

TRACKER SERIES Truck SCALE

Model: VS Series VSX Series





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Amendment Record

Tracker Series Truck Scale Installation Manual

Document 51611

Manufactured by Fairbanks Scales Inc.

Created 01/2023 Revision 1 01/2023 Released document

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Section 1: General Information

1.1. Introduction

The **Tracker Series** is a uniquely designed truck scale, combining the proven reliability of an environmentally sealed load cell system with the added benefit of an above grade, low profile, incorporated side rail, concrete deck design. The Tracker Series is a **field assembled style scale** featuring compact shipment and ready for module assembly.

1.2. Description

The **Tracker Weighbridge** consists of one or more field assembled modules with a field poured concrete deck.

The weighbridge design consists of a pair of main girder beams providing longitudinal strength while acting as safety side rails.

Cross members are bolted between the main girders providing lateral strength and forming up the concrete deck.

The low-profile foundation design offers many benefits over the traditional scale pit design including reduced construction costs and simplified maintenance.

With the scale installed completely above ground, the load cell system, suspension components, and weighbridge are not subject to the harsh corrosive environment found in a scale pit.

Designed to meet or exceed National Institute of Standards and Technology (NIST) Handbook H-44 requirements for Class IIIL Devices.

1.2.1. Rocker Column Load Cell Systems

The load cell system incorporates environmentally sealed, rocker column load cells.

Components within the load cell suspension system are zinc plated for maximum corrosion protection. Each component is field replaceable.

The load cells are hermetically sealed, completely enclosing the internal strain gage cavity providing environmental protection and ensuring long life.



1.3. FAIRBANKS Service Policies

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.



1.3.1. Physical Installation Notes

Check all devices for proper operation. If any error messages occur, refer to Troubleshooting or the proper manual of that device.

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 allowed during installation.



1.3.1. Physical Installation Notes, Continued

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.

IMPORTANT NOTICE:

1. All scale components should maintain a **minimum of 36 inches distance away** from all single and multiple phase high energy circuits and electric current carrying conductors.

Scale components include: all load cells, load cell cables and interconnecting cables used to connect all scale components (digital weight indicators, junction boxes, sectional controllers, and power supplies) and peripheral devices (printers, remote displays, relay boxes, remote terminals, card readers, and auxiliary data entry devices) and the instruments.

Electrical components to maintain the 36 minimum include from scale equipment: electric current carrying conductors, such as 120 volt AC, 220 volt AC, 480 volt AC and electric supply of higher voltage wiring runs and stations, AC power transformers, overhead or buried cables, electric distribution panels, electric motors, florescent and high intensity lighting, which utilize ballast assemblies, electric heating equipment, traffic light wiring and power, and relay boxes.

- 2. All scale components including digital weight indicators and peripheral devices are not designed to operate on internal combustion engine driven electric generators and other similar equipment.
- 3. Electric arc welding can severely damage scale components such as digital weight indicators, junction boxes, balance boards, sectional controllers, power supplies, and load cells.
- 4. Communications which utilize RS232 serial communication is limited to 50 cable feet distance.



For additional information, please contact your Fairbanks Scales Representative.

1.3.2. Electronic Component Care

- Much of the equipment consists of printed circuit assemblies, which *must be* installed using ESD handling procedures.
- ✓ These assemblies must be replaced as assemblies or units.
- Replacement of individual components is not allowed.
- ✓ The assemblies must be properly packaged in ESD protective material.
- These components must be returned intact for replacement credit per normal procedures.
- All electronic and mechanical adjustments are considered to be part of the installation and are included in the installation charge(s).
- ✓ Included is any required computer programming or upgrades.
- Included are any accuracy and/or operational specification changes.
- Do not remove power from this unit unless it is performed by the proper shut down method. Failure to comply with the proper shut down procedures can result in damage to the hard disk drives or data.
- The AC receptacle / outlet shall be located near the instrument and easily accessible.
- Electrical connections other than those specified may not be performed.

1.3.3. Conferring with Our Client

Before the installation is considered complete, the equipment is to be programmed to meet or exceed any applicable weights and measures requirements.

The technician must be prepared to recommend the arrangement of components which provide the most efficient layout, utilizing the equipment to the best possible advantage.

The warranty policy must be explained and reviewed with the customer.



1.4. Phases of Installation

The complete installation consists of the following phases:

- A. Pre-Installation Checklist
- B. Unpacking
- C. Equipment location
- D. Safety
- E. User Responsibility
- F. Installation
- G. Calibration

1.4.1. Pre-Installation Checklist

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

- Check the customer's application to make certain it is within the capabilities and design parameters of the equipment.
- If the installation process might disrupt normal business operations, tell the customer and ask that they make ample arrangements.
- Is properly-grounded power available at the installation location?
- Be sure that the equipment operator(s) are available for training.



- ✓ The Service Technician must thoroughly review the installation procedures.
- 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.



1.4.2. Unpacking

Follow these guidelines when unpacking all equipment:

- ✓ Check in all components and accessories according to the customer's order.
- Remove all components from their packing material, checking against the invoice that they are accounted for and not damaged.
 - Advise the shipper immediately, if damage has occurred.
 - Order any parts necessary to replace those which have been damaged.
 - Keep the shipping container and packing material for future use.
 - Check the packing list.
- Collect all necessary installation manuals for the equipment and accessories.
- Open the equipment and perform an inspection, making certain that all hardware, electrical connections, and printed circuit assemblies are secure.
- Do not reinstall the cover if the final installation is to be performed after the pre-installation checkout.

1.4.3. Equipment Location

Position the equipment with these points in mind:

- ✓ Intense direct sunlight can harm the display.
- Do not locate near magnetic material or equipment/instruments which use magnets in their design.



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 Avoid areas which have extreme variations in room temperatures. Temperatures outside the instrument's specifications will affect the weighing accuracy of this product.



1.4.4. Safety

Follow these safety precautions during operation:

- Do not load the platform if there is any evidence of damage to the platform or supporting structure.
- Use safety chains or other suitable restraining devices if there is any possibility of the load shifting, falling, or rolling from its position on the platform.

1.4.5. Users' Responsibilities



- All electronic and mechanical calibrations and/or adjustments required for making this equipment perform to accuracy and operational specifications are considered to be part of the installation.
 - They are included in the installation charge.
 - Only those charges which are incurred as a result of the equipment's inability to be adjusted or calibrated to performance specifications may be charged to warranty.
- Absolutely no physical, electrical or program 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.
- The equipment consists of printed circuit assemblies which must be handled using ESD handling procedures and must be replaced as units.
 - Replacement of individual components is not allowed.
 - The assemblies must be properly packaged in ESD protective material and returned intact for replacement credit per normal procedures.



Section 2: Installation

2.1. Overall Steps

- A. Foundation check, layout, and base plate setting
- B. Preparing tools, materials, documentation and renting a crane.
- C. Setting up the modules
- D. Setting the modules on load cells.
- E. Wiring
- F. Calibrating and Testing

2.1.1. Tools, Equipment and Materials

Certified Prints

A mobile crane of sufficient lifting capacity to safely lift and place the main beams which are approximately 2000 lbs.

Four equal length twenty foot (4-20 ft.) lifting chains or cables with hooks.

IMPORTANT NOTE: The installer **MUST** reserve Crane and Chains/Cables in advance from a local rental service company.

- Hand tools.
- 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 <u>www.enerpac.com</u>
- ✓ 100' steel tape measure.
- String line or chalk line (both)



Pry bars.



2.2. Site Preparation

- 1. Assist the customer in selecting a site which allows easy access to and from the scale, ensuring enough area for straight and level approaches, and to meet all **State and Local Weights and Measures Regulations.**
 - Refer to the serial tag located on the scale to determine the capacity of the scale to be installed.
 - Use only certified prints for all concrete work.
 - The site needs good drainage away from the scale, elevated enough so the surrounding areas *drain away from the scale site*.



