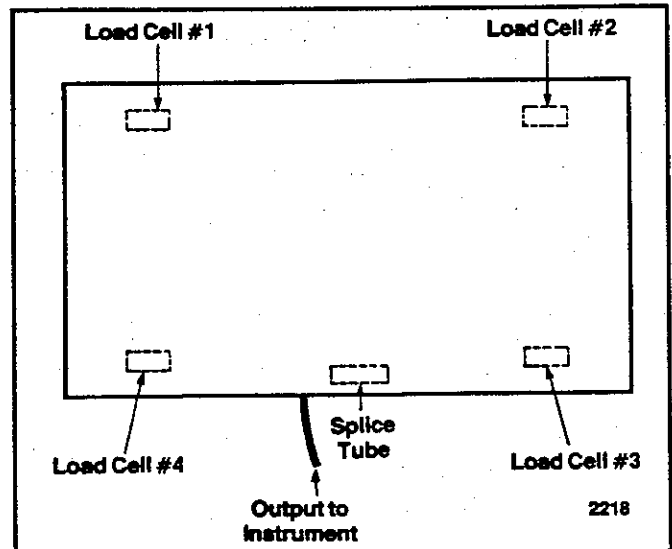


FIGURE 2-1: SPLICE ASSEMBLY LOCATION

Platforms are supplied with 25 cable-feet of 4-conductor interface cable for connection to the instrument. The junctions, cable to stopper and stopper to tube, at the splice tube are potted with RTV sealant Fairbanks part #1-22441-1, or equivalent to make the Splice Tube Assembly watertight.

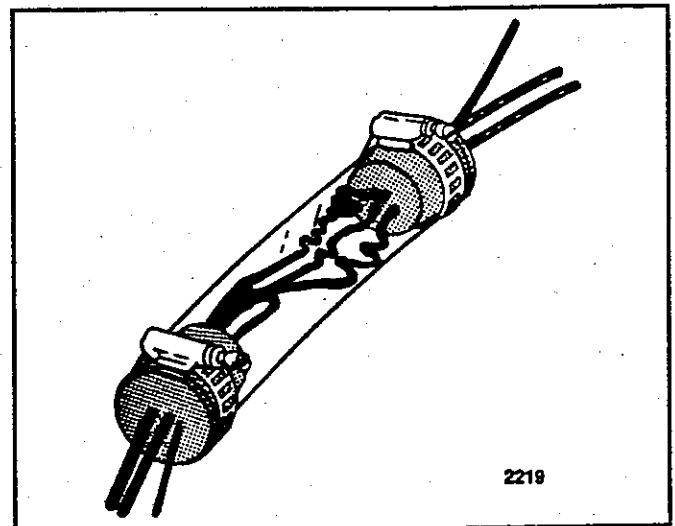


FIGURE 2-2: WATERPROOF SPLICE

Make interface connections to the instrument as instructed in the applicable Instrument Service Manual per the following:

Color Code	Description
Green	(+) Excitation
Black	(-) Excitation
White	(+) Signal
Red	(-) Signal
Yellow	Shield

SECTION 3: APPLICATION & OPERATING INSTRUCTIONS

3.01 Introduction

This Section describes typical applications for Ultra-Low Profile Lightweight Platform, and includes basic operating procedures.

3.02 Applications

The Ultra-Low Profile Lightweight Platform is designed for applications where the platform must be at or near floor level, and it is undesirable to have a deep pit cut into the floor. In addition, these platforms are relatively easy to relocate when necessary. Shallow entry and exit ramps allow even heavy loads to be manually pushed on and off the platform.

Hostile environment models, prefixed by an "H" are designed to withstand washing and cleaning operations. The platform can be moved to allow the area under the platform to be inspected by the U.S.D.A.

CAUTION

Units are not to be washed down or cleaned with high pressure steam.

3.03 Operating Instruction

The platform must be properly connected to a digital instrument. Although the platform is designed to withstand the abuse of rugged industrial applications, as with any equipment a certain amount of care will assure longer life and less maintenance. Heavy loads should be applied as gently as possible.

