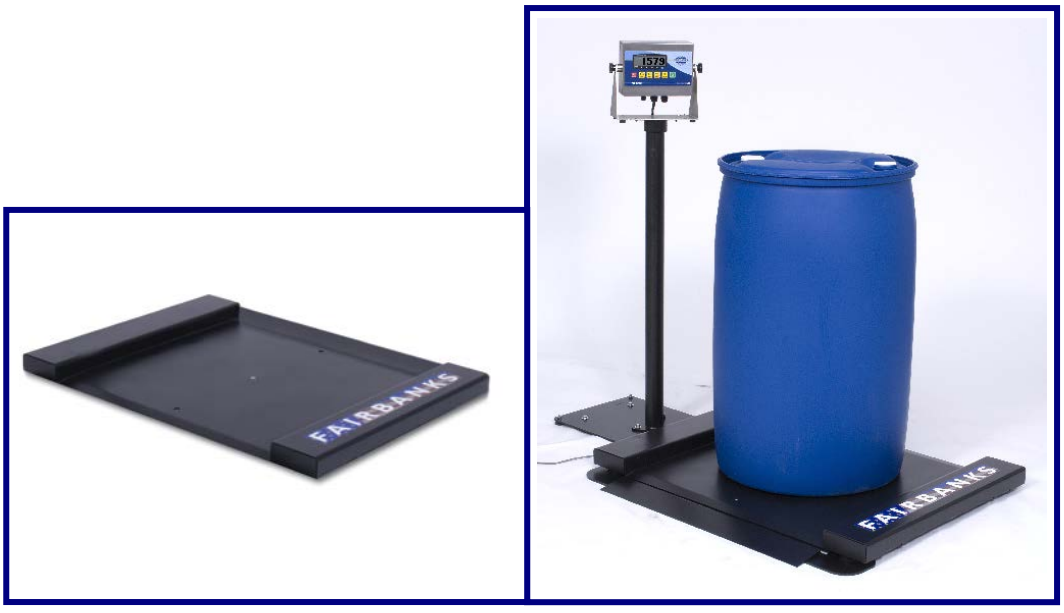
Installation Manual

Aegis Drum Scale

Aegis Drum Scale with Backstop



51190

Revision 3 08/14

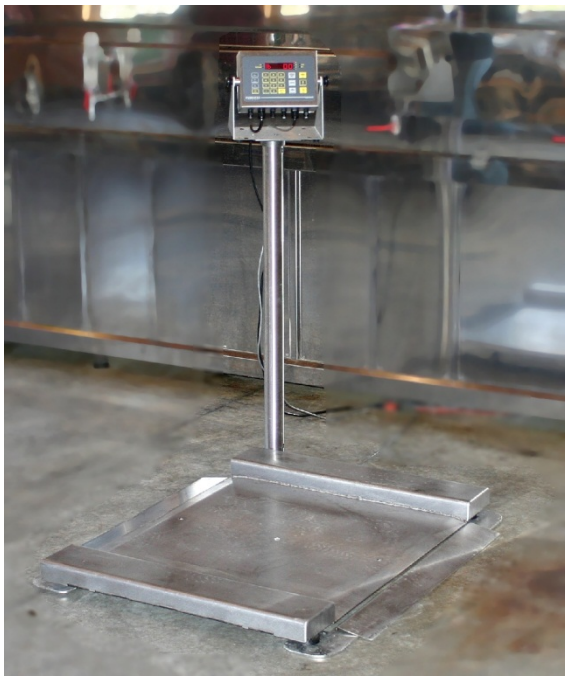
Amendment Record

AEGIS DRUM SCALE

Document 51190

Manufactured by Fairbanks Scales Inc.
821 Locust St.
Kansas City, Missouri 64106

Created	07/08	Created Document
Revision 1	07/08	Preliminary Release
Revision 2	04/10	Corrected part number on page 29.
Revision 3	08/14	Added Backstop model



Aegis Stainless Steel Drum Scale, *shown with optional Ramp and Integral Pillar*

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.

Fairbanks Scales shall not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether or not based on express or implied warranty, contract, negligence, or strict liability arising in connection with the design, development, installation, or use of the scale.

Table of Contents

Section 1: General Information

1.1. INTRODUCTION

Ultra-low profile for easy on- and off-loading.
– *Shown with optional Ramp.*

The **Aegis Drum Scale** has a one-and-a-half inch (1½") low profile for easy on- and off-loading.

- Threaded half-inch (½") holes for inserting Eyebolts, to make the Platform easy to move.
- Available in **Mild Steel** and **Stainless Steel**.
- ***Stainless Steel Load Cells are used on all models.***
  - *However on the* **Stainless Steel Platform Models***, the Load Cells have a "true" hermetically sealed* **(IP69K)** *rating (optional on* **Mild Steel Models***).*
- The **Aegis Drum Scale** is used with either analog or digital weight indicators.
- Three inch (3") high Side Rails for pallet weighing.
- The Platform is supported by four (4) 17-4ph Stainless Steel Shear Beam Load Cells.
- Bubble Level for platform leveling confirmation.

1.1.1. Specifications

Feature	Description
Platform Sizes	30" x 30" x 1-½" and 38" x 38" x 1-½"
Overall Dimensions	41" x 30" x 3" and 49" x 38" x 3"
Scale Capacities	500, 1000, 2000 and 2500 lbs.
Endloading	100% of capacity all models except 2,500 lb model which is rated at 80%.
Load Cell Excitation	5 to15 VDC
Instrument Signal	Analog or Digital
Temperatures	Operating: -10°C to 40°C (14°F to 104°F) Storage: -20°C to 70°C (14°F to 158°F)
Humidity	10 to 100%, Wash-down (*Stainless Steel models only*)
Accuracy	Platform Accuracy up to 0.02%
Power Cable	Thirty cable feet (30') of four (4) conductor interface cable; PVC jacketed.
Adjustment Limits	• Scale must be level within three degrees (3°). • Height adjustment allows for up to one-quarter inch (¼") per foot.
Construction	Mild steel with black enamel finish; Type 304 PH stainless steel, brushed.
Approvals	Both Stainless Steel and Mild Steel have **FM Approved Load Cells**. *NTEP and CWM approvals* **PENDING**.