- The soil must have a minimum bearing pressure of 3000 PSF, or as specified on the foundation drawings supplied by Fairbanks Scales for the scale to be installed.
- Obtain all the necessary permits and licenses prior to beginning construction.

NOTE: Always... "CALL BEFORE YOU DIG." 1-888-258-0808

- 2. Using a transit, sight in and mark the area with stakes where the placement is to occur, and where supports, forms, or concrete are to be built.
 - When constructing forms, make sure they are plumb, square, and level.
 - Place and compact gravel into the base of the forms, if necessary.
 - Cut and position rebar into the forms as per the schedule detailed on the foundation prints supplied by Fairbanks Scales for the scale being installed
- 3. The scale is designed so it may be anchored to the foundation through the use of expansion anchors (included). These are inserted into the concrete after it has cured.
 - Expansion anchors are recommended due to the flexibility provided in final positioning of the scale.
 - The hold down force of expansion anchors meet or exceed that of poured in place anchors.
- 4. Pour concrete, using a mix to yield a minimum 4000 PSI. Vibrate the concrete into position to ensure consistency.
 - All concrete work should conform to standards set forth by the **American Concrete Institute Code**.



2.2. Site Preparation, Continued

- Allow concrete to cure for several days before erecting the scale.
- 5. Remove forms and backfill for proper drainage. A slope away from the scale is recommended.
 - Allow concrete to cure for 28 days or until a test cylinder indicates the concrete has reached its design strength before allowing traffic on the scale.

2.3. Module Assembly

The Tracker scale is shipped as a bundle of steel beams and hardware that are ready to be assembled on the jobsite.

2.3.1. Lay Out the Foundation

- 1. Determine the centerline of the foundation and mark that line along the length of the scale with a chalk line.
- 2. Measure from the centerline to establish the centerlines of the load cells and the centerlines of the anchor locations. Mark these along the length of the scale with a chalk line as well. Reference the certified print for load cell locations and anchor locations.
- 3. Place base plates into approximate locations. Have locating tools and shoring timbers ready at each location. Load cell assemblies will be moved into final position only after the deck concrete is cured.



Figure 2-1



2.3.2. Place Main Beams

- 1. Move the beams close to their approximate locations. All girders with j-box mounting bars should be on the same side, nearest the scale house.
- 2. To identify your beams, see Figure 2-2. If there are several interior beams, consult the certified print for the correct placement order.



Figure 2-2

2.3.3. Assemble the Left-Hand Base Module

- 1. Set the left-hand base girders first (both J-Box and Plain sides).
 - a. To begin, set girders on shoring timbers. The beams and modules should remain on shoring timbers until all modules are assembled and all module connection hardware is fully tightened. *DO NOT use locating tools at this stage.*



- b. Center the left-hand end base girders on the load cell centerline and put the end of the beams with the check block against the end wall.
- 2. Install the cross members.
 - a. There are two (2) different types of cross members. See Table 2-1 to identify them.
 - b. Place the appropriate cross members at the appropriate location. The channel should be toward the bottom. The cross member should sit on top of the bar on the girder flange.
 - c. Loosely bolt each end of the cross member to the main girder including one spring lock washer per bolt. Do not fully tighten.
 - d. The cross-member bolt head should be at the exterior side of the main girder.



Table 2-1



2.3.4. Assemble the Remaining Modules One at a Time

- 1. Set the second beams (both J-Box and Plain sides).
 - a. The end of the beams without an upper receiver plate should rest on the receiver plate protruding from the base girder. Center the girder on the load cell centerline and set on shoring timbers.
 - b. Align the hole in the flange of the interior beam with the hole in the receiver plate on the base girder. Loosely bolt this connection, but do not fully tighten.
 - c. At the joint where the two beams meet, install the threaded rod through the center hole in the beam stiffeners, and through the 3/4" spacer pipe, which fits between the stiffeners. Loosely install two nuts and one washer on each end of the connection rod. Do not fully tighten.
- 2. Install the cross members as directed above.
- 3. Repeat these steps for each subsequent module until the final right hand end modules is assembled.