SECTION 4: SERVICE INFORMATION

4.01 Platform Maintenance

The spaces between the platform sides, ramps edges, and the surface beneath the platform, must be kept clear of any debris which could interfere with vertical movement of the platform. Under no circumstances should any part of this Platform be lubricated.

4.02 General Troubleshooting

The following troubleshooting chart is designed to isolate and identify the cause or causes of faulty operation which may result from malfunction of the platform. Identify the symptom and refer to the probable causes and their remedies for service procedures. Where "Service Instrument" is recommended, refer to the appropriate Instrument Service Manual.

A. Display stays at zero

1. Load cell connections faulty: Check cable connections at Waterproof Splice Assembly.
2. Instrument faulty: Service Instrument.

B. Erratic Weights

1. Foreign object around load cells, ramps, or under platform: Clear the area.
2. Excessive vibration near platform: Remove source of vibration.
3. Instrument faulty: Service Instrument.
4. Platform not level within 1/4" (1.0°): Level the surface for the platform.
5. Surface not smooth within 1/8": Smooth the surface for the platform.

C. Consistently high or low weights

1. Instrument out of span: Check and adjust per Instrument Operating Manual if Model H90-3040 or H90-3041. For other Instrument Models Service Instrument.
2. Instrument not properly adjusted to zero: Zero the instrument according to normal operation procedures.
3. Platform binding: Check that the side rail covers do not contact the platform side angles at any point - straighten if necessary.

4. Load cell(s) faulty: Test and replace per Subsections 4.03 and 4.04.

4.03 Platform Assembly Troubleshooting

Other than severe structural damage Platform Assembly problems may usually be traced to one or all of the following:

- i. Material under or around platform
- ii. Improperly seated rocker pins
- iii. Broken, loose or misadjusted bearing screws
- iv. Load cells
- v. Cabling

To troubleshoot the load cells or cabling proceed as follows:

1. Remove the platform side rail cover to expose the Waterproof Splice Assembly.
2. Check the interface cable from the platform to the instrument for visible breaks or cracks.
3. Set the instrument display to zero with the ZERO pushbutton.
4. Apply a test load of 250 pounds to one of the corners. The instrument should display a weight reading within 0.1% of the applied weight or one instrument division, whichever is greater.
5. Repeat Step 4 for the other three corners with the same test load used in Step 4. Place the test load in approximately the same location of each corner. The displayed weight reading should be within 1 division (grad) for all corners.

NOTE

To test the load cell insulation resistance reading requires the use of a Triplet FET 310 Multimeter or equivalent.

6. If a corner does not meet the tolerance in Step 4, then unsolder each load cell cable at the splice tube and test each load cell for the following:

Test	Reading	Remarks
Green to Black (Input)	1000 ohms +5/-2 ohms	Bridge Resistance
White to Red (Output)	1000 ohms +5/-2 ohms	
Yellow (Shield) to Load Cell Case	More than 1,000 megohms	Insulation Resistance
Input and Output Leads to Shield	More than 1,000 megohms	
Input and Output Leads to Case	More than 1,000 megohms	

If any load cell fails the above readings, that load cell should be replaced per Subsection 4.04.

4.04 Load Cell Replacement

NOTE

A torque wrench of up to 90 ft-lbs must be used when replacing the load cells.

Each load cell is wired to a junction in the Splice Tube Assembly.

CAUTION

On the replacement Load Cell do not cut the cable that comes from the Load Cell. The Load Cell has been calibrated with this cable attached as part of the Load Cell.

To replace the Load Cell refer to Figures 4-1 through 4-4 for part orientation and proceed as follows:

WARNING

Remove power from the instrument before proceeding.

1. Remove the two screws securing the side rail shroud on the side of the platform where the replacement Load Cell Assembly is to be installed.