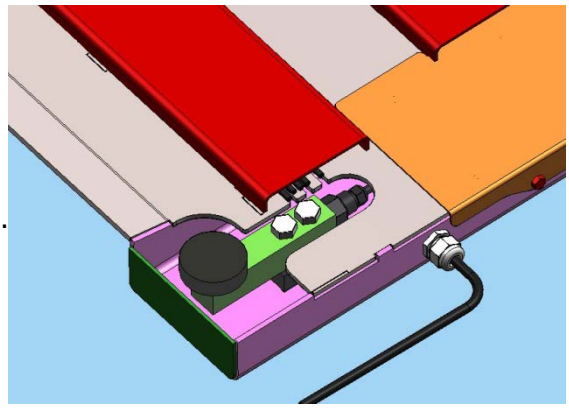
1.1.2. Applications

- Manufacturing
- Chemical
- Scrap or Recycling
- Food & Beverage
- Textile
- Pharmaceutical

1.1.3. Accessories

Available modifications and accessories include the following:

- Loading Ramp
- Ramp with Pillar
- Wheel Kit
- Stand-alone Pillar
- Intrinsically Safe Controller
- Quad-multiplexer Board
- Factory Calibration and Quick Disconnect (*not available for Intrinsically Safe Instrument*)



DO NOT SHOCKLOAD THE SCALE!

Example of **Load Cell** *from a* **Mild Steel Scale**

"True" Hermetically Sealed Load Cells used on both the ***Stainless and Mild Steel*** models.

- *Prevents problems with accidental spills and washdown.*

1.2. 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.

1.3. CONFERRING WITH OUR CLIENT

- The technician must be prepared to recommend the arrangement of components which provide the most efficient layout, using the equipment to the best possible advantage.
- The warranty policy must be explained and reviewed with the customer.
- Refer to **Instrument Manual** for power requirements.

1.3.1. Service technician' s Responsibilies

✓ 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.

✓ If the equipment consists of printed circuit assemblies, they must be handled using ESD handling procedures, and must be replaced as units.

- Replacement of individual components is not permitted.
- The assemblies must be properly packaged in ESD protective material and returned intact for replacement credit per normal procedures.

1.3.2. Users' Responsibility

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

Section 2: Scale Installation

2.1. OVERVIEW

2.1.1. Physical Installation Notes

- ***Only those charges which are incurred as a result of the equipment's inability to be adjusted to performance specifications may be charged to warranty.***
- No physical alterations (mounting holes, etc.) are permitted during installation.

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 replaced as assemblies or units.
  - Replacement of individual components is not permitted.
  - These components 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.

Aegis Drum Scale *shown with* **FB 2200 Indicator** *and optional* **Wheel Kit.**

2.1.2. Pre-Installation Checklist

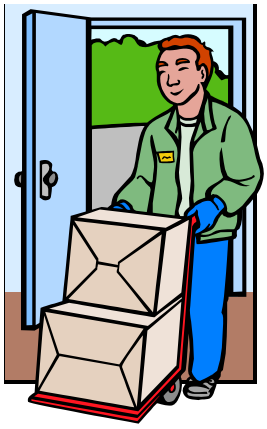
The following points should be checked and discussed with the **Area Sales Manager and/or customer**, if necessary, before the technician goes to the site and installs the equipment.

- ✓ Check the customer's application to make certain it is within the capabilities and design parameters of the equipment.
- ✓ Be sure that the equipment operator(s) are available for training.

2.1.3. 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.



NOTE: *It is the owner's responsibility to document, notify, and follow-up regarding shipping damage with the carrier.*

2.1.4. Positioning the Equipment

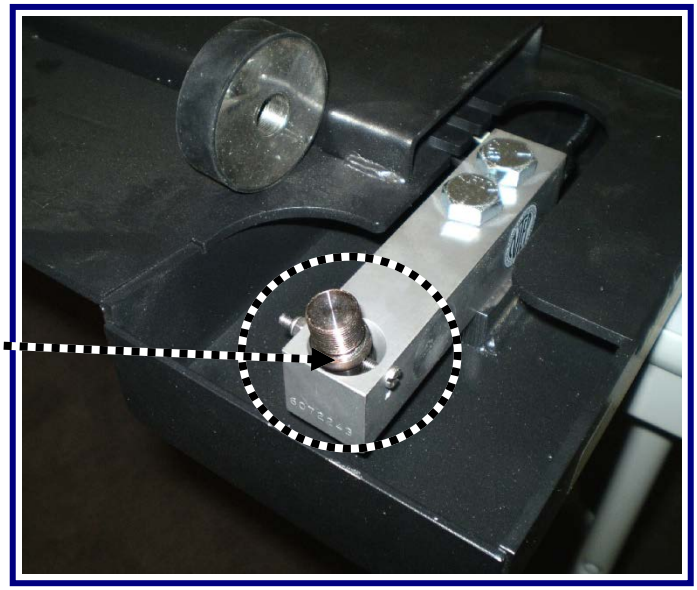
Position the equipment with these points in mind:

- ✓ The scale is to be placed on a flat, solid, level surface, one that fully supports the weight of the platform plus a full capacity load.
- ✓ The smooth surface must be within 1/8", and on a level plane, within ¼" across both the length and width of the platform.
- ✓ The four corners of the Platform must rest solidly on the surface, and not rock. Irregular bumps and foreign material under the Platform can cause an "out-of-level" condition, which will affect the weight accuracy.
- ✓ Platform vibrations may also affect the weighing accuracy. Wherever possible, locate the platform as far away from heavy, low frequency vibrations as much as possible.
- ✓ Do not load the platform if there is any evidence of damage to the platform or supporting structure.
- ✓ Ease of access is very important. Allow plenty of room for maneuvering a box truck.
- ✓ Reading the Indicator is also important to workers, so place it in a very visible position.
- ✓ When installing the Scales and Indicator in an outdoor location, set it up so the snow, ice accumulation, rain and other conditions do not affect the platform operations.