2.3.5. Completing the Scale Assembly before Pour

- 1. Once all modules are assembled, check the square of the scale and adjust as necessary to bring the scale into square.
- 2. Tighten all cross-member bolts one-half turn past snug (min 350-425 ft-lbs).
- 3. Tighten all connection bolts that bolt through the flanges and load cell upper receiver plates.
- 4. Tighten the bolts on all girder connection bolts (through the stiffeners) and ensure that the jam nuts are secured.
- 5. Check scale square again.
- 6. Install locating tools and base plates at all load cell locations.
- 7. Ensure that there is an equal gap at each approach. If necessary, use the end check bolts to adjust this gap.
- 8. If not already installed, install the side check brackets and lateral check bolts.
- 9. Tighten the longitudinal and lateral bumper checking bolts so that there is no gap. They will hold the scale in place during the pour.
- 10. Use tape to "mask off" top flange of cross members to create a well-defined concrete-to-flange interface.





Figure 2-3



Figure 2-4



2.3.6. Deck Construction

- 1. Place shoring as shown in the certified prints. If using the optional Fairbanks corrugate and shoring kit:
 - --Shoring is pre-cut and primed L 2" x 2³/₁₆" formed steel angle.
 - --11' and 12' scales each use 5 pieces of shoring per bay.
 - 14' scales use 6 pieces of shoring per bay.
 - --Space shoring evenly in the bay starting 6 to 8" from main beam.
 - --Maximum spacing for shoring is 3'0".
 - --Place each piece of shoring so that the extended flat edge is resting on top of the cross beams' bottom flange.



- 2. Cut the corrugated sheeting to fit between the main beams. If using the optional Fairbanks corrugate and shoring kit
 - --Corrugate is precut in two sizes: 7' x 2'6" and 3'6" x 2'6".
 - --Minimum sheeting thickness must be 24 gauge.
 - --11' and 12' wide scales use 4 pieces of the 7' corrugate per bay. 14' scales use 4 pieces of 7' corrugate, plus 2 pieces of 3'6" per bay.
 - --Lay the corrugated steel sheeting between the crossbeams, on top of the bottom flange and shoring bars.
 - --Overlap at the seams at least one full pitch.
 - --Ribs should run in the cross-traffic direction (along scale width). See Figure 2-6.
- 3. Install the deck rebar according to the certified setting plan supplied by **Fairbanks Scales**. If using the optional Fairbanks rebar kit:
 - Rebar comes in 4'6" x 4'2" preassembled mats. These mats are not the same as typical Welded Wire Fabric. They use heavy duty deformed bars rather than thin wires.
 - --11' and 12' wide scales require 3 rebar mats per bay.
 - 14' wide scales require 4 rebar mats per bay.
 - --Lay rebar mats on top the anchor studs that extend from the crossbeams.
 - --Narrowly-spaced bars in mat (4" on center) should run across the width of the scale. Bars with wider spacing (8" on center) should run in the direction of traffic. See Figures 2-7 and 2-8.
- 4. Pour bays sequentially from one end to the other. Do not skip bays.



- 5. Hand trowel or broom to desired finish.
- 6. Allow deck to **moist cure for seven (7) days**, or coat with liquid curing compound instead.
 - Do not use or calibrate scale until the deck has cured and reached 4000psi minimum compressive strength.



Figure 2-6



Figure 2-7







Figure 2-8



Figure 2-9

Corrugate MUST be properly seated for proper deck installation.



2.3.7. Adjusting the Scale after the Pour

- 1. Once the deck is complete, set the side and end checking to desired gaps.
- 2. Install load cells under main girders and position the base plates so that each load cell is plumb. See **Installing Load Cells** section on next page.
- 3. Drill and insert anchor bolts through the holes in each base plate. Install clamp bars, washers, and finger-tighten bolts on each anchor.
- 4. Check load cell plumb once more, and then tighten down nuts on anchors.

2.3.8. Installing Load Cells

- 1. Unpack the load cells and mark each calibration certificate with the load cell location/position.
- 2. 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).
- 3. Lift the platform so the load cell locating tool can be removed from the upper and lower bearing cups. Once removed, fill both cups with grease.
- 4. The bottom of the cell has two flat sides which must be aligned with the flat sides of the lower cup. Carefully lower the scale (hydraulic jacks) while seating the bottom of the cell into the lower cup. Check the scale's level and height, particularly at the approaches. 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 deadload of end section cells.

CAUTION:

Wear appropriate eye protection to reduce the potential for eye injury as grease may be sprayed from the receiver cups when installing the load cells.

5. Once satisfied with height and level, tighten the module-to-module bolts.The bolts must be torqued to 500 ft lbs.

2.4. 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 securely fastened. The Tracker series scale has been designed to accommodate this type of cable protection. This section describes the manufacturer's recommended installation procedure for installing and protecting cables on the Tracker series truck scale.
- 2. Cable Hangers are beside every Smart Sectional Controller (SSC) or Pit Power Supply (PPS) mounting block. These cable hangers are used to wrap excess load cell and interconnecting cables.



2.4. Load Cell Cables, Continued

3. Route the load cell cable through the angle under the crossbeam and through the large hole in the bottom flange of the main girder beam directly underneath the cable hangers.





4. Route the interconnect cables through the angle on the side of the main girder beam and through the top hole in the stiffener plates at the end of each girder beam.



Figure 2-11



2.4. Load Cell Cables, Continued

5. Complete installation is accomplished once all of the cables have been run and the wiring is complete. Tighten all the cables and hang any excess load cell cable on the cable hangers to orderly dress them and keep the load cell cable off the ground.



Figure 2-12

Section 3: Wiring for Intalogix[™] Systems

3.1. Introduction

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

3.2. Description

One (1) Smart Sectional Controller (SSC) per section.

One (1) Pit Power Supply (PPS) per platform unless the number and resistance of the cells require a second Pit Power Supply (PPS).

Smart Sectional Controller (SSC) boxes have four (4) terminals, two (2) for load cells and two (2) for "daisy chaining" to other Smart Sectional Controllers (SSC) boxes or terminating to a pit power supply

All cell/section/scale adjustments are made via the Intalogix™ Technology instrument.

3.3. Installation

3.3.1. Boxes

The box has tabs for bolting to mounting bars located on one side of each module.

- 1. On Smart Sectional Controllers (SSC) and PPS boxes, attach the ground wire lug-to-one of the mounting bolt studs.
- 2. On Pit Power Supply (PPS) boxes, secure the isolated ground wire to the separate ground rod, as noted on the *Certified Print*.
- 3. Tighten all connections securely to provide a good electrical ground.

3.3.2. Smart Sectional Controllers (SSC)

- 4. Wire the load cells to the Smart Sectional Controllers (SSC).
- 5. Connect the Smart Sectional Controllers (SSC) to Smart Sectional Controllers (SSC) cabling.
- 6. Set the address switches in the Smart Sectional Controllers (SSC).



3.4. Load Cell Wiring

Intalogix[™] installations use a different numbering system for load cells because of the digital addressing of the Smart Sectional Controllers (SSC).

3.4.1. Cell Numbering

With respect to the following starting position, face the platform from where the indicator is located.

- The cell at the upper left (far side) of the platform is Cell One (1).
- ✓ The cell positions along the **far side are odd cell numbers**,
- The near side locations are even cell numbers.



Above is an example of four (4) section cell numberings using Smart Sectional Controllers (SSC).

Note: Smart Sectional Controllers (SSC) have terminals for two (2) Load Cells, labeled **TB1** and **TB2**.

- The odd numbered cell goes to **TB1**.
- The even numbered cell goes to **TB2**.



3.4.2. Installing Load Cells

The cable used in *all* wiring (other than load cells) must be a **minimum of 18 AWG** (Cable 17246).

The Smart Sectional Controller (SSC) boxes are daisy-chained to the end where they terminate into the Pit Power Supply (24722).

- 1. Wire the load cells into each section's Smart Sectional Controllers (SSC), as illustrated in **Appendix 1: Wiring, Drawing 51139-1d**.
 - Load cell drain wires, if applicable, connect to ground lug on the Smart Sectional Controllers (SSC) exterior.
- 2. Wire the load cells into the Smart Sectional Controllers (SSC) boxes.

TB1 or TB2 in SSC	Terminal Description	L/C Wire Color
1	(-) Excitation	Black
2	(+) Excitation	Green
6	Shield	Yellow (bare)
7	(+) Signal	White
8	(-) Signal	Red

Load Cell Connections at the SSC

Note: Complete wiring diagram is shown on the following page.



3.4.2. Installing Load Cells, Continued

ODD numbered load cell

(If a single cell application, connect to TB1)



3. Wire the Smart Sectional Controllers (SSC) to each other.

Terminal Number	Function	17246 Cable
1	(-) 8.0 volts	Black
2	(+) 8.0 volts	Green
5	DC Return	Blue
6	Shield	Shield
7	RS-485 (+)	White
8	RS-485 (-)	Red

NOTE: On the 17246 Cable, do not use the Orange wire.



3.4.2. Installing Load Cells, Continued

4. Set the Switches.

3.4.3. Dip (Address) Switch Setup, Smart Sectional Controllers (SSC)

- In each of the smart SSC boxes there is a 10-position dip switch labeled S1.
- This switch is used to identify the section in a binary code.
- The switches must be set properly for the scale to operate.

```
Note: Switches 1, 2, and 3 are always OFF.
Switch 5 ON = 700/1000 ohm load cells
OFF = 350 ohm load cells
```

- Switches 6 thru 10 are used to set the section (section address) numbers.
- 5. Set the section number according to the following chart.

Section Number		Sw	vitch Settin	igs	
	6	7	8	9	10
Section 1	On	Off	Off	Off	Off
Section 2	Off	On	Off	Off	Off
Section 3	On	On	Off	Off	Off
Section 4	Off	Off	On	Off	Off

6. Continue in this manner until each Smart Sectional Controller (SSC) box has a unique section number entered on the dip switches.



PPS Wiring Instrument SSC TB3 TB1 T<u>B3</u> T<u>B</u>1 black black black 1 1 black 1 1 green green green 2 green 2 2 2 blue blue 3 3 3 3 4 5 6 orange orange 4 4 4 blue blue 5 5 5 shield shield shield shield 6 6 6 white white white white 7 7 7 7 red red red red 8 8 8 8 TB4 TB2 black black 1 1 1 green green 2 2 2 TB2 is used in only a 3 3 3 few special installations. 4 5 6 7 4 4 Call Technical Support blue blue 5 TB4 is used if this PPS 5 for wiring applications. shield is in the center of a scale. shield 6 6 Some SSCs will "Daisywhite white 7 7 Chain" to TB3. the rest will red 8 red 8 8 connect toTB4. 50624 Issue #3 12/2005

3.5. Wiring the Power Supply

- 1. Connect the **Pit Power Supply (PPS)** to a **Smart Sectional Controller (SSC)** (#1 or any SSC).
 - Feed a cable from SSC#1 TB3 through the bushing to the PPS for TB3 and make connections as follows:

TB3 SSC#1	TB3 PPS	17246 Cable	Description	
1	1	Black	(-) 8.0 volts	
2	2	Green	(+) 8.0 volts	
5	5	Blue	DC Return	
6	6	Shield	Shield	
7	7	White	RS-485 (+)	
8	8	Red	RS-485 (-)	



3.5. Wiring the Power Supply, Continued

- 2. Wire the Pit Power Supply (PPS) to the Instrument.
 - Run the 'Home-Run' cable from the PPS, TB1 to the Instrument's TB1, wire as follows:

TB1 PPS	TB1 Inst	17246 Cable	Description
1	1	Black	28 volts, AC
2	2	Green	AC Return
3	3	Blue	20 Volts, DC
4	4	Orange	Enable
6	6	Shield	Shield/DC Return
7	7	White	Transmit
8	8	Red	Receive

Note: Shields are used for DC Return and MUST be connected.

3.6. Grounding the Scale

For accurate operation and protection against damage from lightning strikes, all of the components of the system must be properly grounded. The grounding system contains ground rods for the scale location. Below are points to correctly ground the system.

- It is recommended that the grounding be done with #8 or larger wire or braided ground straps.
- ✓ All of the ground connections should be **2 feet** or as short as possible.
- The case of the SSCs and PPSs must be attached in a clean electrical connection to the platform frame.
 - The platform frame is then connected to a scale ground rod.





3.6. Grounding the Scale, Continued

The **117 VAC SVP Unit** (65056) must be connected to a known good ground at the instrument location.

- Use a voltmeter to test the electrical power source available for the Neutral-to-Ground voltage level
 - It must be 0.2VAC or LESS.
 - If unsure about the voltage, or the testing reveals a higher than acceptable level (0.2VAC MAXIMUM), install a separate ground rod at the SVP 65056 location.
 - Use braided cable or #8 AWG wire to make the SVP to ground rod connection.

3.7. Data Recording

- 1. Record the scale serial numbers from the tag.
- 2. Record the instrument, SSC, PPS, and load cell serial numbers.
- 3. Keep a copy of the sheet in the customer file.
 - Use Appendix II for additional information.

Full Electronic Scales are designed to provide protection from moisture.

- The load cells are calibrated with the cable attached, and therefore *the cable* should *NOT* be cut.
- The cable is connected directly to the SSC through a sealed bushing which *MUST* be tightened with pliers 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, 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 gland with pliers until it is very snug.
- Do not over-tighten where bushing 'turns.
- All box covers **MUST be secured** with ALL latches secured properly for protection against moisture.

Section 4: Calibration

4.1. Initial Zero and Span Adjustments

- 1. Seat the suspension components.
- 2. Drive the test truck across the scale stopping and starting several times.
- 3. Repeat this procedure **at least three times** to assure that all parts are properly seated.
- 4. The zero and span of the scale need not be set perfectly, but it should be roughly adjusted to check for repeatability.
- 5. Return to zero to properly adjust the section readings.
- 6. Refer to the appropriate technical manual for the scale indicator for the initial and span calibration procedures.
- 7. Perform the coarse initial and span adjustments.
- 8. Perform the final zero and span adjustments after adjusting the sections.

4.1.1. Repeatability and Return-to-Zero Performance Tests

- 1. Position the test truck in the center of the Weighbridge.
- 2. Note the weight reading.
- 3. Pull the truck off the scale and note the return to zero.
- 4. Repeat this procedure at least three times to assure consistency.
 - a. If the scale does not repeat the readings, within tolerance, check for mechanical obstructions or "touches".
 - b. Check the scale thoroughly for proper assembly.
 - c. Check the load cells for proper alignment and to be certain it is plumb.

Note: This is best accomplished with the AZT disabled.



4.1.2. Section Test and Adjustment, Intalogix[™] Technology Systems

- ✓ Follow setup and programming instructions in the appropriate Intalogix™ Technology manual.
- Use a weigh cart or weights placed directly over the section for proper trimming.

4.1.3. Digital indicator initial and span calibration Intalogix[™] Technology

 Perform the initial and span adjustments, following the appropriate scale indicator technical manual.

Section 5: Parts

5.1. Scale Components

Part No.	Description
80984	1 1/8" -7 x 8" Threaded Rod, Zinc (module-module)
54255	1 1/8" Flat Washer (module-module)
61743	Clamp Bar Washer (base plates)
62857	5/8" x 6" Anchor Bolts
55010	Ground Rod Kit
73682	Shim, receiver cup, 1/16"
64338	Shim, receiver cup, 1/8"
64334	Shim, receiver cup, 3/16"
63319	Side check bracket w/bumper bolts (1" x 5")
64208	Shim, longitudinal ¼"
64209	Shim, longitudinal 1/16"
70045	Shim kit - 1 dozen mixed longitudinal
54304	1 1/8"-7 Hex nut
54891	1 1/8-7 Jam nut

5.2. Load Cells and Load Cell Hardware

Part No.	Description
144210	Load Cell, 6" RC, 100k,1k Ω, 2 mV/V w/20' cable (LCF-HR4020-24) 12' and 14' wide models
72274	"O" Ring, 51⁄2", INSIDE of Cup, *ANSI #222
64340	"O" Ring, 51/2", OUTSIDE of Cup, *ANSI #228
87481	Receiver Cup, LOWER (w/ anti-rotation pin)
87482	Receiver Cup, UPPER
64382	Roll Pin, ½" x 2½" anti-rotation, base plate
63981	Anti-Rotation Pin, LOWER Receiver Cup 3/8" x 21/2"
107118	Locating Tool 6"

* **ANSI# XXX:** defines a standard "O" ring size. "O" rings may be obtained at many hardware, hydraulic, or plumbing supply house by using the number.



5.3. Intalogix^{mmoderimes} Technology Scale Components

Part No.	Description
26168	Sectional Controller Assembly (SSC)
27931	SSC Box
26080	SSC PCB Only
24720	Pit Power Supply Assembly (PPS)
25256	Pit Power Supply Box
23393	Pit Power Supply PCB only
17545	Connector, Liquid Tite (small)
17535	Connector, Liquid Tite (large)

5.4. Spare Parts

5.4.1. Recommended Spare Parts

Part No.	Qty	Description
144210	1	Load Cell, 6" RC 100k, 20' cable
156965	1	Load Cell base plate
87481	1	Receiver Cup LOWER
87482	1	Receiver Cup UPPER

5.4.2. Startup / Commissioning Spare Parts

Part No.	Qty	Description
144210	1	Load Cell, 6" RC 100k, 20' cable
87481	1	Receiver Cup LOWER
87482	1	Receiver Cup UPPER

5.4.3. 2-Year Spare Parts List

Part No.	Qty	Description
144210	1	Load Cell, 6" RC 100k, 20' cable
156965	1	Load Cell base plate
87481	1	Receiver Cup LOWER

Appendix I: Wiring Diagram



Appendix II: Data Recording

Location/Name		Pho	Phone #			
Scale Model		Serial				
Date Installed _						
Date placed in service						
Installer's Name	9					
Instrument	Model	Seria	I			
Load Cell #1	Serial					
Load Cell #2	Serial					
#1 SSC or J Box	serial					
Load Cell #3	Serial					
Load Cell #4	Serial					
#2 SSC or J Box	c Serial					
Load Cell #5	Serial					
Load Cell #6	Serial					
#3 SSC or J Bo>	c Serial					
Load Cell #7	Serial					
Load Cell #8	Serial					
#4 SSC or J Box	c Serial					
PPS Se	erial					

FAIRBANKŠ				Appendix II: Data Recording
Location/Name	9		_Phone # _	
Scale Model _		 _ Serial		
Date Installed		 		
Date placed in	service	 		
Installer's Nam	ie	 		
Instrument	Model	 	Serial	
Load Cell #1	Serial	 		
Load Cell #2 #1 SSC or J Bo	Serial Serial	 		
Load Cell #3	Serial	 		
Load Cell #4 #2 SSC or J Bo	Serial Serial	 		
Load Cell #5	Serial	 		
Load Cell #6 #3 SSC or J Bo	Serial ox Serial	 		
Load Cell #7	Serial	 		
Load Cell #8 #4 SSC or J Bo	Serial Serial	 		
PPS S	Serial	 		



Tracker Series Truck Scale

INSTALLATION MANUAL

Manufactured by Fairbanks Scales Inc. www.fairbanks.com

Document 51611