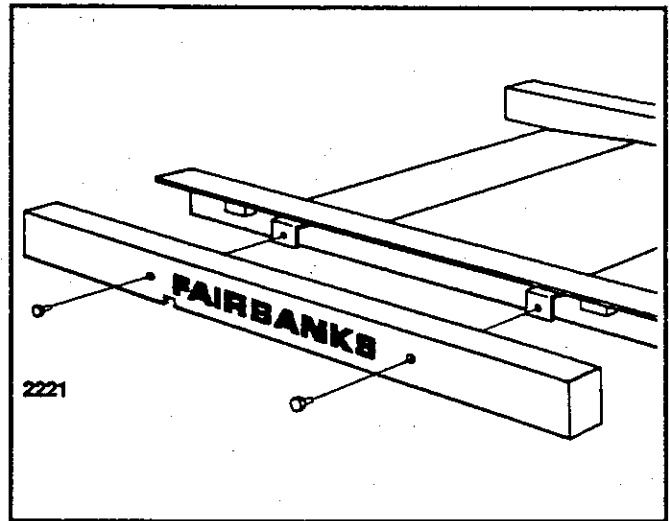


FIGURE 4-1: SIDE RAIL MOUNTING

2. Pull the side rail shroud off and set it aside. If the Splice Tube Assembly is not located on the side to be repaired then the side rail shroud on the opposite side must also be removed.
3. Remove the four uplift bolts that secure the base weldment to the platform weldment.

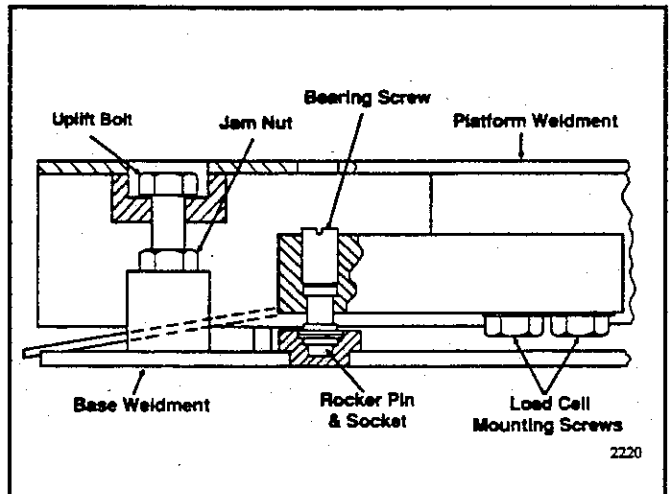


FIGURE 4-2: BASE WELDMENT UPLIFT BOLTS

4. Lift the platform weldment away from the base weldment and set it aside.
5. Locate the Splice Tube Assembly and disassemble as follows (Refer to Figure 4-3):
 - a. Remove the screw securing the Splice Tube Assembly to the platform weldment.
 - b. Loosen the clamp over each stopper.
 - c. Remove the wiring from inside the tube by carefully pulling on the one hole stopper and cable.

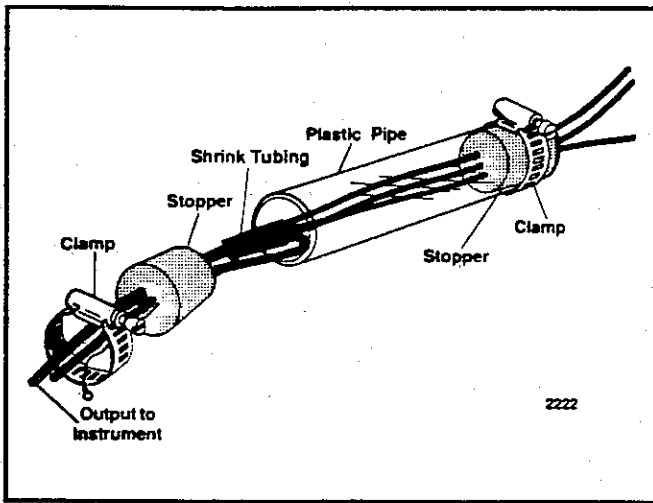


FIGURE 4-3: SPLICE TUBE DETAIL

- d. Remove the heat shrink from the soldered junctions and unsolder the wiring.
- e. Remove the cable from the two hole stopper through its slot.
6. On the Load Cell to be removed, locate and cut the tie-wraps between each load cell and the Splice Tube Assembly.
7. Remove the two bolts securing each load cell to its mounting block (Refer to Figure 4-2).
8. Remove the load cell from the Platform. Note that the cable for the load cells located on the opposite side of the platform from the Splice Tube Assembly are located inside a channel on the platform weldment.
9. Carefully remove the replacement load cell from its packing. Care must be taken not to drop the load cells as they are calibrated sensing devices.
10. Remove the bearing screw from the defective load cell and place into the replacement load cell.

