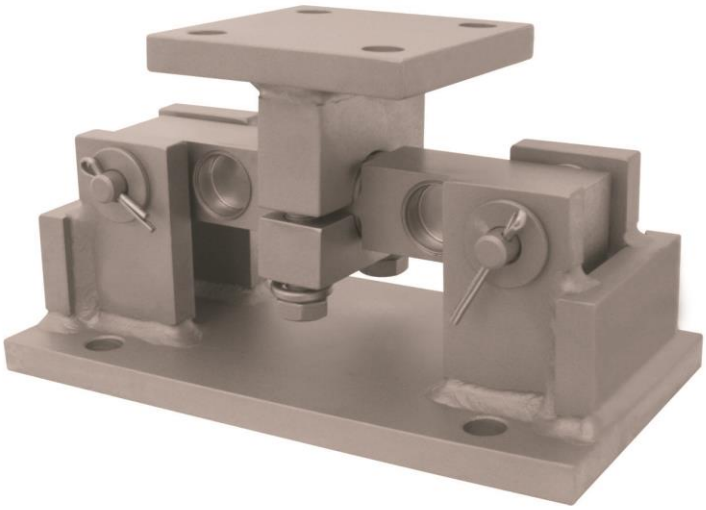
Installation Manual

9104 FB Series
Omnicell



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9104 FB Series Omnicell

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Revision 1	07/2013	Document release
Revision 2	08/2016	Updated dimensions, parts list, mounting orientations
Revision 3	01/2017	Updated Omnicell repair parts list

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.

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Section 1: General Information

1.1. SCOPE

This manual provides general installation and maintenance instructions for the Fairbanks Scales' 9104 FB Series Omnicell. Almost every installation is different, so please adjust the following information, as needed, for your application. Specifications, parameters and application notes are included.

This manual is meant to give general instructions for applying the Omnicell considering its inherent capabilities and limitations; it is not meant to be a scale design manual. Questions concerning specific applications should be directed to the appropriate Product Manager.

For complete 9104 FB Series installation, you will also need to reference the necessary instrumentation manual.

1.2. INTRODUCTION

The 9104 FB Series Omnicell provides an extremely accurate method for weighing medium to large capacity vessels, hoppers, and tanks. The 9104 FB Omnicells utilize double-ended shear beam load cells in their design. This design is also effective providing thermal expansion and contraction built-in support for applications that require it. In most applications, the 9104 FB are self-checking with no need for additional checking, making the 9104 FB Series Omnicell the mount of choice for those areas with seismic activity.

1.3. DESCRIPTION

Fairbanks Scales' Omnicells are a combination of two main components:

- Mounting assembly (captivates the load cell and provides means to fasten to the vessel and flooring).
- Load cell (the actual weight detecting device).

The 9104 FB Series Omnicells will arrive preassembled, including the load cells. This mounting assembly is specifically designed to be installed with the load cell.

The 9104 FB Series Omnicells are available in standard capacities ranging from 1K to 75K lbs.

The load cells are constructed from stainless steel or mild alloy steel in a double-ended shear beam design.

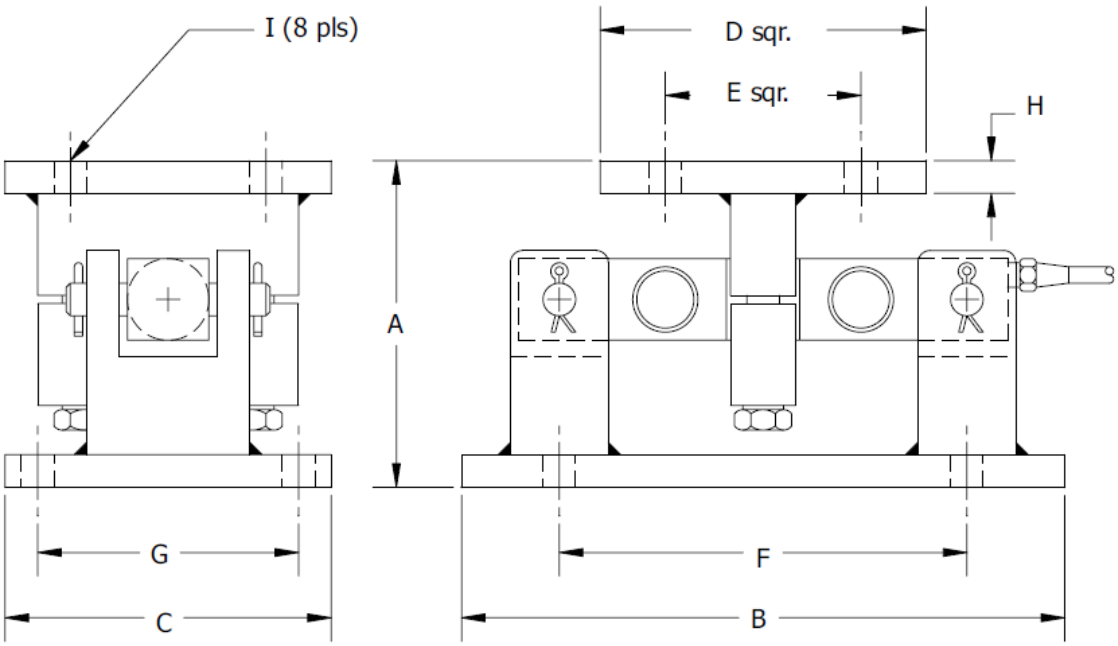
The mounting assembly is available in either a nickel-plated mild alloy steel or stainless steel construction.

These Omnicells are designed to be mechanically fastened to the load carrier and the foundation fasteners are not included.

1.4. CERTIFICATIONS

NTEP CC: **13-039** **Alloy steel load cells, 20K-75K lb capacities**

1.5. DIMENSIONS



Dimensional Reference Chart (Inches)									
Capacity	A	B	C	D	E	F	G	H	I
1000 – 5000 lbs	5.00	9.25	5.00	4.00	2.75	6.25	3.75	0.50	0.56
10000 – 25000 lbs	7.90	12.00	8.00	8.00	6.00	7.50	6.00	0.75	0.81
35000 lbs	7.90	12.00	8.00	8.00	8.00	7.50	8.00	0.75	0.81
50000 – 75000 lbs	9.30	16.25	12.00	9.00	6.50	11.50	9.50	1.00	0.81

Section 2: Company Service Information

2.1. GENERAL SERVICE POLICY

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

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

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

W A R N I N G

Absolutely NO physical or electrical modifications
(other than selection of standard options and accessories)
may be made to this equipment by customers.

Repairs must be performed by Fairbanks Scales service technicians
and authorized distributor personnel ONLY!

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

2.2. OVERVIEW

2.2.1. 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.

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 allowed.
  - These components must be returned intact for replacement credit per normal procedures.
- All electronic and mechanical adjustments are considered 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.
- The AC receptacle/outlet shall be located near the Instrument and easily accessible.
- Electrical connections other than those specified may not be performed.

2.2.2. Conferring with our Client

- 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.

2.2.3. 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.

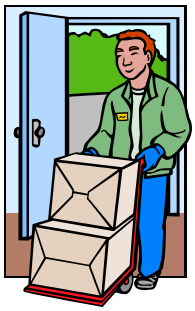
- ✓ Check the customer's application to make certain it is within the capabilities and design parameters of the equipment.
- ✓ If the installation process might disrupt normal business operations, tell the customer and ask that they make adequate arrangements.
- ✓ Be sure that the equipment operator(s)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

2.2.4. Unpacking

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

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.



2.2.5. Equipment Checkout

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.
- ✓ Avoid areas which have extreme variations in room temperatures. Temperatures outside the Instrument's specifications will affect the weighing accuracy of this product.
- ✓ Do not load the platform if there is any evidence of damage to the platform or supporting structure.

2.2.6. Users' Responsibility

- ✓ 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.
- ✓ The equipment consists of printed circuit assemblies which must be handled using ESD handling procedures, and must be replaced as units.
  - — Replacement of individual components is not allowed.
  - — The assemblies must be properly packaged in ESD protective material and returned intact for replacement credit per normal procedures.

2.2.7. Installation Considerations

Thorough application review should be conducted before, during and after installation:

- ✓ **Determining Omnicell Capacity** - Sizing the Omnicell (general rule) – Take the overall live and dead load of the vessel. Multiply by 2, then divide by the number of support points (legs, typically). For example:

  4 Legs
  26,000 lbs – dead load
  74,000 lbs – live load

  ```
     26,000
  +  74,000
    100,000
  x       2
    200,000
  ÷       4
  ```
  50,000 lb for each Omnicell

- ✓ **Loading** – The vessel will have 3, or more, tank legs. The Omnicells should be level and, under extreme cases, shimmed, so that the load is roughly equal on each Omnicell.

- ✓ **Flooring** - A thorough inspection of the flooring's deflections must be considered before installing an Omnicell system. Flooring must be rigid enough to handle the total load without deflection.

- ✓ **Thermal contraction and expansion** – Horizontal vessels, in direct sunlight, can create thermal expansion issues. The 9104 FB Series Omnicell can handle most thermal expansion/contraction issues.

- ✓ **Uplift and lateral constraints** – In extreme conditions (high winds or seismic activity) uplift and lateral stresses on the Omnicell system are a concern and should be considered when choosing the best Omnicell for the application. The 9104 FB Series Omnicell provides 100% uplift and lateral checking, refer to the product QuickFacts for a detailed explanation of the forces.

- ✓ **Isolate vessel** – Many external factors affect the accuracy and stability of an Omnicell system. Load cell signals can be affected by EMF sources such as electric forklifts, pumps, motors, etc. A well-isolated tank will provide more reliable results with fewer problems.

- ✓ **Eliminate mechanical constraints** – The vessel should be fully supported on the Omnicells. Reduce or eliminate any mechanical issues which will interfere with the vessel's deflection, such as: rigid vertical or horizontal piping (use flexible piping when connecting to the vessel whenever possible), ladders, catwalks, etc.

- ✓ **Orientation** – Orientation of the 9104 FB Series Omnicell should match the double-ended shear beam load cell design, however it is recommended positioning the load cell cables away from traffic areas. Reference the orientation drawings.

- ✓ **Heated or chilled vessels** – *Consult with the appropriate Product Manager for any application with vessels that heat or chill the product inside the vessel.* In these cases, special consideration may be required to isolate the temperatures.

- ✓ **Load cell cabling** – The load cell cables should be routed away from areas where they could be damaged. Use drip loops at both the load cell and the junction box ends.

- ✓ **Hazardous area** – If the Omnicells will be installed in a Hazardous Area, a document is required from the end user stating the Class, Division, and Group.

Section 3: Scale Installation

3.1. INTRODUCTION

The service information contained in this manual is restricted for use by authorized, qualified service personnel only. Under no circumstances are unauthorized personnel to disassemble or otherwise tamper with this, or any related equipment.

CAUTION

NO ARC WELDING is permitted near Omnicell installations. Severe damage to the load cells can occur. If welding is required, remove the load cell or remove the unit and install blocks.

3.2. PREPARATION FOR INSTALLATION

1. **Tools, equipment, and materials required:**

   a. Hydraulic jacks -- