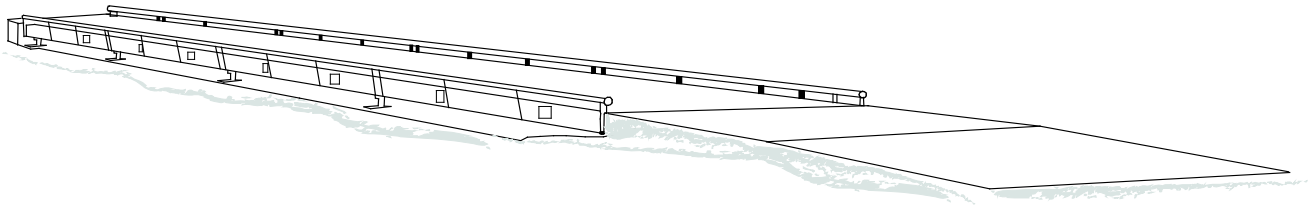
Instructional Manual

Talon Series
Motor Truck Scale
HV Series
HVX Series



51349
Rev. 16 05/25

Amendment Record

Talon Series Motor Truck Scale
HV and HVX Series

Document 51349

Manufactured by **Fairbanks Scales Inc.**

Revision #	Date	Update
Revision 1	11/2014	New Documentation release.
Revision 2	03/2015	Corrected parts list.
Revision 3	06/2015	Updated parts list
Revision 4	05/2515	Updated: Pit Power Supply part #
Revision 5	12/2015	Updated: Parts > New load cell (p/n 161197)
Revision 6	01/2016	Updated: Parts > Load Cells and Hardware
Revision 7	10/2016	Updated: Scale Maintenance instructions
Revision 8	06/2018	Updated: Field Pour Installation instructions; Appendix V: Talon Models
Revision 9	05/2518	Updated: Electrical Installation section
Revision 10	10/2019	Updated: Hydraulic Jack details
Revision 11	09/2020	Updated: lifting hook procedure
Revision 12	04/2021	Updated: Tools; Setting the Modules sections
Revision 13	06/2021	Updated: Parts
Revision 14	08/2021	Added: Spare parts list
Revision 15	10/2021	Updated: Parts
Revision 16	05/2025	Updated: Parts

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 Scale 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 Scale 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

This Instruction manual provides installation instructions for the Fairbanks Modular Steel and Field-Pour model scales.

For correct Talon Scale installation, use these tools.

- Methods and Procedures FF-2267 / 101732 (Appendix I).
- The Certified prints/setting plans supplied with the scale.
- This Instruction Manual, **51349.**

The concrete foundation work must be performed according to the Certified prints issued for the specific customer and order number.

– The name and order number for the particular customer will be on the prints.

1.1.1. Load Cell Technical Specifications

Capacity	***66,000 lbs.***	***110,000 lbs***
Type	*4 $^{11}/_{16}$" Stainless Steel Rocker Column (RC Cells)*	
Sealing	*Glass-to-Metal Connection Points, complete hermetic sealing; cable entry sealed by four (4) water-tight gland bushings*	
Material	*Stainless Steel*	
Rating	*NEMA 6P (IP68 / 69K)*	
Resistance	*1,000 Ohms*	
Operating Temperature	*-10 to +40°C (-14 to 104°F)*	
Output	*2.4 mv/v*	*2.0 mv/v*
Combined Error	*≤0.02%*	
Zero Balance (FSO)	*1.0%*	
Excitation	*5 to 15 VDC*	
Ultimate Overload	*300%*	
Cable Length	*15'*	
Cable Protection	*Stainless Steel Sheathing*	
Approvals	*NTEP CC# 14-024* *Factory Mutual (FM) Approved*	

1.1.2. Platform Specifications

Deck Dimensions	*Widths: 10', 11' and 12' Standard* *Lengths: 10' to 120' Standard* — *Custom sizes also available.*	
Scale Capacity	*60 tons to 150 tons*	
CLC	*90,000 and 100,000*	
Sections	*2 thru 7*	
Deck Construction	*Steel*	*Field Pour Concrete*
Module Construction	*Structural Steel*	
Deck Thickness	*HV =1/4" plate HVX 3/8" plate*	*HV=10" thick HVX=12" thick*
Approval	*NTEP CC#* 96-089 MC# AM-4949	

1.1.3. Scale Description

The **TALON Modular Steel** and **Field Pour truck scales** are available in various lengths and widths.

- The scale is made up of modules of **10', 15', 20'** or **23'-4".**
- All modules are assembled and welded at the factory.

Locate the scale so that trucks can approach and exit easily.

- Smooth and level approaches are required at each end of the platform to reduce loading shock and facilitate scale testing.
- Approaches must conform to the requirements of the law in the state in which the scale is being installed.
  - *In the absence of such laws, the approaches must conform to* ***P*****aragraph UR.2.6 National Institute of Standards and Technology Handbook 44**.
  - *The first ten feet (10') must be level and on the same plane as the scale platform.*
- The platform should be visible from the instrument location.
- It must be built so surface water will drain easily, and not collect under the scale.

1.1.4. Users' Responsibility

- ✓ **All electronic and mechanical calibrations and/or adjustments required for making this equipment perform to accuracy and operational specifications should be performed by trained service personnel.**
- ✓ **Absolutely no physical or electrical modifications other than selection of standard options and accessories are to be made to this equipment.**
- ✓ **Electrical connections other than those specified may not be performed, and physical alterations (holes, etc.) are not allowed.**

Please call your local

FAIRBANKS SCALES REPRESENTATIVE

For any question, problems, or comments.

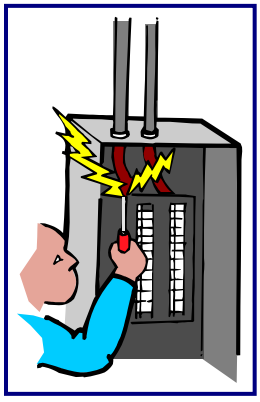
Section 2: Installation

2.1. General Service Policy

- Instructions within this manual apply to the instrument and its specific accessories. Installation procedures for printers and other peripherals are given in manuals specifically provided for those units. The instructions include a pre-installation checkout which must be performed either at the service center before the technician goes to the site, or at the site before he places the equipment in service.
- All electronic and mechanical calibrations and/or adjustments required to make this equipment perform to accuracy and operational specifications are considered to be part of the installation, and 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.**

All load cells, load cell cables, and all interconnecting cables used for the scale components must be located a minimum of thirty-six inches (36") away from all single and multiple phase high energy circuits and electric current-carrying conductors.

- This includes, but is not limited to **digital weight instruments, 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**.
- Scale components themselves must also be at least **thirty-six inches (36") away** from other high energy components, including the following devices.
- Any machinery with outputs of **120, 240**, or **480 VAC**.
- High 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 all relay boxes.
- Scale components are not designed to operate on internal combustion engine driven electric generators and other similar equipment.
  - This includes all digital weight Instruments and peripheral devices.



- Electric arc welding can severely damage scale components, such as digital weight Instruments, junction boxes, sectional controllers, power supplies, and load cells.
- The Service Technician's responsibility that all personnel are fully trained and familiar with the equipment's capabilities and limitations before the installation is considered complete.

2.2. Standard Installation Steps

Standard installation consists of these steps.

- Foundation check, layout, and base plate setting
- Tools, materials, documentation, and a crane
- Setting the modules
- Setting the modules on load cells

2.3. Pre-Installation Guidelines

*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.*

- If the installation process might disrupt normal business operations, inform the customer to schedule arrangements.
- Is properly-grounded power available at the installation location?
- 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.

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.

2.4. Checklist of Tools, Equipment, and Materials

Listed below are the approximate maximum weights of scale modules. This applies to ***all models****.*

- Steel Modules – 4 tons
- Field Pour Modules – 3 tons
  - With Concrete – 12.5 to 15 tons (+/- 5%)

The following lists all the needs of a standard installation.

☐ Certified Prints

☐ Mobile Crane of sufficient capacity to safely lift and place the weigh bridge modules. Requested in advance from crane vendor

☐ Four (4) Lifting Chains/Cables with Hooks*

  – Equal in length (20 ft.) to safely lift and install the modules.*

☐ Machinists Levels (Starrett # 134 & 132-6)

☐ Hand Tools

☐ Hammer Drill with 5/8" Bit, 24" long

☐ Low profile hydraulic jacks (2)

  – Hydraulic Jacks that have sufficient capacity plus (+) a safety factor for the model of scale you are installing.

  – Recommended Jacks:

    - Enterpac model CUSP50 cylinder
    - Enterpac model P141 pump
    - Enterpac model HB9206Q hose
    - Enterpac model A360 coupler
    - Enterpac model FZ1630 reducer
    - Available at www.enerpac.com

☐ 100' Steel Tape Measure–String-line and / or chalk-line

☐ Pry-bars

☐ Grease and anti-seize (***see note below***)

NOTE: **Grease** for load cell cups: equal to *Super Lube White Grease* (food grade)

☐ Load Cell Locating Tools (one per load cell)

  – **157069** for 4 $^{11}/_{16}$" cell

☐ Timbers for Field Pour Shoring, **4" x 4" x 12'**

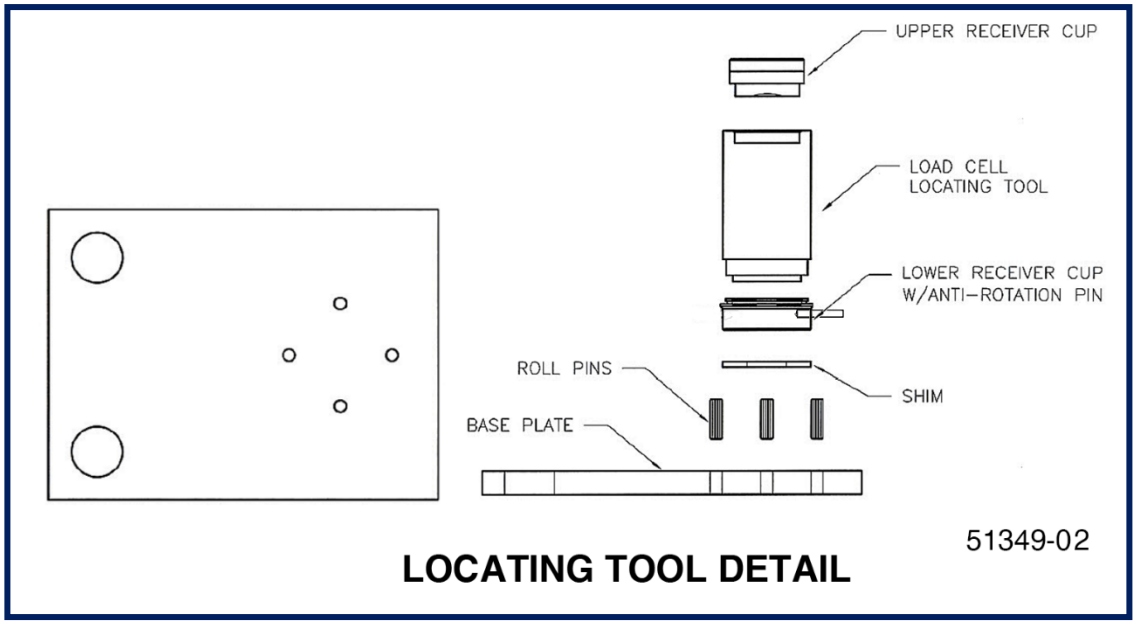
2.5. Installation

2.5.1. Installing the Foundation

*Noted below are the steps to a **STANDARD FOUNDATION INSTALLATION.***

- The foundation must be checked for accuracy using Foundation Inspection.
- Before installing any part of the scale **Field Check List, FF-2267 / 101732.**
  - *See* **APPENDIX I: FOUNDATION CHECKLIST.**

1. Layout and position the base plates in the proper locations using the Methods & Procedures and Certified prints.
   - Each base plate must be level and in full contact with the top of the pier.
   - Adjustments can be made by chipping the concrete or grouting under the base plates.
2. Re-check the locations of each base plate against the Certified prints.
3. Insert four (4) $^{3}/_{8}$" roll pins into each baseplate to retain cup.
4. Put a $^{3}/_{16}$" shim on the Baseplate between the Retaining Pins and under the Lower Cup.
   - The Lower Cups for the load cells have a pin which should be aligned in, towards the center line of the scale.
5. Place the upper cup on the edge of the upper foundation next to each base plate.
6. Place the Load Cell Locating Tool next to each Base Plate.



LOCATING TOOL DETAIL

2.5.2. Setting the Modules

1. Steel Deck Scales

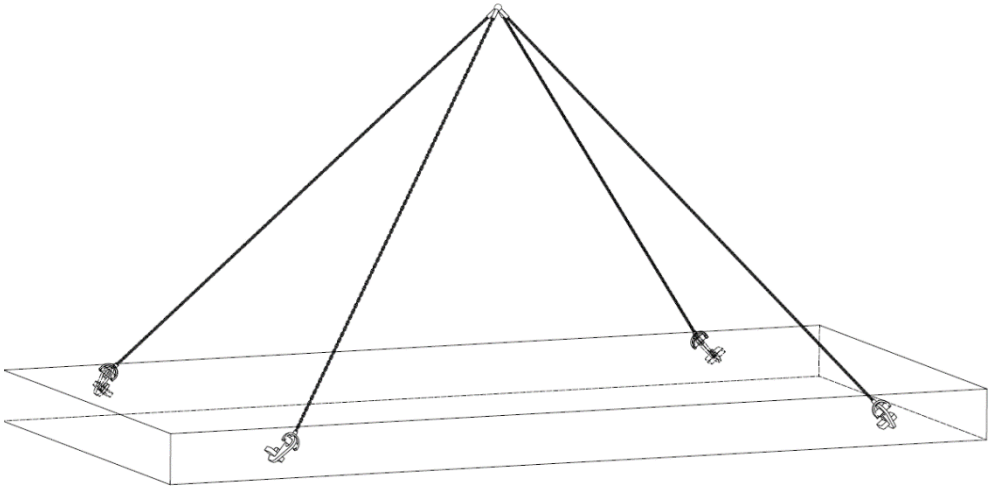
a. Prepare the modules for lifting

b. The modules use a “lifting hook & receiver” method to safely and easily rig the scale for lifting.

c. Open box on truck labeled “Lifting Hooks” and insert a lifting hook into each slanted receiver near the “Lift Here” labels on the sides of the scales.

d. After the lifting hook is securely in place, proceed to rig the lifting points at the operator’s preference following safety guidelines on the bulletin included in the box.

e. The scale should be balanced properly when all four hooks are used.



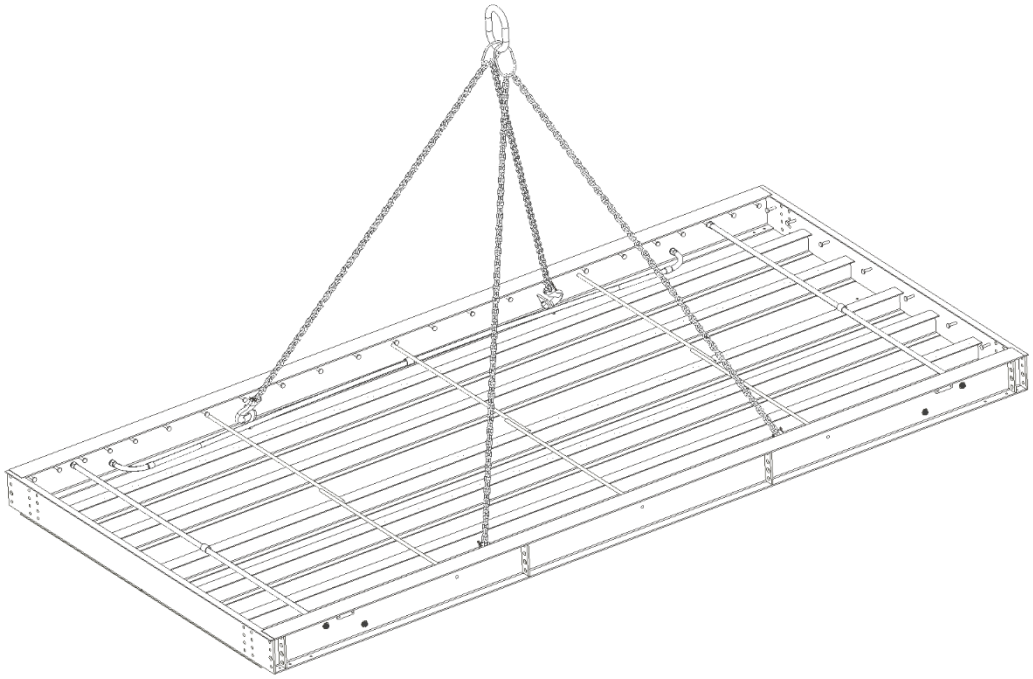
f. Once the module is set into place, slide the hooks out and repeat for next module.

2. Field Pour Scales

a. Modules are provided with lifting lugs on the inside of the outer beams. Hook chains or straps as preferred by operator to lift scale.

b. No bolts are required.

c. The scale should be properly balanced when all four lugs are used evenly.



2.5.3. Setting the Center Module

1. Always set the center module into place first.
   - The center module has four load cells to install, all other modules will have two load cells.
   - The modules must be placed in the proper order and aligned in the foundation so that all modules fit correctly.
2. Place blocks that will set the modules at a height slightly less than the finished height as safety blocks, or for setting the modules on.
3. Lift the center module to a location above the four-center load cell base plates.

OPTION 1

a. Set the module directly on the locating tools and the blocks will act as safety stands.

b. Install a Load Cell Bearing Cup into the upper receiver of each corner, grease will help hold the cup in place.

c. Insert the upper end of the locating tool over the upper cup on the module.

d. Lower the module while holding the locating tool upright and guiding the bottom of the tool into the lower cup.

e. When the center module is set on all four locating tools, keep tension on the cables until the module is centered and straight.

f. Use hydraulic jacks to lift the unit slightly and shift the base plates to get the locating tools plumb and the bottom flange **FLUSH** with the side of the cup.

OPTION 2

a. Set the modules on the blocks first, then onto the locating tools.
   - *When the module is set on the blocks, keep tension on the cables until the module is properly aligned.*
   - *Use hydraulic jacks to lift the unit slightly then install the locating tools.*

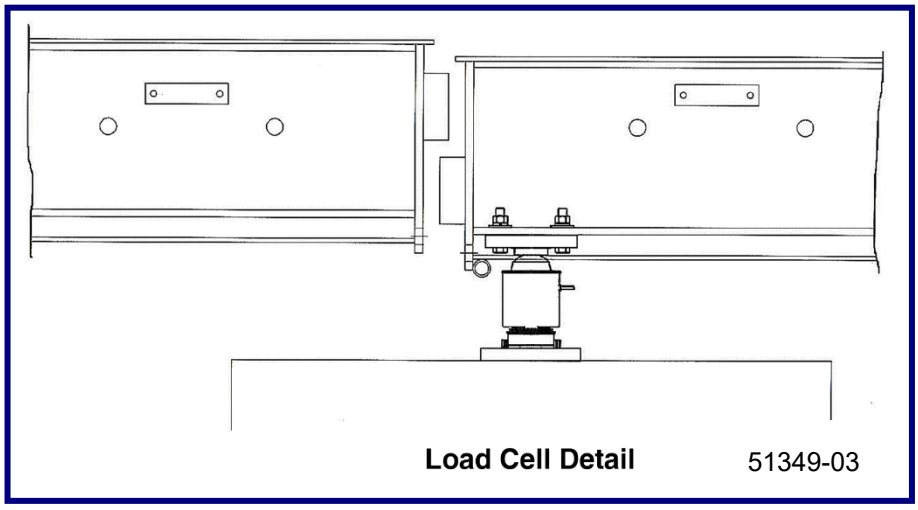
b. Shift the base plates to get the tools plumb with the bottom flange, **FLUSH** with the side of the cup.

4. After completing **Option 1 or 2**, measure from each side of each end of the module, to the end walls, to be certain the module is plumb and square before removing tension.

– Once the tension on the lift cables is released, remove the lift cables.

2.5.4. Setting End Modules

1. Guide the modules into place with the supporting blocks on the end of the module coming to rest on the supporting blocks of the center module.
2. Lower the other end of the module onto the load cell locating tools or blocks (see below).



Load Cell Detail 51349-03

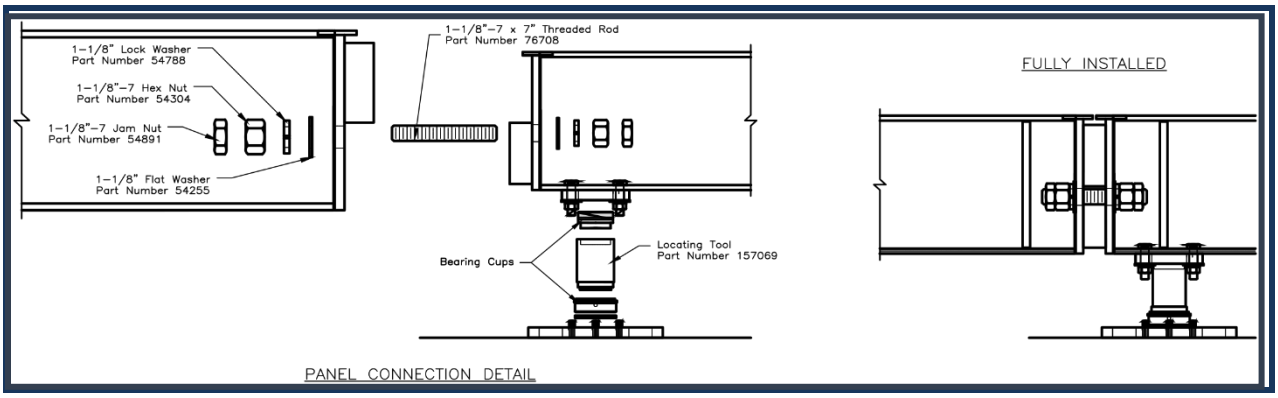
3. Before releasing tension on the cables, check the alignment of the end modules to the center module and to the end wall.

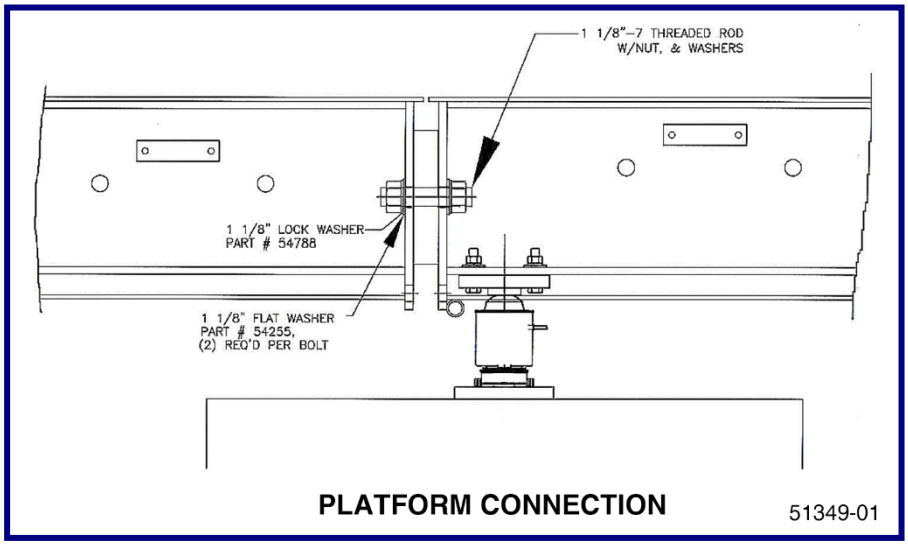
– Use the shims provided to set height and fill any gaps on the supporting blocks to get the modules aligned.

Repeat this process for the other end of the module, or for the Interior Module.

2.5.5. Connecting the Modules

1. Bolt the modules together using the 1-1/8" x 7" full-thread rod, lock washer, flat washers and nut provided.
2. Shim the supporting blocks, as needed to align modules.
3. Snug the nuts, but do not fully tighten them yet.





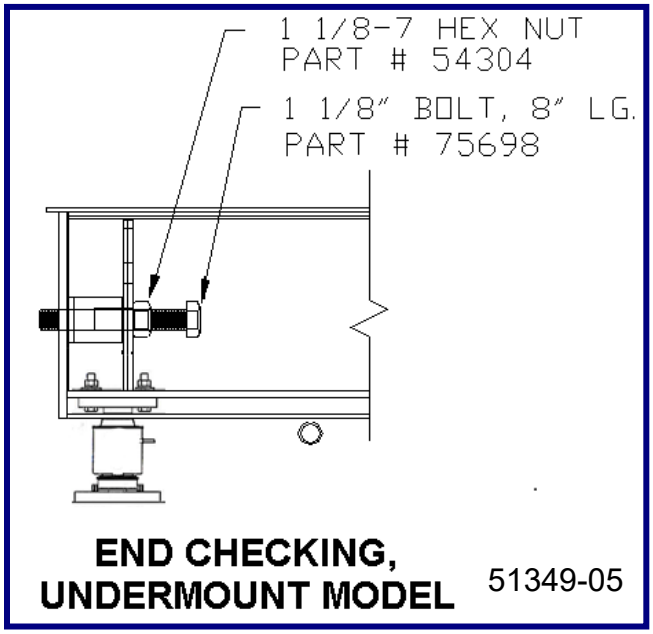
WARNING!

Module-to-module bolts MUST be installed correctly and torqued properly after all steps are completed.

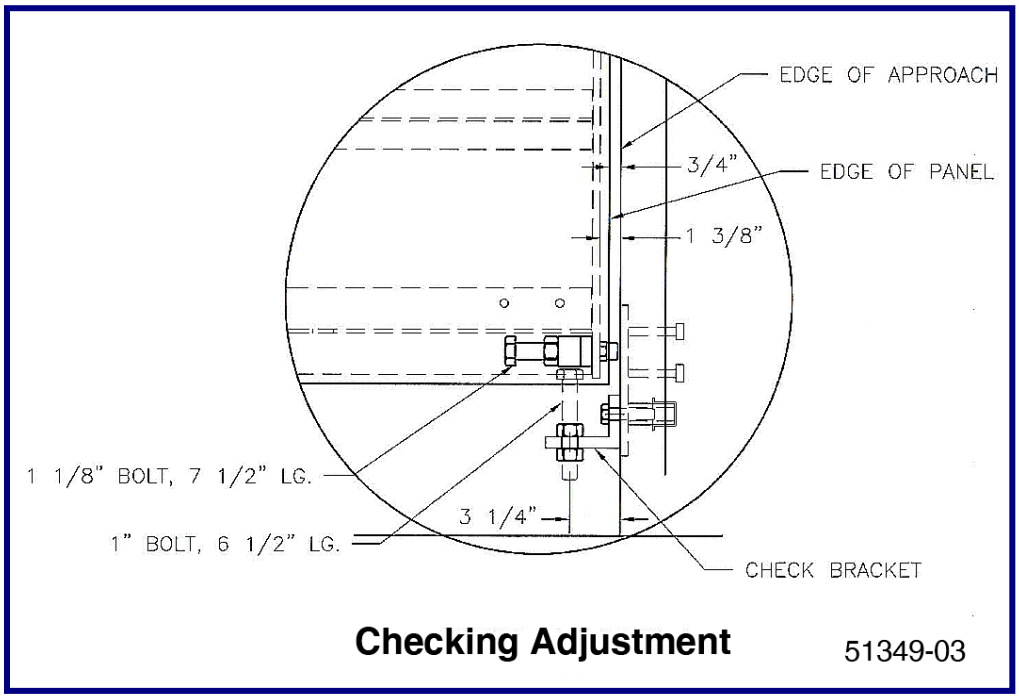
Do NOT substitute or omit any bolts.

2.5.6. Checking Adjustment

1. Adjust the **End Checking**.
   – Set the **End Checking Bolts** so that they touch and prevent movement.
2. Install the Side Checking Brackets.
3. Bolt the brackets to the end checking plates embedded in the end walls according to the Certified Prints.
   – Set the bolts so that they touch the block they bump against.



END CHECKING, UNDERMOUNT MODEL 51349-05



Checking Adjustment 51349-03

2.5.7. Base Plate Completion

1. Check that all locating tools are properly aligned and flush with the receiver cups.
2. Drill the holes for the outside base plate anchors using a hammer drill and the 5/8" drill bit.
3. Tap the anchors into clean holes and tighten the nuts securely.

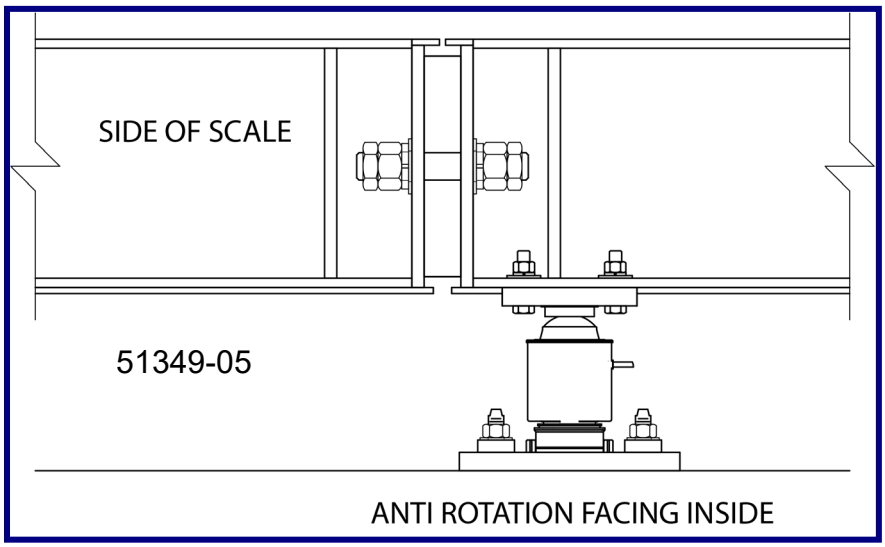
2.5.8. Installing Load Cells

1. Unpack the load cells and mark each calibration certificate with the load cell location and position.
2. Assemble Anti-rotation Clip to the side of the Load Cell.
3. Starting at one end of the assembled platform, place hydraulic jacks at the corners so the section can be lifted off the locating tool.
   – Two (2) hydraulic jacks may be required.
4. Lift the platform so the load cell locating tool can be removed from the upper and lower bearing cups.
5. Once removed, fill both cups with grease (provided with the cups).

6. Carefully lower the scale (hydraulic jacks) while seating the bottom of the cell into the lower cup.

NOTE: Anti rotation must be positioned to the inside of scale. See illustration below:

2.5.8. Installing Load Cells, Continued



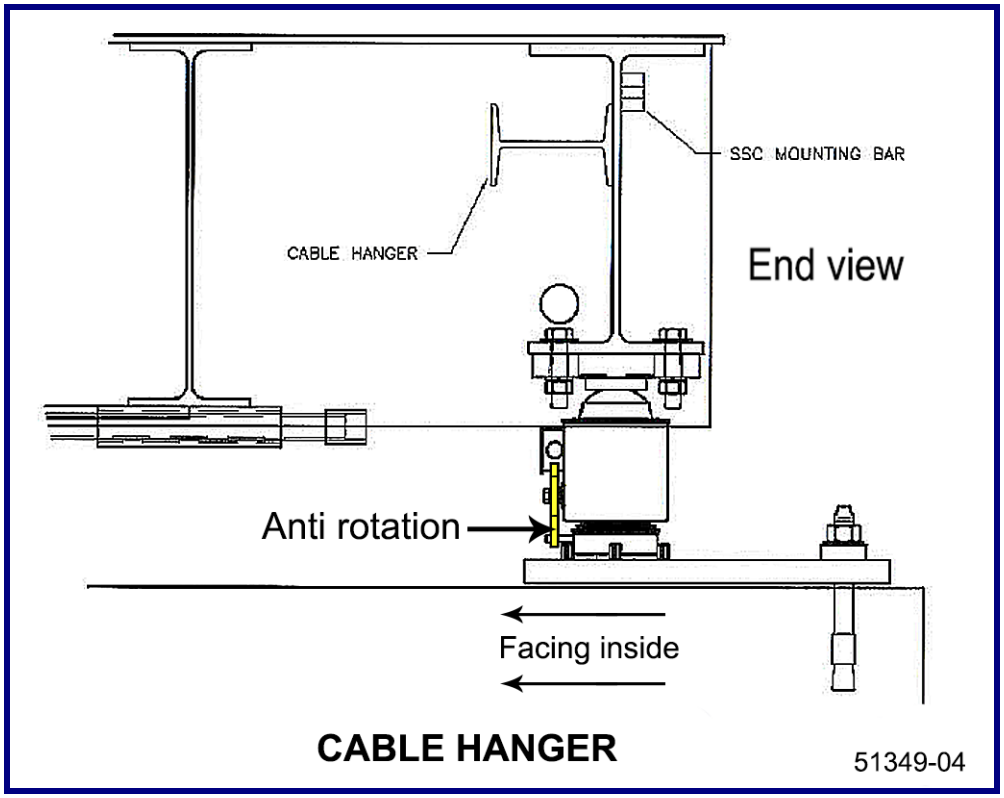
7. Check the scale's level and height, particularly at the approaches.
8. Use the load cell shims provided to adjust load cell cups for correct height and to ensure that all cells share an equal amount of the load.
   – Center section cells will have up to twice the dead-load of end section cells.
9. When the height and level are correct, tighten the module-to-module bolts.
   – Torque the nuts to **five hundred (500) ft./lbs**.

2.5.9. Load Cell Cables

Cable protection on truck scales is extremely important to the reliability of the scale. It is imperative for all cables to be installed off of the ground and out of sight. The Talon truck scale has been designed to accommodate this type of cable protection. Described in this section is the manufacturer's recommended installation procedure for installing and protecting cables on the Talon Truck Scale.

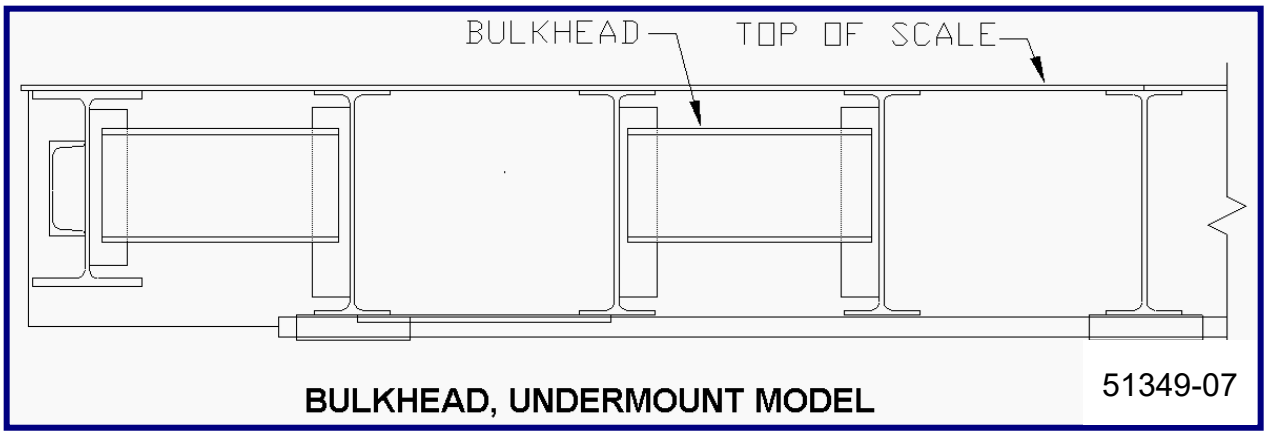
CABLE HANGERS

Cable Hangers are located behind every SSC or PPS mounting block for all excess load cell and interconnecting cables.



CABLE ROUTING

1. Route the load cell cables through the conduits that go across the bottom of the scale laterally. Route the junction box interface cables through the conduits that ran longitudinally along the inside web of the side beams.
2. Once all wiring is complete, fasten all the cables together and hang them safely out of sight on the cable hanger.
   – In a correct installation, the only cables visible are those coming out of the holes in the side beam to the SSC or PPS.



2.5.10. Final Checking Adjustment

1. Adjust the **End Checking Bolts** to allow **1/16" to 1/8"** clearance.
2. Adjust the **Side Checking Bolts** to allow **1/16"** clearance from Bumper Block.

Section 3: Field Pour Installation

3.1. Introduction

The Field Pour module's installation is much the same as the other models, with some minor variations.

The basic procedure is outlined below.

B. Install the foundation for the scale.

C. Install the base plates.

D. Position and level the shoring.

E. Install the platform modules with locator tools in place.

F. Pour the deck and cure the concrete.

G. Install the load cells.

Field-Pour scales are poured, formed and cured with locating tools in place.

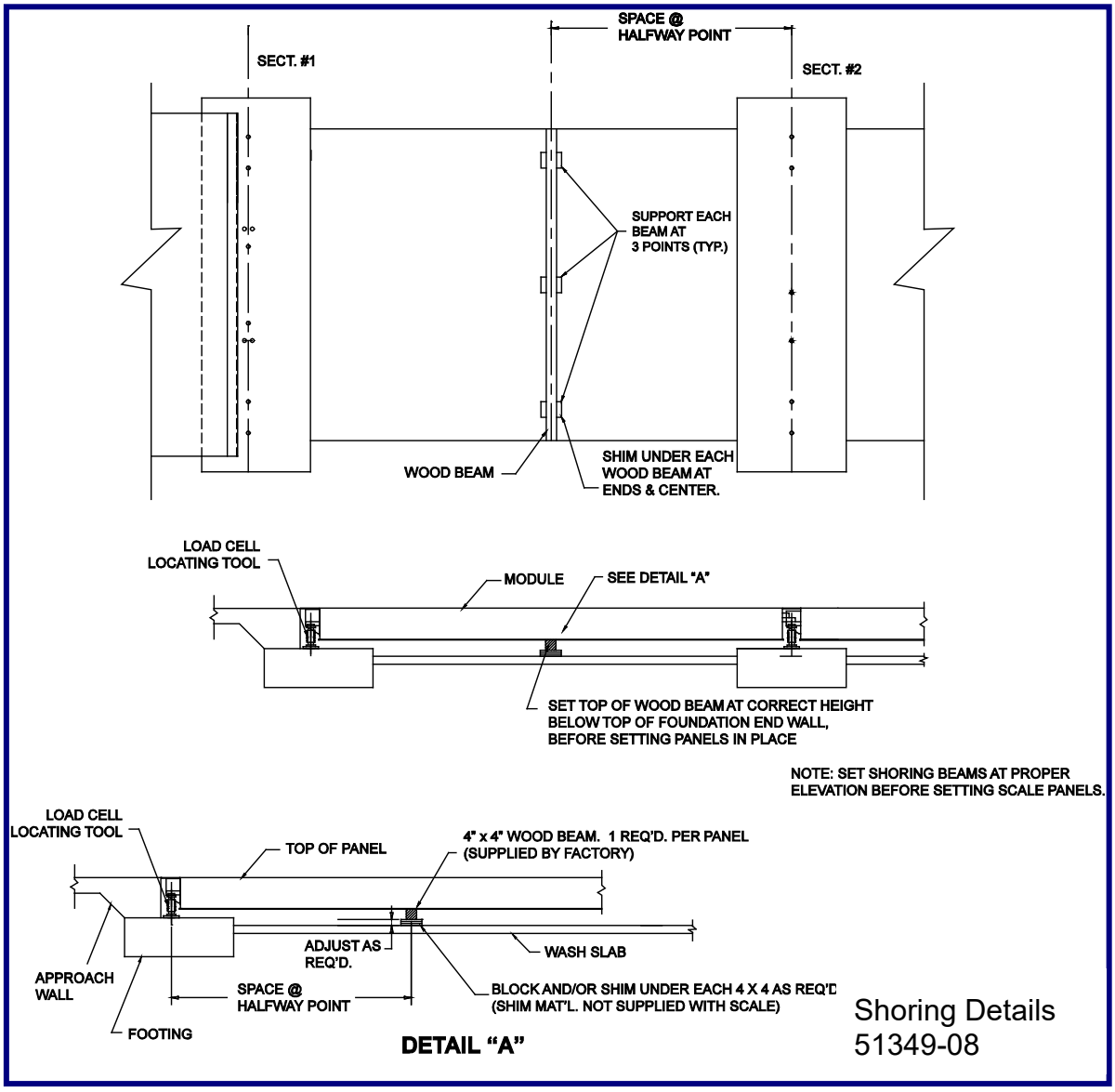
- Install the load cells ***ONLY AFTER*** cure strength is reached.
- Cure strength is typically **28-30 days**.
  - Use a **concrete test cylinder samples** to confirm this.
- Use the **Certified Prints** for all concrete specifications.

3.2. Installation

3.2.1. Shoring

Recommended shoring is made up of the provided **4" x 4" x 12' timbers**.

- The crown of the shoring timbers should be up.
- The actual dimensions of the timbers depends on the distance from the foundation floor to the bottom of the modules.
- The shoring timbers should be located equally spaced between the load cells.
- Shims should be placed under each end and center of the shoring beams to achieve proper elevation.



Shoring Details
51349-08

3.2.2. Setting the Field Pour Modules

NOTE: *The shoring timbers should be placed before setting scale modules.*

Follow these steps to set up the ***Field Pour Modules****.*

1. Using the approach walls as the reference, place the shoring timbers so they will be at the same elevation as the bottom of the weigh bridge.
   - Use a tight string between the approach walls for alignment.
   - Install the modules as outlined in the previous sections, starting with the center module.

WARNING!

The modules *MUST* be set on the locating tools.

Do not support the load cell bracket with lumber, as this will cause the module to twist or warp.

Wedge additional shims as required under the end of the shoring timbers to ensure tight contact between the scale frame and the shoring.

CAUTION

Make sure the edge beams of the scale are straight and not bowed down, or in, before pouring the concrete deck.

Do not install the load cells before the concrete deck is cured.

2. Pour and finish the concrete.
   a. Remove any air bubbles and work the material into all of the corners with a spud-type vibrator.
   b. Use a rough "broom" finish is for the surface.
   c. Crown the concrete one quarter inch (1/4") to allow for drainage.
   d. Allow the concrete to cure until the required minimum strength as specified on the Certified Prints is achieved.

3.2.2. Setting the Field Pour Modules, Continued

NOTE: *Plug all weep holes in the module pans before pouring concrete.*

I M P O R T A N T

Take samples at the time the deck is poured, used for later testing.

At the end of 14 days, test the first sample.

A sample must pass the test at 4,000 psi before the scale can be placed into service.

A copy of the test report must be retained as part of the customer record in the service center or distributor location.

Otherwise warranty will be void.

3. After the concrete has cured, remove all of the shoring.
   – Lift the modules so the shoring can be removed.
4. Install the load cells in place of the locator tools.

W A R N I N G !

Place hydraulic jacks ONLY at the CORNERS of the modules.

Hydraulic jacks must be placed on opposite sides to lift the module in a level position.

Lifting mid span or between load cells will cause cracks in the concrete.

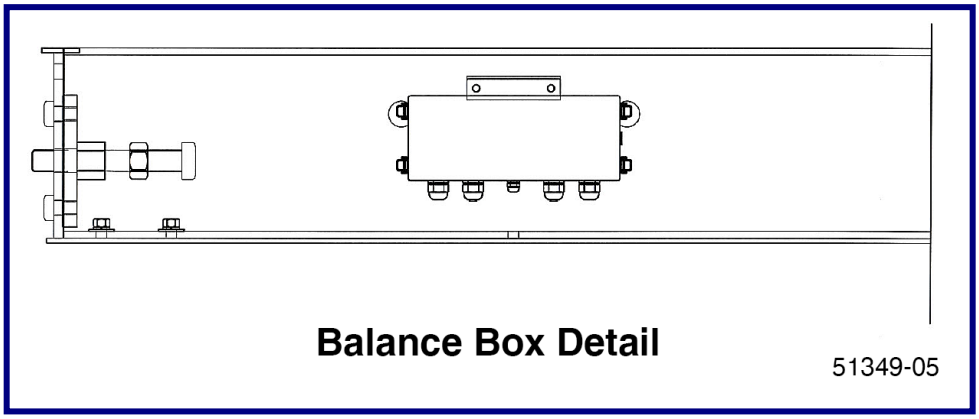
Section 4: Electrical Installation

4.1. Balance Box (21912) for Analog Instruments

Installed the Balance Box (21912) at the platform, one box per section.

- Each Stainless Steel Balance Box has four (4) terminal blocks connecting two (2) load cells and two (2) cables to the analog instrument.
- Load cells and sections are adjusted by potentiometers.

1. Mount the Box thru the tabs to the mounting brackets on the side of the modules.
2. Attach the ground wire lug to one of the mounting bolt studs.
3. Tighten the wire lug securely to provide a good electrical ground.



Balance Box Detail 51349-05

4.2. Wiring for Analog Instruments

NOTE: *All cable wiring must be a minimum of* **18 AWG** (**17204** *or equivalent*).

1. Connect the Balance Boxes from **TB4** to **TB3**
2. *Attach this either at the* ***end section*** *where the interface cable conduit enters the scale*

OR…

If the conduit enters the scale in the middle, use ***Instrument SVP (14478)****.*

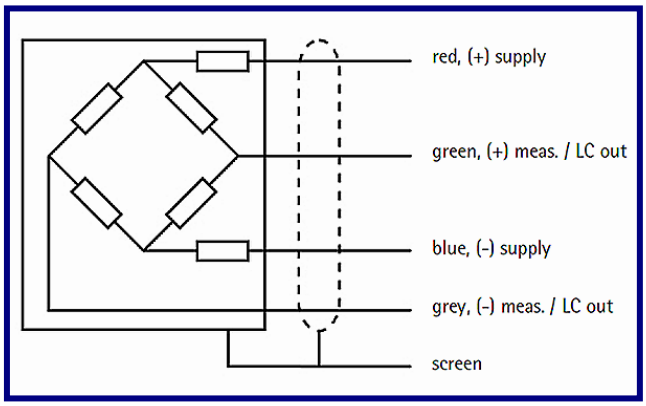
– This will allow separate connections to go in each direction toward the ends of the scale.

NOTE: *See* **Bulletin 50810** *for complete wiring diagrams.*

4.2.1. Load Cell Wiring

This applies to both the **66K** *and the* **100K Load Cells***.*

COLOR	DESCRIPTION
Blue	– Excitation
Red	+ Excitation
Gray	– Signal
Green	+ Signal



4.2.2. Cells-to-Junction Box Wiring

TERMINAL	COLOR	TB3 AND TB4
1	Blue	– Excitation
2	Red	+ Excitation
3	Shield	Shield
4	Green	+ Signal
5	Gray	– Signal

4.2.3. Box-to-Box Wiring

TERMINAL	TB1
1	– Excitation
2	+ Excitation
3	+ Sense
4	– Sense
6	Shield
7	+ Signal
8	– Signal

4.2.4. Box-to-Instrument

TERMINAL	TB2
1	– Excitation
2	+ Excitation
3	+ Sense
4	– Sense
6	Shield
7	+ Signal
8	– Signal

NOTE: *Balance Boxes must attach to* **one (1) ground rod** *in the pit.*

Inadequate grounding prevents the surge protector from functioning properly.

4.2.5. Preventing Moisture Entry

The Full Electronic scales have been designed to provide protection from the effects of moisture.

- Load cells are calibrated with the cable attached. ***DO NOT EVER cut the cable.***
- The cable is connected directly to the Balance Box or SSC through a sealed bushing, which ***MUST*** be tightened properly to keep water/moisture out of the box.
- All cabling should have a drip loop at the cell or box entry location to help prevent water entry.
- On all boxes, particularly stainless steel, the black plastic fittings have "O" rings that can be forced out of position if the bushing itself is not tight.
  - To prevent this, first tighten the inner nut securing the bushing in the hole, then insert cable and carefully tighten the gland until it is very snug.
  - Do not over-tighten where bushing turns. Secure the cover.

4.2.6. Instrument Cable Connection, Balance Box

The two (2) cables from the two (2) center section boxes, as well as the instrument cable, will enter and terminate at the **Instrument SVP (14478).**

1. Prepare the cable ends in the standard manner.
   – Use **Appendix II** for wiring instructions of all pit balance boxes.
2. Connect the instrument interface cable to the instrument in the scale house according to the instructions in the appropriate instrument service manual.

4.2.7. Adjusting Cells and Sections

Try to install load cells of matching outputs in sections to reduce side-to-side errors.

– When calibrating, place weights directly over the cell or directly on the section being tested.

– Adjust the potentiometers for the correct cell or section to compensate for differences.

4.3. Wiring SSCs and PPSs for Intalogix Systems

Intalogix™ systems use Smart Sectional Controllers (SSC)s and Pit Power Supplies (PPSs) for load cell excitation and signal processing.

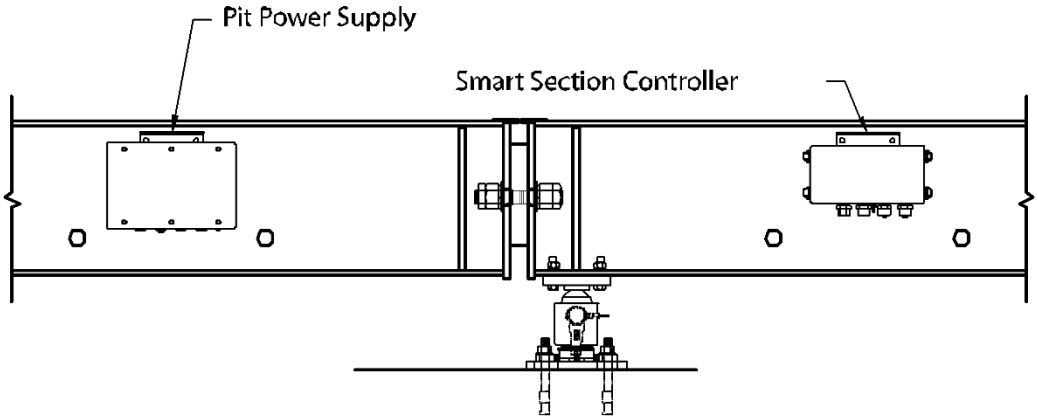
– There is one (1) SSC per section and one (1) PPS for the entire platform
  ▪ *This is unless the number and resistance of the cells require a second PPS.*

– SSC Boxes have four (4) terminals.
  ▪ *Two (2) are for load cells and two (2) are for inter-connecting to other SSC boxes, or for terminating to a pit power supply.*

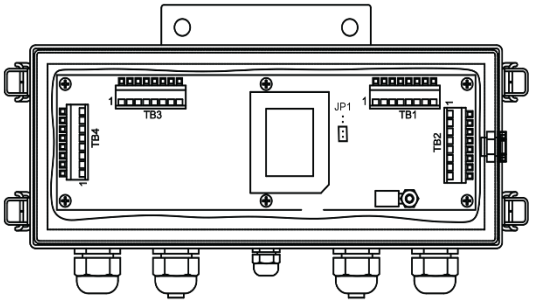
– All cell/section/scale adjustments are made from the Intalogix system instrument.

1. Mount the Box thru the tabs to the mounting brackets on the side of the modules.
2. Wire the cable using a minimum of **18 AWG** (17204 or 17246).
   – See the following page for wiring diagrams.
   – See **Appendix III** to connect PPSs and SSCs, or use the appropriate service manual for the Instrument being installed.

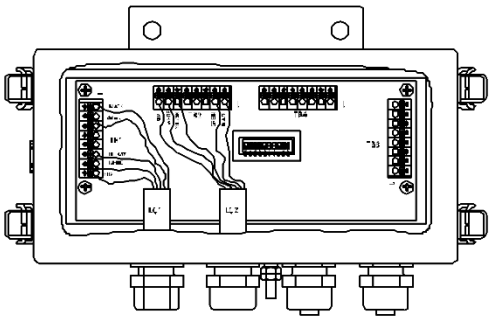
4.3. Wiring SSCs and PPSs for Intalogix Systems, Continued



On EZ-Undermount type scale, the Power Supply and Smart Section controller mount to the side beams.



Pit Power Supply
Part # 31519



Smart Section Controller
Part # 26168 w/o float
Part # 26172 w/ float

51349-07

4.3.1. SSCs (Smart Sectional Controllers)

SSC CONNECTIONS

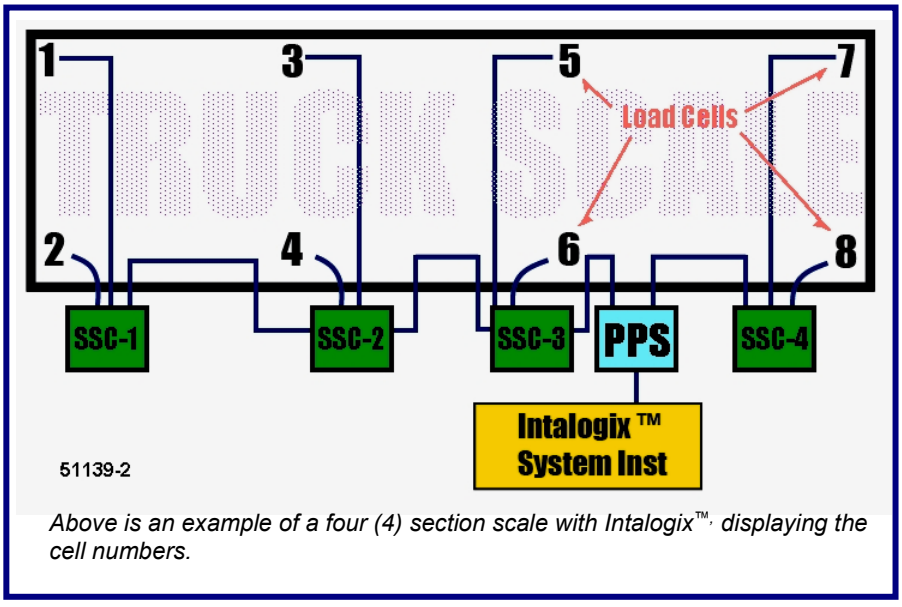
Wire the cells into each section's SSC according to the appropriate manual.

Each SSC has connections for two (2) incoming load cells, labeled **TB1** and **TB2**.

- The **odd** numbered cell goes to **TB1**.
- The **even** numbered cell goes to **TB2**.
- **Load cell drain wires** connect to ground lug on the sectional controller box exterior.

4.3.2. Cell Numbering

- Intalogix™ Technology installations use a specific numbering system for load cells because of digital addressing of the SSCs.
- With respect to the following starting position, face the platform where the instrument is located.
- The cell at the **upper-left** (far side) of the platform is **Cell One (1).**
- The cell positions along the **far side** have **odd cell numbers.**
- The **near side locations** have **even cell numbers**.



Above is an example of a four (4) section scale with Intalogix™, displaying the cell numbers.

4.3.3. Grounding

Intalogix™ Technology systems must have **two (2) ground rods** in the pit for proper connection.

- The **PPS** supplies one ground for the **weighbridge,** and connects the other to the **SSC.**
- For accurate operation and protection against damage from lightning strikes, all of the components of the system must be properly grounded.

Use the following guidelines to correctly ground the system:

- Use **8 AWG** or larger wire, or **braided ground straps**.
- All ground connections should be **two feet** (2'), or as short as possible.
- The SSCs and PPSs housing attaches in a clean electrical connection **to the platform frame**. The platform frame is then connected to a pit ground rod.
- The insulated **WHITE WIRE** from the PPS connects directly to the separate ground rod.
- The **117 VAC SVP Unit** connects to a known good ground at the instrument location.
- Use a voltmeter to test the electrical power source available.
- The **Neutral-to-Ground** voltage level must be **0.2 VAC or less**.
- If unsure, or if the testing reveals higher than 0.2 VAC, install a separate ground rod at the **SVP location**, connecting it with braided cable or 8 AWG wire

C A U T I O N

Proper grounding is REQUIRED
so the Surge Voltage Protection (SVP) adequately shields the scale from lightning and other electrical interferences!

Section 5: Service & Maintenance

5.1. Scale Maintenance

1. Check for accumulations of solid material under the scale which may affect the accuracy, i.e., ice, frozen mud, debris.
2. Check to see that the customer has cleaned under the platform regularly.
3. Inspect load cells for damage to the ends/cables, check cups and "O" rings for damage and/or excessive or uneven wear.
4. The load cell bearing cups should be inspected, cleaned and greased at least TWICE per year.
5. Inspect and adjust all check bolts using anti-seize on the threads.
6. Inspect and tighten all connecting and cover plate hardware for proper tightness.

5.2. Mechanical Faults

1. Check all clearances around the scale for any obstructions of interference with the free movement of the platform.
2. Check all check bolt clearances both with and without a concentrated load over each section, one at a time.
3. Check all load cells for plumb and level.
4. Inspect the boxes for leaks, the interior should be clean and dry. If there is moisture inside, clean then dry it out thoroughly. Check all connections at the terminal blocks to ensure they are tight.

5.3. Load Cell Replacement

1. Remove all power from the instrument.
2. Lift the scale using a proper sized and rated hydraulic jack(s) at the corner(s) closet to the defective load cell location.
3. Check upper and lower receiving cups. Replace as necessary and reapply grease.
4. Insert the new cell into the upper receiving cup and position the anti-rotation pin.
5. Carefully lower the hydraulic jack(s) until the cell is set into the lower cup.
6. Remove the cover of the SSC/Balance box, then loosen the gland bushing to free the cable. Remove the old cell wires and connect new cell wires in the balance Box/SSC.
7. Test and adjust scale as necessary.
8. **Secure the cover**.

Section 6: Parts

6.1. Parts

PART NO.	DESCRIPTION
76708	1 1/8" -7 x 8" Threaded Rod, Zinc (module-module)
54788	1 1/8" Lock Washer (module-module)
54304	1 1/8" - 7 Hex Nut
54306	1 1/8" SAE Flat Washer (module-module)
54891	1 1/8" - 7 Jam Nut
156965	Load Cell Base Plate
61743	Clamp Bar Washer (base plates)
62857	5/8" x 6" Anchor Bolts (*wedge type*)
55010	Ground Rod Kit
***161398**	Shim, Upper Cup, 1/8" (2.25" OD)
***161397**	Shim, Lower Cup, 1/16" (2.75" OD)
75398	Side check bracket w/bumper bolts (1" x 6½")
79747	Rub Rail PVC End Caps
105297	Rub Rail Plugs

** see image (above)*

6.2. Load Cells and Hardware

6.2.1. PR6221/30t C3F (FM Approved)

PART NO.	DESCRIPTION	TYPE
173115 *	**Load Cell, 4 11/16" RC, 30t (or 66k), 1000 Ohm, 2.4 mV/V (FM)**	**HV**
161197	Upper & Lower Cup (with anti-rotation pin) kit with gasket	HV
157278	Roll Pin, 3/8" x 1-1/4, Cup Retainer Baseplate	HV
157069	Locating Tool, **4 3/4"**	HV
156264	Anti-Rotation Clip (only)	HV
160622	Anti-Rotation Clip & Hardware Kit	HV
157992	Load Cell Boot (1)	HV

***** Includes Lower and Upper Cups

6.2.2. PR6221/50t C3F (FM Approval)

Part No.	Description	TYPE
175115 *	**Load Cell, 4 11/16" RC, 50t (or 110k), 1000 Ohm, 2.0 mV/V**	**HVX**
161197	Upper & Lower Cup (with anti-rotation pin) kit with gasket	HVX
157278	Roll Pin, 3/8" x 1-1/4, Cup Retainer Baseplate	HVX
157069	Locating Tool, **4 3/4"**	HVX
156264	Anti-Rotation Clip (only)	HVX
160622	Anti-Rotation Clip & Hardware Kit	HVX
157992	Load Cell Boot (1)	HVX

* Includes Lower and Upper Cups

6.3. Alternate Load Cells

Part No.	Description
183531	RCMF 30t LC, 15ft. cable, with ArmourGuard cable **with** upper & Lower cups
183551	RCMF 50t LC, 15ft. cable, with ArmourGuard cable **with** upper & Lower cups
183530	RCMF 30t LC, 15ft. cable, with ArmourGuard cable – CELL ONLY*
183550	RCMF 50t LC, 15ft. cable, with ArmourGuard cable – CELL ONLY*
183528	RCMF Upper Cup – UPPER CUP ONLY
183529	RCMF Lower Cub – LOWER CUP ONLY

IMPORTANT NOTE: *RCFM load cells are **NOT** Factory Mutual Approved at this time. They cannot be used with 2801 ISCs or in any hazardous application.*

* *When replacing PR6221 cells with RCMF cells, you **MUST** also replace the cell cups.*

6.4. Spare Parts

6.4.1. Recommended Spare Parts

Part No.	Qty	Description
173115	**1**	**Load Cell, 4 11/16" RC, 30t (or 66k) (FM)**
175115	1	Load Cell, 4 **11/16"** RC, **50t** (or 110k) **(FM)**
161197	1	Upper & Lower Cup (with anti-rotation pin) kit

6.4.2. Startup / Commissioning Spare Parts

Part No.	Qty	Description
173115	1	Load Cell, 4 $^{11}/_{16}$" RC, 3**0t** (or 66k) **(FM)**
175115	1	Load Cell, 4 $^{11}/_{16}$" RC, **50t** (or 110k) **(FM)**

6.4.3. 2-Year Spare Parts List

Part No.	Qty	Description
173115	1	Load Cell, 4 11/16" RC, 30t (or 66k) **(FM)**
175115	1	Load Cell, 4 11/16" RC, 50t (or 110k) **(FM)**
161197	1	Upper & Lower Cup (with anti-rotation pin) kit
79747	1	Rub Rail PVC End Caps
105297	1	Rub Rail Plugs

Capital Spare Parts – Not Applicable

Section 7: Accessories

7.1. Rub Rails

Rub-Rails are available for factory-installed and field-installed models. *Follow these steps for a* **Field Installed Rub Rail Installation.**

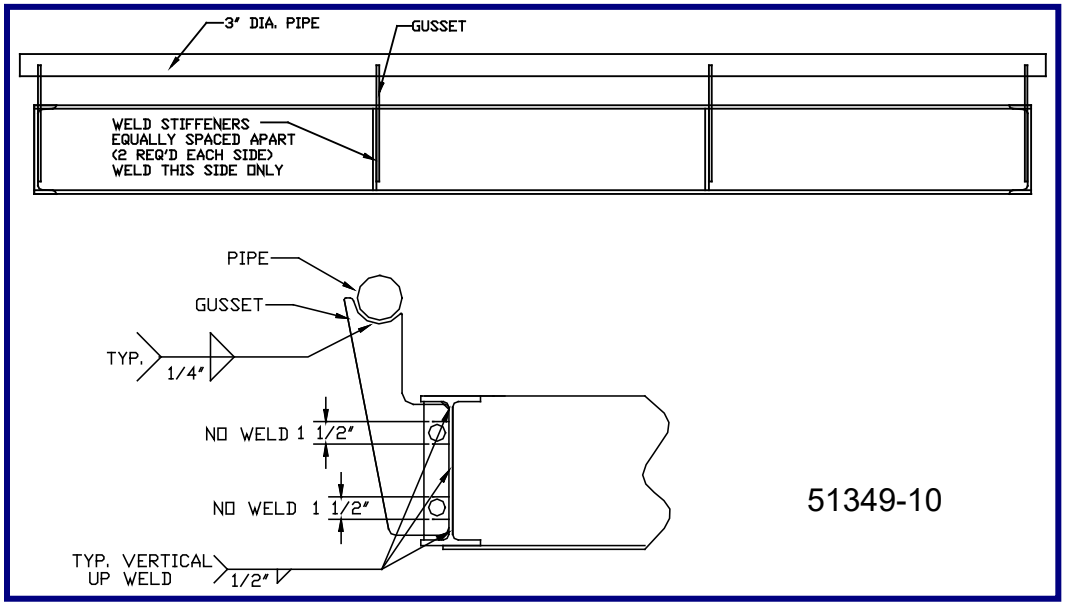
1. Use the print with the accessory for actual measurements.
2. Thoroughly clean and remove any primer around the areas to be welded.
   – This allows for good welding penetration.
3. Weld the stiffeners to the side weldments.
4. Bolt the gussets to the stiffeners and end weldments.
5. Weld the pipe to the gussets.
6. Clean and paint all welded sections of the Rub Rails.
   – This paint is normally provided.

WARNING!

Fairbanks does NOT recommend using foundation-mounted guide rails along the sides of this truck scale platform.

Damage may occur to the scale if a truck hits the guide rail, transferring damaging force to the platform and the checking system.

Using foundation-mounted guide rails will VOID THE PRODUCT WARRANTY.



Appendix I: Foundation Check List

Foundation Inspection

FOUNDATION FIELD CHECK LIST

(Field Form)

A Foundation Inspection **should ALWAYS** be performed prior to scale installation and to **confirm** correct foundation construction. If possible this should be done prior to scale shipment.

Tools required:

- ☐ Certified drawings and site plan
- ☐ 100' and 25' steel tapes
- ☐ Laser or builders level if possible
- ☐ Straight edge for pit foundations (2 x 4, very straight and 4" wider than pit walls
- ☐ Construction paint (up-side-down type, for marking concrete).
- ☐ 2' to 4' level
- ☐ Hammer and concrete nails
- ☐ String line (construction string)

Perform the following Foundation Checks. Refer to Methods and Procedures for complete description of each step. Recommended to copy check list and keep in job file. ALWAYS familiarize yourself with the **CERTIFIED** foundation prints for the job you are working on as model numbers and specifications are subject to change.

☐ 1. **Site Plan and Certified Prints** should be thoroughly reviewed to confirm accurate locations to the scale and all extra items (scoreboards, lights, poles, etc.) that are included in the bid or contract.

☐ 2. **Check for truck and crane access**, overhead wires, fences, green concrete, etc.

☐ 3. **Dimensional length and width check**; check all 4 sides and record on chart (other side).

☐ 4. **Diagonal measurements** check to verify that the foundation is square and record on chart (other side). These measurements should be equal, or within 1/2". Greater error could result in the scale not fitting in the foundation.

☐ 5. **Check ALL pier heights** to make sure they are the proper elevation and record on chart (other side). To high and the scale will not fit correctly, to low could result in excessive shimming..

☐ 6. **In pit foundations check walls to verify they are straight.** Straight walls are very important, but are even more critical for modular scales like the Rodan series.

☐ 7. **Verify conduit locations** and pull strings (if needed).

☐ 8. **Verify ground rod locations.**

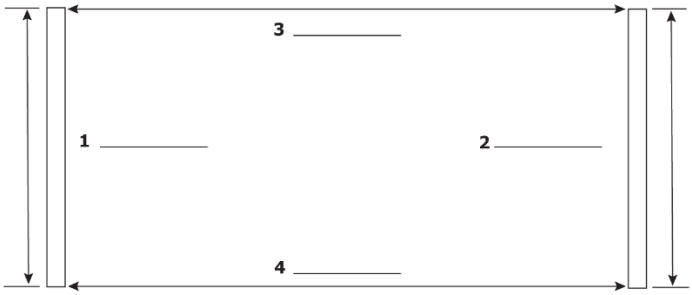
☐ 9. **Verify that drains and sump openings** are piped correctly and are clear of debris.