WARNING

When placing the bearing screw into the replacement load cell a screw locktite (Fairbanks part #1-42297-1) must be used.

11. Place the replacement load cell onto its mounting block and secure with its mounting bolts. Torque each mounting bolt to 90 ft-lbs.
12. Lay the cable from the load cell near the tie-wrap anchors and secure in place with tie-wraps.

13. Reassemble the Splice Tube Assembly as follows:

NOTE

If the load cell was replaced on the opposite side from the Splice Tube Assembly, then the cable from the load cell must be routed through the channel in the bottom of the platform weldment.

- a. Place the cable from the replacement load cell through the slot into the stopper with two holes. Be sure at least six inches of cable extends through the stopper.
- b. Resolder the cables back together referring the Appendix I.
- c. Place the wiring back into the splice tube.
- d. Slide each stopper into the ends of the splice tube.
- e. Position each clamp onto the splice tube approximately 1/8" in from the end and tighten securely.
- f. Apply a coating of waterproof sealant (i.e. RTV Silicon Adhesive, Fairbanks part #1-22441-1 or equivalent) to the stoppers where they contact the tube. Apply sealant also to the area where the cables exit each stopper. This will make the Splice Tube Assembly watertight.
- g. Secure the Splice Tube Assembly to the platform weldment with the screw removed in Step 5-a.
14. Place the platform weldment onto the base weldment and re-install with the four bolts removed in Step 3. Hand tighten until bolt head makes contact with platform angles, then back off one complete turn. Lock in place by tightening the jam nut.
15. Install the side rail shroud(s) removed in Step 1.
16. Reapply power to the instrument and test the platform for proper operation.

4.05 Parts List

The following Parts List is to be used with the Exploded View.

Key	Qty	Description	23-2511A	H23-2511A	23-2512	H23-2512
Ref		Top Assembly	4-61262-4	4-61262-3	4-61262-1	4-61262-2
1	1	Platform Weldment	4-61255-1	4-61255-2	4-61255-1	4-61255-2
2	1	Base, Weldment	4-61256-1	4-61256-2	4-61256-1	4-61256-2
3	2	Shroud, Side Rail	3-53064-3	3-53064-2	3-53064-3	3-53064-2
5	4	Nut, Hex Jam .500-20UNF	6P418	6A17793-3	6P418	6A17793-3
6	4	Screw, Cap Hex Hd .500 - 20 x 2.00	6P2870	6A15739-42	6P2870	6A15739-42
7	4	Screw, Bearing	2-54923-1	2-54923-1	2-54923-1	2-54923-1
8	4	Socket Assembly includes: Rocker Pin (2-54922-1) Socket (2-48423-1) "O"-Ring (1-49414-1)	2-54921-1	2-54921-1	2-54921-1	2-54921-1
9	4	Load Cell (1K) - See Warning	3-58608-1	3-58608-1	3-56437-1	3-56437-1
10	8	Screw, Cap Hex Hd .500 - 20 x 1.75	6A18386-21	6A15739-96	6A18386-21	6A15739-96
11	4	Plate	1-54952-1	1-54952-1	1-54952-1	1-54952-1
12	1	Clip Cable	2-24521-3	2-24521-3	2-24521-3	2-24521-3
13	2	Screw, Mach Hex Hd 10 - 24 x .25	6A15739-70	6A15739-70	6A15739-70	6A15739-70
14	2	Washer, Plain # 10	6A17790-1	6A17790-1	6A17790-1	6A17790-1
15	1	Clip, Cable	2-25421-11	2-24521-11	2-25421-11	2-24521-11
16	1	Screw, Mach Ph Phil 10 - 24 x .38	6A18076-8	6A18076-8	6A18076-8	6A18076-8
17	4	Screw, Cap Hex Hd .31 - 18 x .38	6A15739-115	6A15739-115	6A15739-115	6A15739-115
18	1	Pipe, Flexible Plastic	1-32757-6	1-32757-6	1-32757-6	1-32757-6
19	1	Stopper	1-32761-4	1-32761-4	1-32761-4	1-32761-4
20	1	Stopper	1-54837-1	1-54837-1	1-54837-1	1-54837-1
21	2	Clamp, Hose	1-32758-1	1-32758-1	1-32758-1	1-32758-1
25	1	Cable Assy	3-54630-1	3-54630-1	3-54630-1	3-54630-1

WARNING

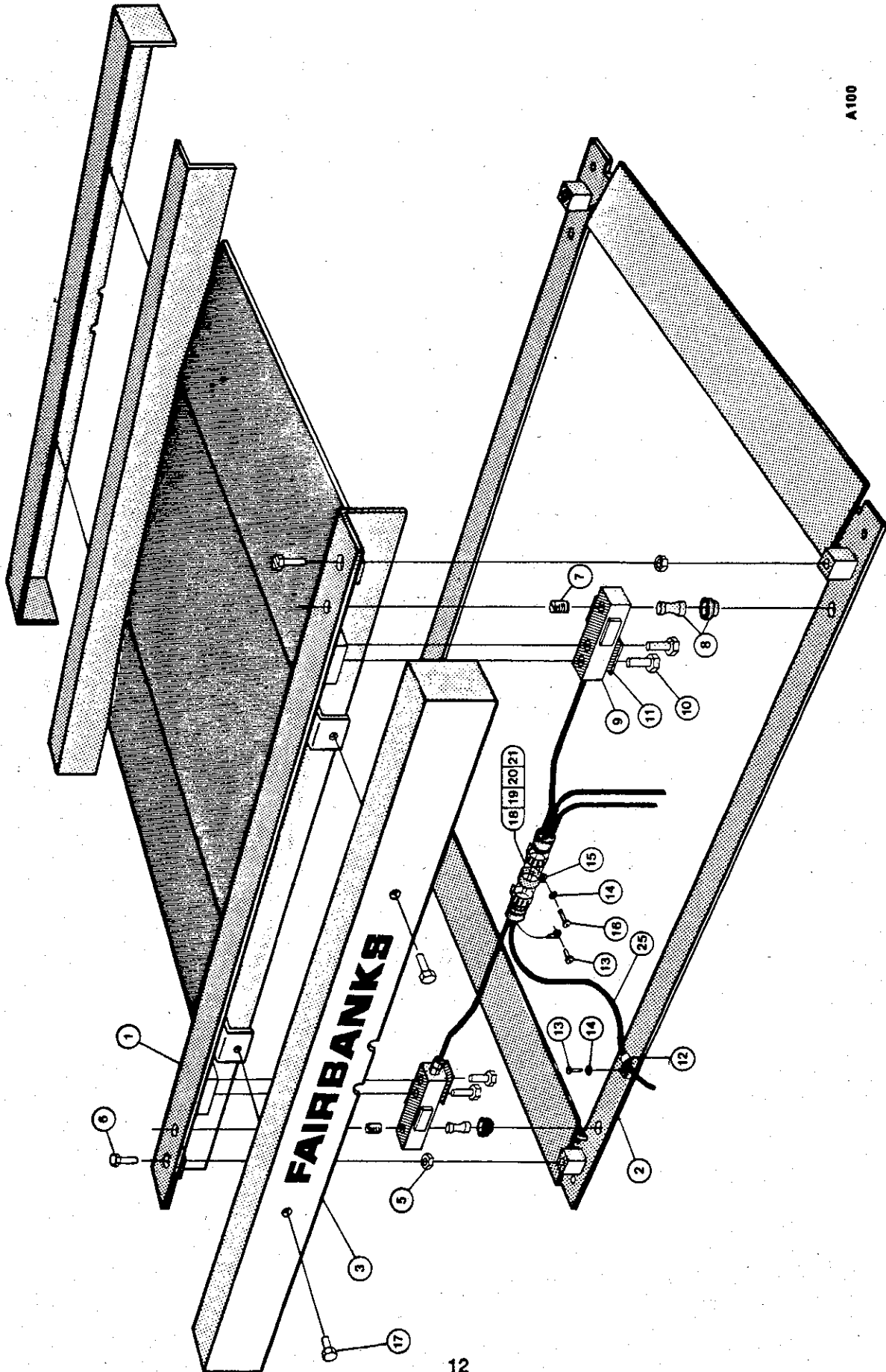
Platforms with serial numbers H108201 and below must use replacement load cell 3-55083-2.

This is a Sensortronics Load Cell and has the following color code:

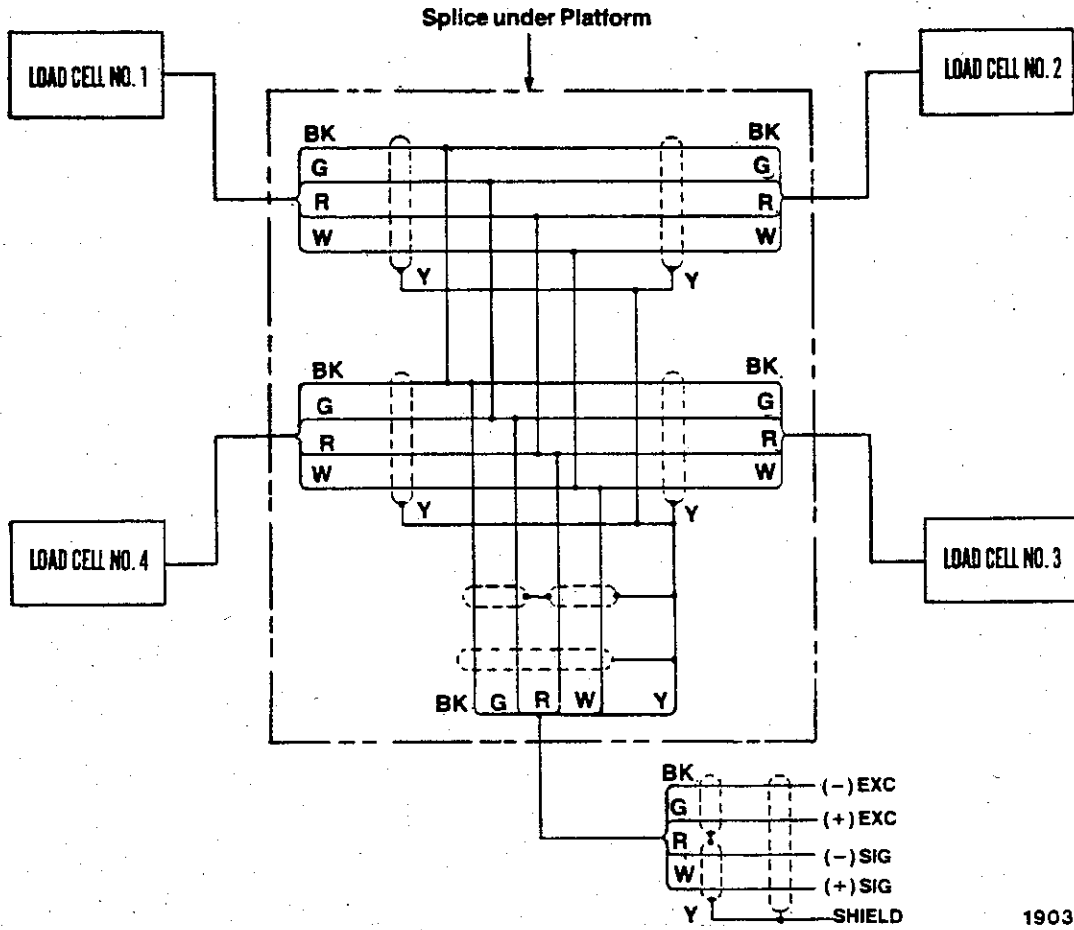
- (+) Excitation = Red
- (-) Excitation = Black
- (+) Signal = Green
- (-) Signal = White

EXPLODED VIEW

A100



APPENDIX I: WIRING DIAGRAM



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