2.2. INSTALLATION STEPS

2.2.1. Assembling the Scale Platform

1. Remove the top of the crate and all packing material.
2. Screw the **two (2) eyebolts** (optional) into the threaded adapters in the platform top.
3. *It is recommended that* **two (2) adults** remove the scale from the crate bottom.
4. Set the scale so the interface cable exits in a direction where it can be protected.
   - If possible, use a cable protector to reduce 'trip' hazards and to protect the interface cable from being damaged.
   - The thirty-foot (30') cable can be shortened as needed.
5. Level the scale.
   - Turn the Load Cell Foot clockwise or counter-clockwise to level the scale.
   - Be careful not to unthread the foot from the loading pin.

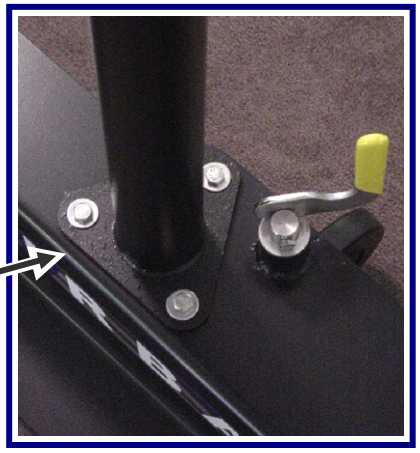


6. Wire the scale cable to the proper type indicator, as shown in the chart.

WIRE COLOR	
Red	(–) Signal
White	(+) Signal
Black	(–) Excitation
Green	(+) Excitation
Yellow	Ground

7. ***Calibrate the unit according to the appropriate indicator service manual.***

2.2.2. Wheel Kit Assembly Steps

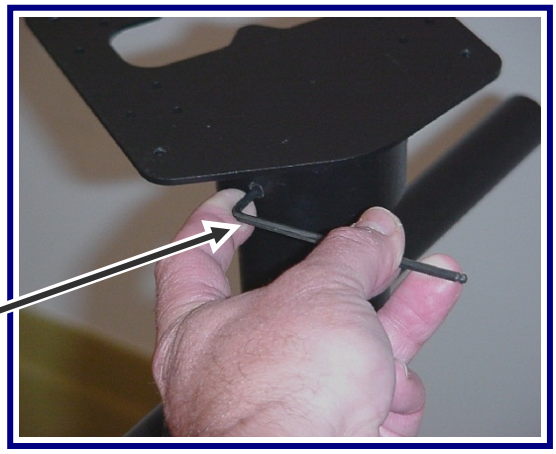


1. Unpack the **Wheel Kit**.
   - Inspect it thoroughly for any obvious shipping or handling damages.
2. Stand the Instrument Pillar onto the Wheel Kit Assembly.
3. Fasten the Pillar to the Platform with the **three (3) 5/16" bolts and lock washers.**
4. Place the Instrument Stand on the Pillar.
5. Rotate the Instrument Stand to its desired position.
6. Screw in, *but do not tighten completely*, the **three (3) ¼" Allen Screws** on the collar of the Instrument Stand.
7. Place the Aegis Drum Scale into the Wheel Kit Assembly.
   - Use Eye Bolts for ease of installation.
   - The area in the Drum Scale where the Interface Cable exits should face the pillar.

WARNING!

WATCH YOUR FINGERS!

Fingers can be pinched when placing the Scale into the Wheel Kit Assembly, especially in the corners.



8. Route the Platform Interface Cable up through the pillar to a second hole, just under the Indicator Stand.
9. Feed the cable through the final bushing, leaving enough cable to connect it to the Instrument.
10. Tighten the three set screws to secure the top plate to the pillar.

2.2.2. Wheel Kit Assembly Steps, Continued

11. Place the Indicator and Stand on the Plate, lining up their holes together.
12. Secure the Indicator, Stand and Plate into place using the fastening bolts supplied with the Wheel Kit.
13. Connect the cable to the Instrument according to the appropriate Instrument Service Manual.

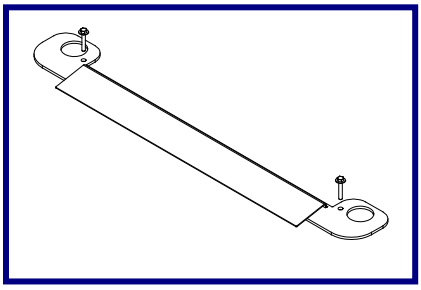
WARNING!

Always raise the Wheels off the floor
before calibrating or using the Scale.
Weighing or storing the Scale with the Wheels down can damage the Scale or can cause personal injury.

14. ***Calibrate the Platform to the Instrument according to the Instrument Service Manual.***

2.2.3. Installing the Ramp(s)

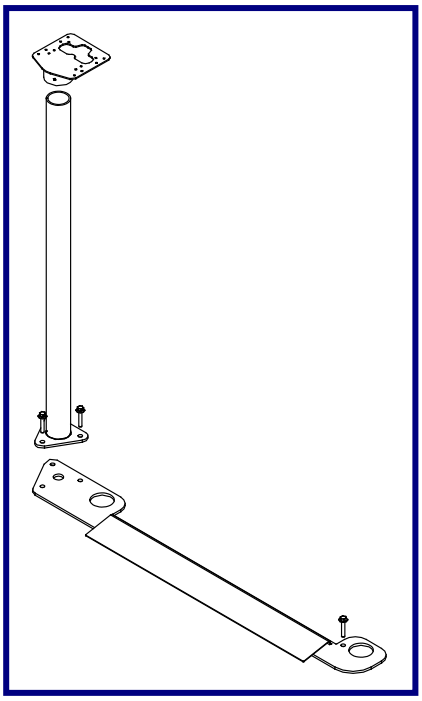
Each **Ramp Accessory** comes with Integral Bolt-down Plates and two (2) Anchors.



1. Place the Ramp in position.
2. Drill **Two (2) 7/16" holes.**
   - Use a standard drill on a wood floor, and a hammer drill on cement.
3. Screw the Ramp into the floor, using the appropriate fastener.
4. Tighten the bolts securely.
5. Lift and set the platform feet into the Bolt-down Plate Holes.

2.2.4. Installing Ramp(s) With Integral Pillar

Each **Ramp With the Pillar Accessory** comes with Integral Bolt-down Plates and four (4) Anchors.



1. Place the Ramp in position.
2. Drill **Four (4) 7/16" holes.**
   - Use a standard drill on a wood floor, and a hammer drill on cement.
3. Screw the ramp with the pillar into the floor, using the appropriate fastener.
4. Tighten the bolts securely.
5. Lift and set the Platform Feet into the bolt-down plate holes.

IMPORTANT TIPS

- If two ramps are installed, then no other bolt-down plates are needed.
- Only two ramps (total) may be installed per platform, and each is placed on opposite sides.

Section 3: User Operations

3.1. MOVING THE SCALE WITH A WHEEL KIT

1. Remove all objects from the Platform.
2. Remove the AC Power from the Instrument, if applicable.
3. Pull down each of the three (3) pivoting Wheel Cam Levers, lowering and locking each wheel onto the floor.
   - ✓ **Please work carefully.**
   - ✓ **Possible Pinch Point.**
4. Using the T-handle, move the scale to the desired location.
5. Once the scale is repositioned, raise the wheels by lifting each of the Wheel Cam Levers.
   - The wheels will be raised approximately 1/16” above the floor line.
6. Reapply AC Power to the Instrument, if applicable.

3.2. CHANGING POSITION OF TOP PLATE

The Top Plate Assembly can rotate the Indicator to any viewing angle (***360°***).

1. Loosen the **three (3) ¼” Allen Screws** on the collar of the Top Plate Assembly.
2. Rotate the Top Plate Assembly to the best position.
3. Re-tighten the set screws.

Section 4: Service & Maintenance

4.1. GENERAL TROUBLESHOOTING

From the following chart, identify the symptom(s) and cause(s) of each malfunction, solving each issue with an appropriate solution.

SYMPTOM	CAUSE	SOLUTION
Displays stay at zero	1. Load Cell connections faulty. 2. Instrument faulty. 3. Faulty/bad Load Cell	1. Cable replacement. 2. Service Instrument. 3. Test and replace according to Subsection **4.3.2 and 4.3.3.**
Erratic Weights	1. Foreign object around load cells, ramps, or under platform. 2. Excessive vibration near platform. 3. Instrument faulty. 4. Platform not level within ¼" (3.0°). 5. Surface not smooth enough (within 1/8"). 6. Faulty/bad Load Cell.	1. Clear the area. 2. Remove the vibration source. 3. Service Instrument. 4. Level the platform surface. 5. Find a smoother surface for the platform. 6. Test and replace according to Subsection **4.3.2 and 4.3.3.**
Inaccurate Weights	1. Instrument out of span. 2. Instrument not properly adjusted to zero. 3. Faulty/bad Load Cell.	1. Check and alter per the Instrument Service Manual. 2. Zero the instrument according to normal operation procedures. 3. Test and replace according to Subsection **4.3.2 and 4.3.3.**

4.2. SCALE PLATFORM TROUBLESHOOTING

Except for severe structural damages, most Platform Assembly problems can be traced to the following causes.

- **Material under or around the Platform.**
- **Broken Load Cell Feet.**
- **Faulty Load Cells.**
- **Incorrect, loose or damaged Load Cells.**

4.2.1. Scale Platform Testing

1. Inspect the Interface Cable from the Platform to the Instrument for visible breaks or cracks.
2. **ZERO** the Instrument Display.
3. Apply a test load of **25% of the Load Cell capacity** to one corner.
   - The Instrument should display a weight reading within 0.1% of the applied weight, or One Instrument Division, whichever is greater.
4. Repeat Step 3 for all the corners, placing the same Test Load on each corner.

4.2.2. Load Cell Testing

When corners do not match the correct tolerances, unsolder each Load Cell Cable, then test each Load Cell for the settings on the following chart.

TEST	READING	REMARKS
Green to Black (Input)	1106 Ohms (+5 / -2 Ohms)	Input Resistance
Red to White (Output)	1000 Ohms (+5 / -2 Ohms)	Output / Bridge Resistance
Yellow (Shield) to Load Cell Case	More than 1,000 megohms	Insulation Resistance
Input and Output Leads to Shield		
Input and Output Leads to Case		

If any Load Cell fails, it should be replaced according to Subsection 4.4.

4.2.3. Load Cell Replacement Steps

NOTE: *Torque the* **two (2) Load Cell Fastening Bolts** *to* **90 ft/lbs** *when replacing them.*

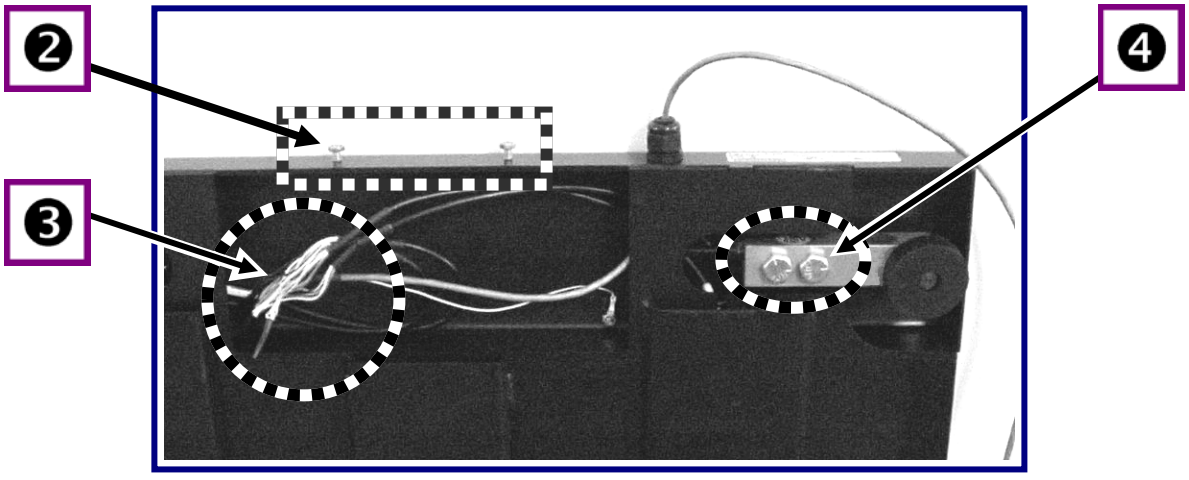
★ IMPORTANT PRECAUTION ★

DO NOT CUT OR SHORTEN ANY LOAD CELL CABLES!

C A U T I O N

ALWAYS **remove power from the Instrument before servicing.**

1. Lift the scale on its end.
2. Unscrew the two (2) 7/16” bolts and open the Load Cell Wiring Panel.
3. Locate and cut the defective Load Cell Interfacing Cable connection.
4. Remove the two bolts securing the damaged Load Cell to its mounting block.
5. Remove the Load Cell from the Platform.
6. ***Make a note of the cable routing design and the wiring connections.***



4.2.3. Load Cell Replacement Steps, Continued

7. Carefully remove the new replacement Load Cell from its packing.
8. Inspect it thoroughly for any obvious shipping or handling damages.
9. Remove the Load Cell Foot Assembly from the defective Load Cell, then place it onto the new replacement Load Cell.
10. Replace the new Load Cell onto its Mounting Block, then secure it with the Mounting Bolts.
11. Torque each Mounting Bolt to 90 ft/lbs.
12. Secure the Load Cell Cable into place.
13. Strip away the insulation from the four (4) Load Cell to a minimum of ¾".
14. Using **Crimp Connectors,** fasten all five (5) green wires together, all five (5) black wires together, all five (5) white wires together, all five (5) red wires together, and all five (5) yellow wires together.

WIRE COLOR	
Red	(–) Signal
White	(+) Signal
Black	(–) Excitation
Green	(+) Excitation
Yellow	Ground

15. Replace the Wiring Panel Cover, then screw in the two (2) 7/16" bolts.
16. Level the scale.
    - Turn the Load Cell Foot clockwise or counter-clockwise to level the scale.
    - Be careful not to unthread the foot from the loading pin.
17. Reapply power to the Instrument.
18. ***Recalibrate the scale with the Instrument Service Manual.***
19. Test the Platform for proper operations.

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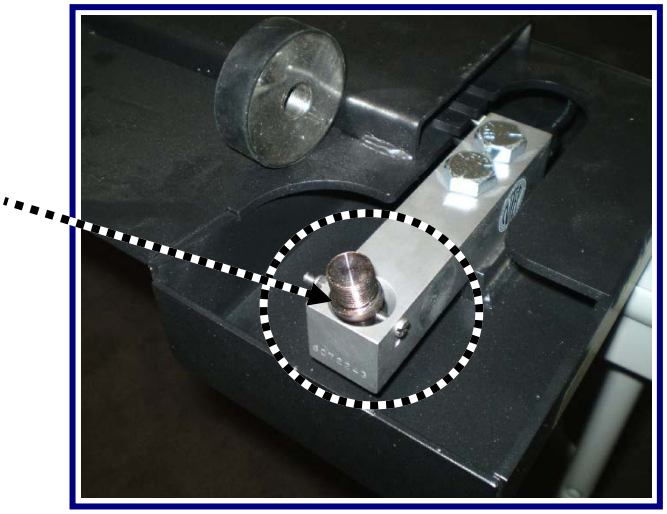


Section 5: Parts

5.1. 30 X 30 MILD STEEL PARTS LIST (P/N 28374)

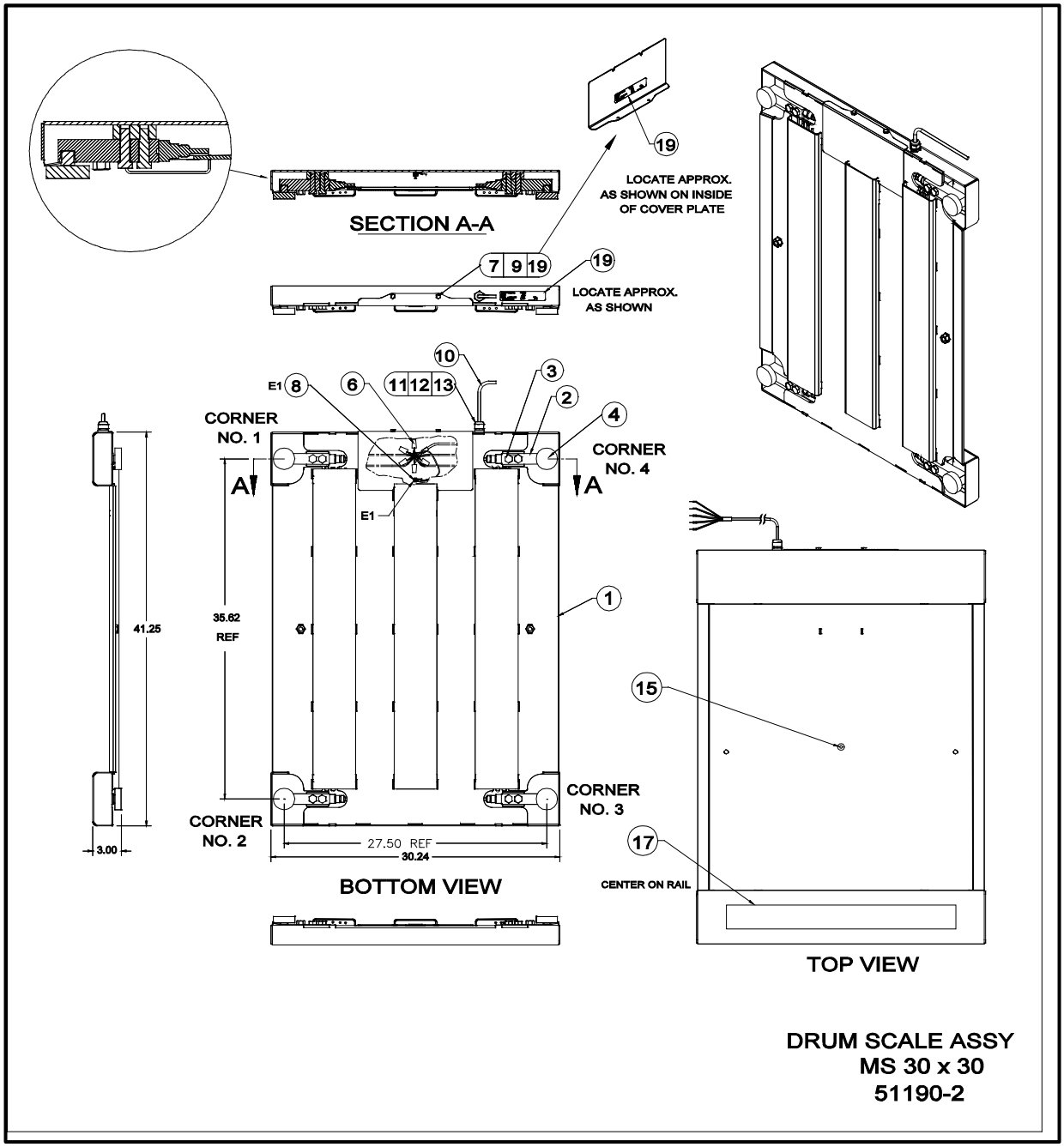
PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	28388	1	WELDMENT, PLATFORM
2	SEE TABLE BELOW	4	LOAD CELL LC1-LC4
3	11168	8	SCREW, CAP, 1/2-20 X 1.75
4	63899	4	FOOT
5			
6	24988	5	WIRE NUT, CRIMP ON STYLE
7	28384	1	COVER
8	10105	2	NUT, HEX 10-24 MS
9	28599	2	SEALING SCREW 1/4-20 X .50
10	12838	1	CABLE ASSY, 30' W1
11	17546	1	CONNECTOR, LIQUID TIGHT
12	14278	1	NUT, GLAND
13	11175	1	BOOT
15	11039	1	BUBBLE LEVEL
17	28896	1	LABEL, FAIRBANKS

LOAD CELL TABLE

PART NO.	MODEL NO.	CAPACITY	LOAD CELL
28742	3200-102	2000 LB	83634
28376	3200-103	2500 LB	83634
28375	3200-101	1000 LB	83634
28374	3200-100	500 LB	63893

SCALE ASSY, DRUM
MILD STEEL-30 x 30
51190-1

5.2. 30 X 30 MILD STEEL PARTS DIAGRAM (P/N 28374)



5.3. 30 X 30 STAINLESS STEEL PARTS LIST (P/N 28379)

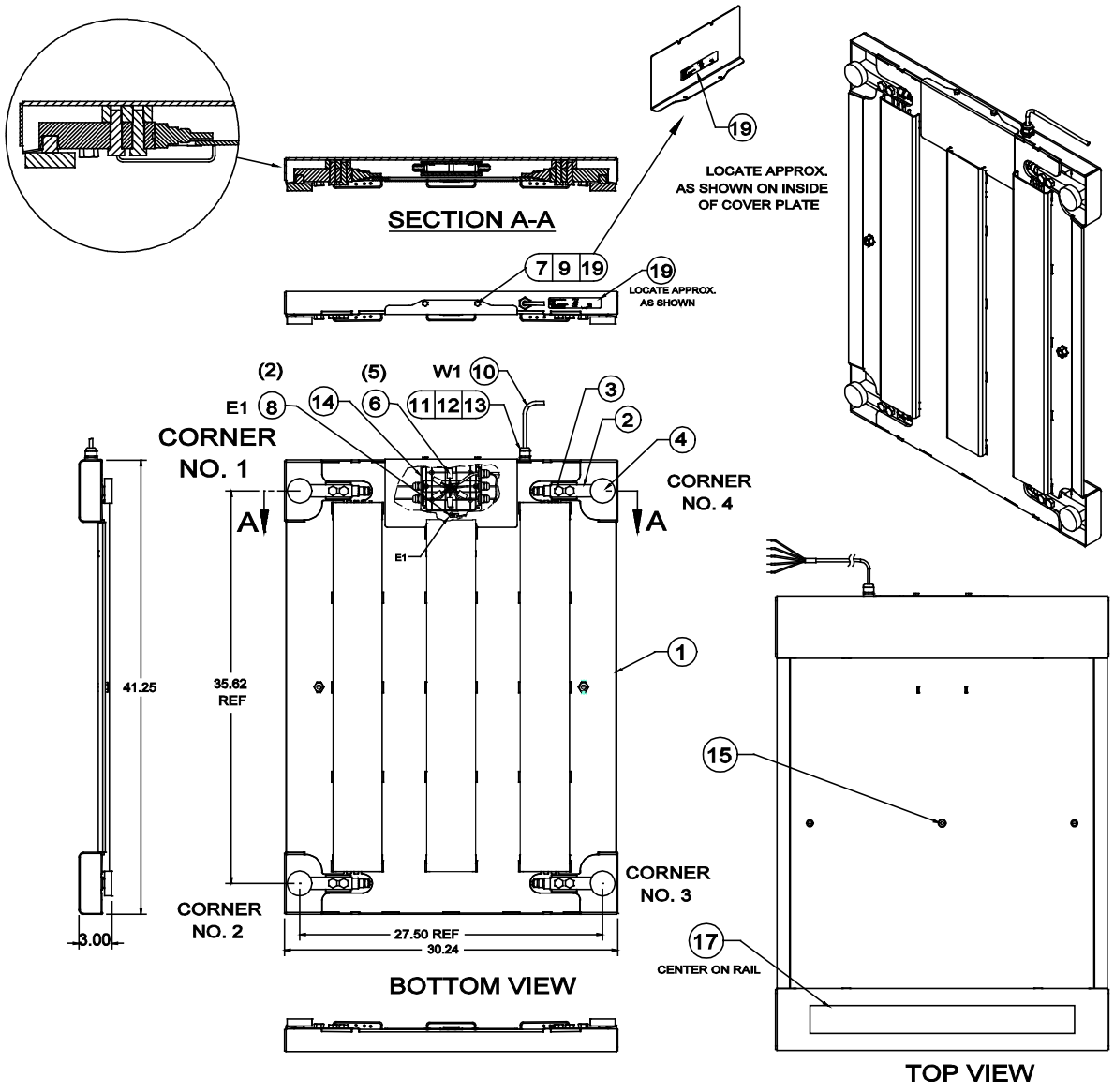
PARTS LIST				
ITEM	PART NO.	QTY	DESCRIPTION	
1	28389	1	WELDMENT, PLATFORM	
2	SEE TABLE BELOW	4	LOAD CELL	LC1-LC4
3	11088	8	SCREW, CAP, 1/2-20 X 1.75	
4	63899	4	FOOT	
5				
6	24988	5	WIRE NUT, CRIMP ON STYLE	
7	28385	1	COVER	
8	11099	2	NUT, HEX 10-24 SS	
9	28599	2	SEALING SCREW 1/4-20 X .50	
10	12838	1	CABLE ASSY, 30'	W1
11	17546	1	CONNECTOR, LIQUID TIGHT	
12	14278	1	NUT, GLAND	
13	11175	1	BOOT	
14	28729	1	BOX ASSY, PLASTIC JUNCTION	
15	11039	1	BUBBLE LEVEL	
17	28896	1	LABEL, FAIRBANKS	

LOAD CELL TABLE

PART NO.	MODEL NO.	CAPACITY	LOAD CELL
28743	3200-106	2000 LB	63895
28381	3200-107	2500 LB	63895
28380	3200-105	1000 LB	63895
28379	3200-104	500 LB	63898

SCALE ASSY, DRUM
ST. ST.-30 x 30
51190-3

5.4. 30 X 30 PARTS DIAGRAM (P/N 28379)



SCALE ASSY, DRUM
ST. ST.-30 x 30
51190-4

5.5. 38 X 38 MILD STEEL PARTS LIST (P/N 28723)

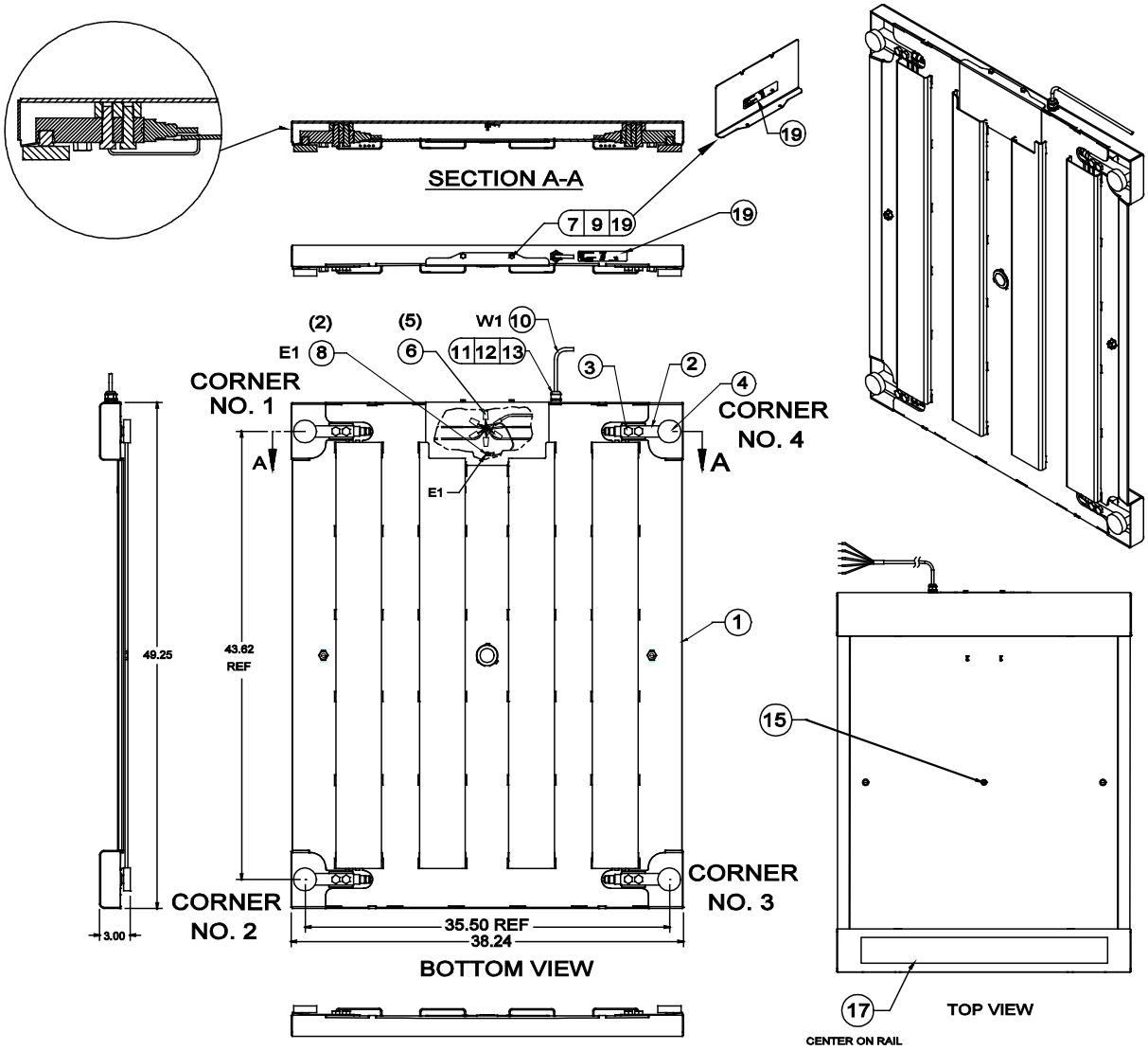
PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	28719	1	WELDMENT, PLATFORM
2	SEE TABLE BELOW	4	LOAD CELL LC1-LC4
3	11168	8	SCREW, CAP, 1/2-20 X 1.75
4	63899	4	FOOT
5			
6	24988	5	WIRE NUT, CRIMP ON STYLE
7	28384	1	COVER
8	10105	2	NUT, HEX 10-24 MS
9	28599	2	SEALING SCREW 1/4-20 X .50
10	12838	1	CABLE ASSY, 30' W1
11	17546	1	CONNECTOR, LIQUID TIGHT
12	14278	1	NUT, GLAND
13	11175	1	BOOT
14			
15	11039	1	BUBBLE LEVEL
17	28896	1	LABEL, FAIRBANKS

LOAD CELL TABLE

PART NO.	MODEL NO.	CAPACITY	LOAD CELL
28746	3200-202	2000 LB	83634
28725	3200-203	2500 LB	83634
28724	3200-201	1000 LB	83634
28723	3200-200	500 LB	63893

SCALE ASSY, DRUM
MILD STEEL - 38 x 38
51190-5

5.6. 38 X 38 MILD STEEL PARTS DIAGRAM (P/N 28723)



DRUM SCALE ASSY
MILD STEEL-38 x 38
51190-6

5.7. 38 X 38 MILD STEEL PARTS LIST (P/N 28726)

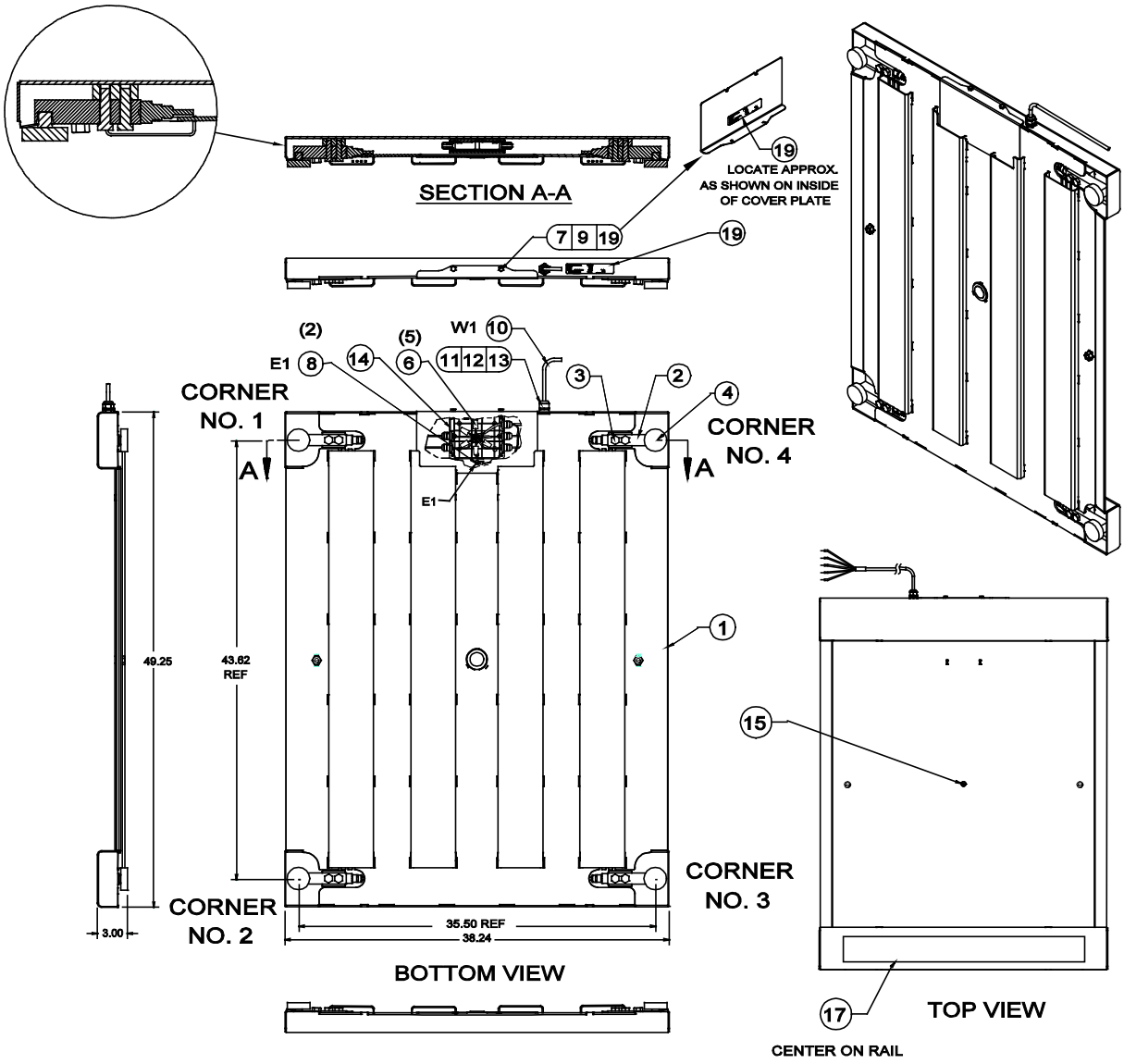
PARTS LIST			
ITEM	PART NO.	QTY	DESCRIPTION
1	28720	1	WELDMENT, PLATFORM
2	SEE TABLE BELOW	4	LOAD CELL LC1-LC4
3	11080	8	SCREW, CAP, 1/2-20 X 1.75
4	63899	4	FOOT
5			
6	24988	5	WIRE NUT, CRIMP ON STYLE
7	28385	1	COVER
8	11099	2	NUT, HEX 10-24 SS
9	28599	2	SEALING SCREW 1/4-20 X .50
10	12838	1	CABLE ASSY, 30' W1
11	17546	1	CONNECTOR, LIQUID TIGHT
12	14278	1	NUT, GLAND
13	11175	1	BOOT
14	28729	1	BOX ASSY, PLASTIC JUNCTION
15	11039	1	BUBBLE LEVEL
17	28896	1	LABEL, FAIRBANKS

LOAD CELL TABLE

PART NO.	MODEL NO.	CAPACITY	LOAD CELL
28747	3200-206	2000 LB	63895
28728	3200-207	2500 LB	63895
28727	3200-205	1000 LB	63895
28726	3200-204	500 LB	63898

DRUM SCALE ASSY
ST. ST.-38 x 38
51190-7A

5.8. 38 X 38 STAINLESS STEEL PARTS DIAGRAM (P/N 28726)



DRUM SCALE ASSY

ST. ST.-38 x 38

51190-8

5.9. ACCESSORY PART NUMBERS

Part Number	Part / Description	
27779	Ramp Assembly	30 x 30
27791	Ramp Assembly with Pillar	
28549	Wheel Base Assembly	
28396	Stand-alone Pillar Assembly	
22119	2802 Intrinsically Safe Controller	
15291	Quad-multiplexer Board	
67171M	Analog Junction Box for Mild Steel Scale	

28585	Ramp Assembly	38 x 38
28591	Ramp Assembly with Pillar	
28774	Wheel Base Assembly	
28396	Stand-alone Pillar Assembly	
22119	2802 Intrinsically Safe Controller	
15291	Quad-multiplexer Board	
67171M	Analog Junction Box for Mild Steel Scale	

Aegis Drum Scale &
Drum Scale with Backstop

INSTALLATION MANUAL
DOCUMENT 51190

Manufactured by Fairbanks Scales, Inc.
821 Locust St.
Kansas City, MO 64106

www.fairbanks.com