☐ 10. **Check the end coping** to ensure they are centerline and that the coping is correct for the scale being installed (10',11' or 12' width, etc). Check all coping, side and end, for hollow areas.

☐ 11. **Verify location of any and all required embeds or pre-installed baseplates** (i.e., Hwy System, RR scales, etc). All of these dimensions will be located on the Certified foundation prints.

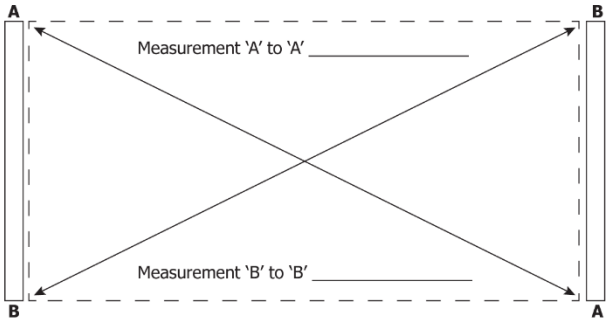
☐ 12. **Layout** - To help in locating pre-installed baseplates, embeds, load-cell centerlines, etc., refer to Methods and Procedures section on Layout. **See other side for foundation & Layout charts.**

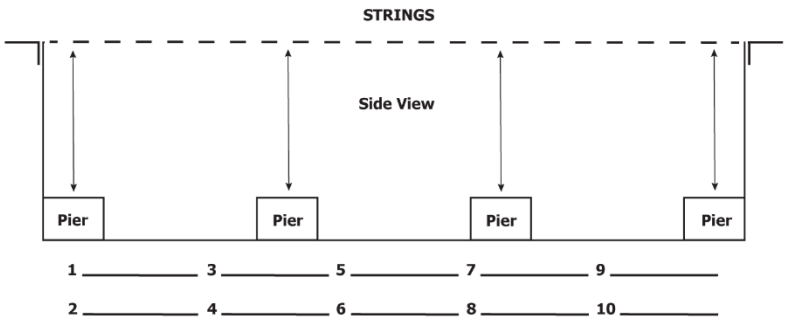
Appendix I: Foundation Check List, Continued



Length & Width Check

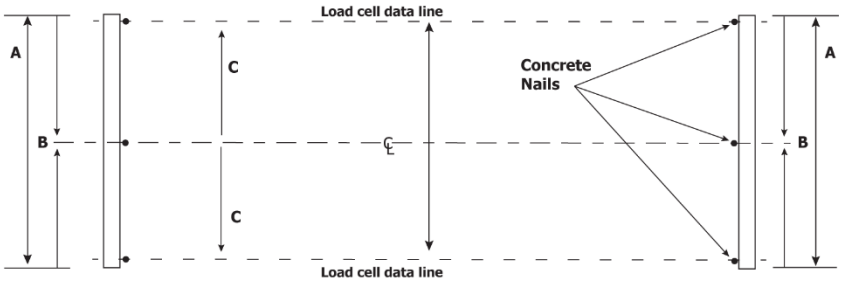
Diagonial Measurements Check





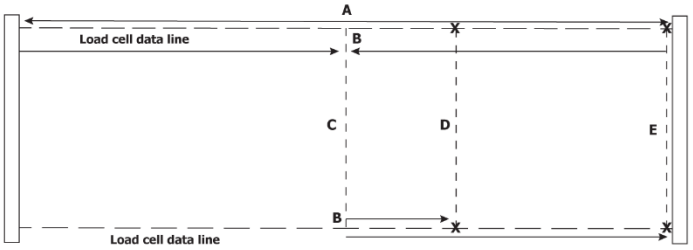
Pier Height Check

Longitudinal Layout



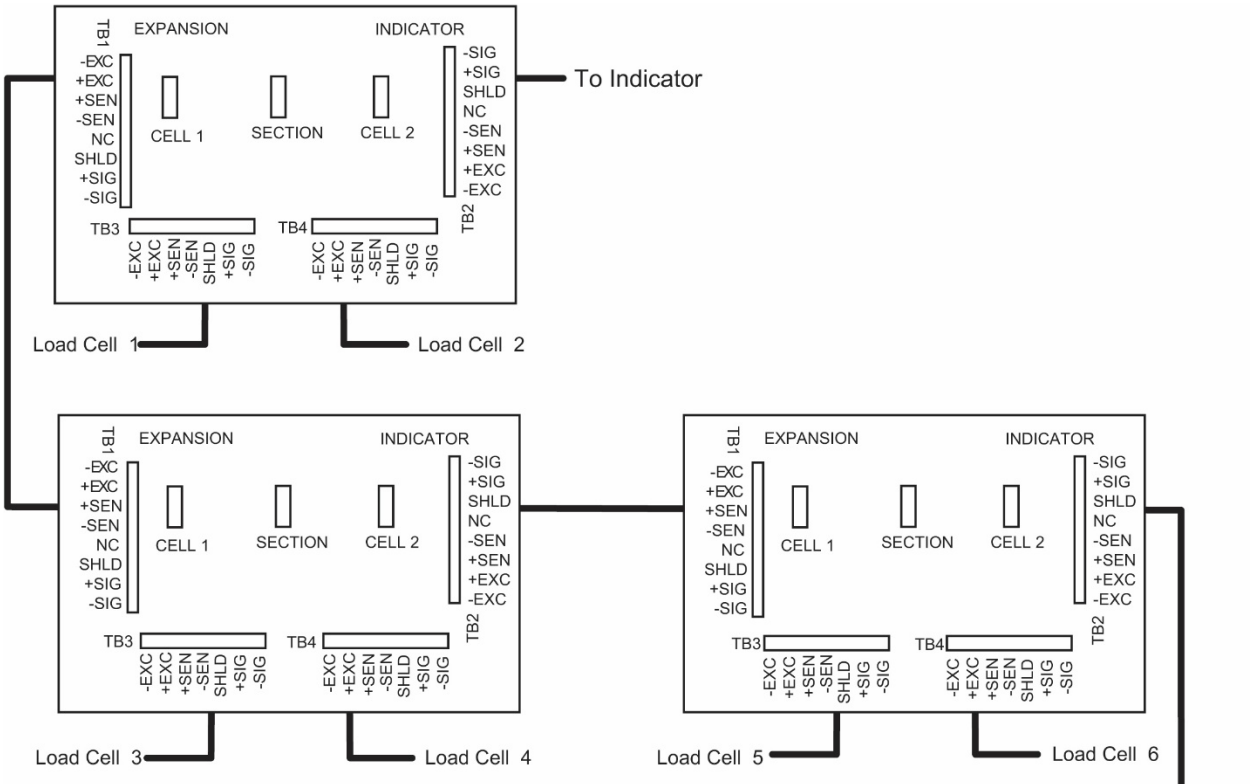
A = Coping Length
B = 1/2 of the coping length OR Centerline
C = Distance from Centerline to load cell data lines

● = Concrete Nails
℄ = Centerline of the Scale



Lateral Layout

Appendix II: Four Section Analog Scale

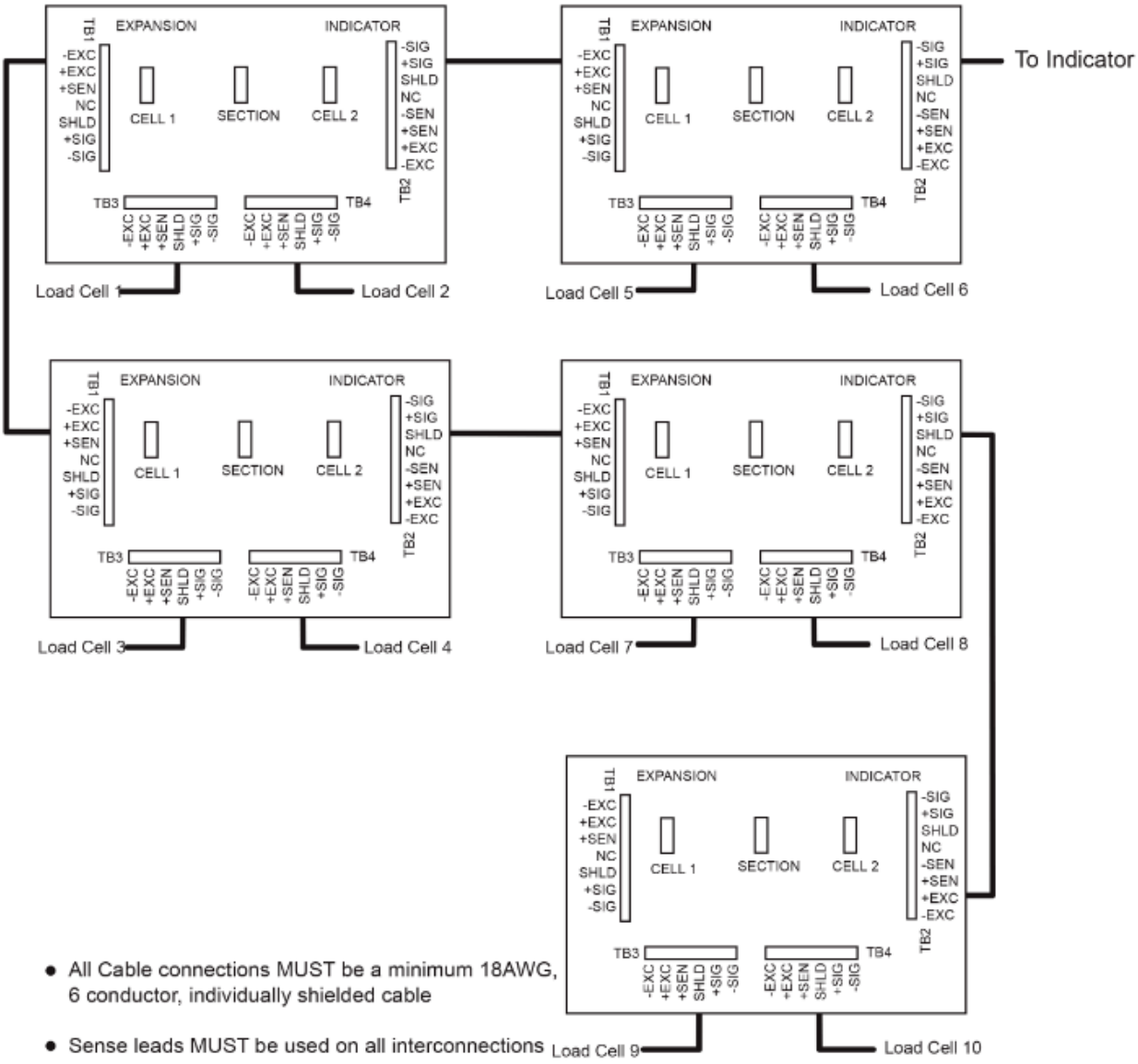


- All Cable connections MUST be a minimum 18AWG, 6 conductor, individually shielded cable
- Sense leads MUST be used on all interconnections

4-Section Analog

50785-6

Appendix III: Five Section Analog Scale

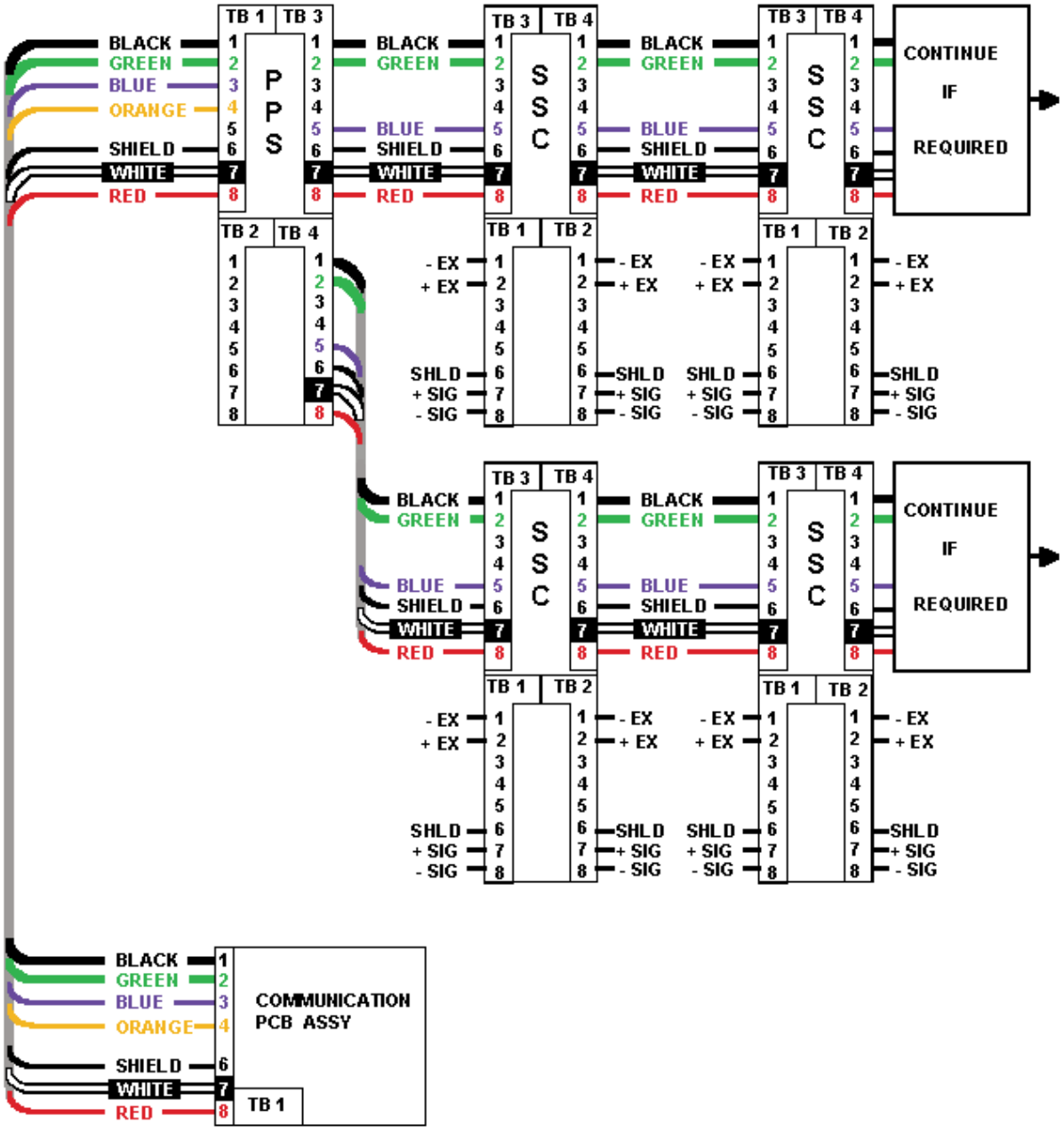


- All Cable connections MUST be a minimum 18AWG, 6 conductor, individually shielded cable
- Sense leads MUST be used on all interconnections

5-Section Analog

50785-7

Appendix IV: Four Section Intalogix Scale



Appendix V: Talon Models

		Talon Scales						
		Product Number	Model	L	W	CLC	Cap	Sec
				feet	feet	Klbs	tons	
HV FP	10 ft.	161010	6010	10	10	90	60	2
		161015	6010	15	10	90	60	2
		161020	6010	20	10	90	60	2
		161023	6010	23	10	90	60	2
		161030	6010	30	10	90	90	3
		161040	6010	40	10	90	90	3
		161047	6010	47	10	90	90	3
		161060	6010	60	10	90	120	4
		161070	6010	70	10	90	120	4
		161075	6010	75	10	90	150	5
		161080	6010	80	10	90	150	5
		161090	6010	90	10	90	150	5
		161001	6010	100	10	90	150	6
		161011	6010	110	10	90	150	6
		161018	6010	117	10	90	150	6
		161021	6010	120	10	90	150	7
	11 ft.	161110	6010	10	11	90	60	2
		161115	6010	15	11	90	60	2
		161120	6010	20	11	90	60	2
		161123	6010	23	11	90	60	2
		161130	6010	30	11	90	90	3
		161140	6010	40	11	90	90	3
		161147	6010	47	11	90	90	3
		161160	6010	60	11	90	120	4
		161170	6010	70	11	90	120	4
		161175	6010	75	11	90	150	5
		161180	6010	80	11	90	150	5
		161190	6010	90	11	90	150	5
		161101	6010	100	11	90	150	6
		161111	6010	110	11	90	150	6
		161118	6010	117	11	90	150	6
		161121	6010	120	11	90	150	7

		Talon Scales						
		Product Number	Model	L	W	CLC	Cap	Sec
				feet	feet	Klbs	tons	
HVX FP	10 ft.	171010	6010	10	10	100	60	2
		171015	6010	15	10	100	60	2
		171020	6010	20	10	100	60	2
		171023	6010	23	10	100	90	2
		171030	6010	30	10	100	90	3
		171040	6010	40	10	100	90	3
		171047	6010	47	10	100	120	3
		171060	6010	60	10	100	120	4
		171070	6010	70	10	100	150	4
		171075	6010	75	10	100	150	5
		171080	6010	80	10	100	150	5
		171090	6010	90	10	100	150	5
		171001	6010	100	10	100	150	6
		171011	6010	110	10	100	150	6
		171018	6010	117	10	100	150	6
		171021	6010	120	10	100	150	7
	11 ft.	171110	6010	10	11	90	60	2
		171115	6010	15	11	90	60	2
		171120	6010	20	11	90	60	2
		171123	6010	23	11	90	60	2
		171130	6010	30	11	90	90	3
		171140	6010	40	11	90	90	3
		171147	6010	47	11	90	90	3
		171160	6010	60	11	90	120	4
		171170	6010	70	11	90	120	4
		171175	6010	75	11	90	150	5
		171180	6010	80	11	90	150	5
		171190	6010	90	11	90	150	5
		171101	6010	100	11	90	150	6
		171111	6010	110	11	90	150	6
		171118	6010	117	11	90	150	6
		171121	6010	120	11	90	150	7

		Talon Scales						
		Product Number	Model	L	W	CLC	Cap	Sec
				feet	feet	Klbs	tons	
HVX FP	12 ft.	171210	6010	10	12	100	60	2
		171215	6010	15	12	100	60	2
		171220	6010	20	12	100	60	2
		171223	6010	23	12	100	60	2
		171230	6010	30	12	100	90	3
		171240	6010	40	12	100	90	3
		171247	6010	47	12	100	90	3
		171260	6010	60	12	100	120	4
		171270	6010	70	12	100	120	4
		171275	6010	75	12	100	150	5
		171280	6010	80	12	100	150	5
		171290	6010	90	12	100	150	5
		171201	6010	100	12	100	150	6
		171211	6010	110	12	100	150	6
		171218	6010	117	12	100	150	6
		171221	6010	120	12	100	150	7

		Talon Scales						
		Product Number	Model	L	W	CLC	Cap	Sec
				feet	feet	Klbs	tons	
HV SD	10 ft.	162010	6020	10	10	90	60	2
		162014	6020	15	10	90	60	2
		162020	6020	20	10	90	60	2
		162023	6020	23	10	90	60	2
		162030	6020	30	10	90	90	3
		162040	6020	40	10	90	90	3
		162047	6020	47	10	90	90	3
		162060	6020	60	10	90	120	4
		162070	6020	70	10	90	120	4
		162075	6020	75	10	90	150	5
		162080	6020	80	10	90	150	5
		162090	6020	90	10	90	150	5
		162001	6020	100	10	90	150	6
		162011	6020	110	10	90	150	6
		162018	6020	117	10	90	150	6
		162021	6020	120	10	90	150	7

		Talon Scales						
		Product Number	Model	L	W	CLC	Cap	Sec
				feet	feet	Klbs	tons	
HV SD	11 ft.	162110	6020	10	11	90	60	2
		162114	6020	15	11	90	60	2
		162120	6020	20	11	90	60	2
		162123	6020	23	11	90	60	2
		162130	6020	30	11	90	90	3
		162140	6020	40	11	90	90	3
		162147	6020	47	11	90	90	3
		162160	6020	60	11	90	120	4
		162170	6020	70	11	90	120	4
		162175	6020	75	11	90	150	5
		162180	6020	80	11	90	150	5
		162190	6020	90	11	90	150	5
		162101	6020	100	11	90	150	6
		162111	6020	110	11	90	150	6
		162118	6020	117	11	90	150	6
		162121	6020	120	11	90	150	7

		Talon Scales						
		Product Number	Model	L	W	CLC	Cap	Sec
				feet	feet	Klbs	tons	
HVX SD	10 ft.	172020	6020	10	10	100	60	2
		172023	6020	15	10	100	60	2
		172030	6020	20	10	100	90	3
		172040	6020	23	10	100	90	3
		172047	6020	30	10	100	90	3
		172060	6020	40	10	100	120	4
		172070	6020	47	10	100	120	4
		172075	6020	60	10	100	150	5
		172080	6020	70	10	100	150	5
		172090	6020	75	10	100	150	5
		172001	6020	80	10	100	150	6
		172011	6020	90	10	100	150	6
		172018	6020	100	10	100	150	6
		172021	6020	110	10	100	150	7
		172020	6020	117	10	100	60	2
		172023	6020	120	10	100	60	2

Talon Scales								
		Product Number	Model	L	W	CLC	Cap	Sec
				feet	feet	Klbs	tons	
HVX SD	11 ft.	172110	6020	10	11	100	60	2
		172115	6020	15	11	100	60	2
		172120	6020	20	11	100	60	2
		172123	6020	23	11	100	60	2
		172130	6020	30	11	100	90	3
		172140	6020	40	11	100	90	3
		172147	6020	47	11	100	90	3
		172160	6020	60	11	100	120	4
		172170	6020	70	11	100	120	4
		172175	6020	75	11	100	150	5
		172180	6020	80	11	100	150	5
		172190	6020	90	11	100	150	5
		172101	6020	100	11	100	150	6
		172111	6020	110	11	100	150	6
		172118	6020	117	11	100	150	6
		172121	6020	120	11	100	150	7
	12 ft.	172210	6020	10	12	100	60	2
		172215	6020	15	12	100	60	2
		172220	6020	20	12	100	90	2
		172223	6020	23	12	100	90	2
		172230	6020	30	12	100	90	3
		172240	6020	40	12	100	120	3
		172247	6020	47	12	100	120	3
		172260	6020	60	12	100	150	4
		172270	6020	70	12	100	150	4
		172275	6020	75	12	100	150	5
		172280	6020	80	12	100	150	5
		172290	6020	90	12	100	150	5
		172201	6020	100	12	100	150	6
		172211	6020	110	12	100	150	6
		172218	6020	117	12	100	60	6
		172221	6020	120	12	100	60	7

Talon Series Truck Scale

Instructional Manual

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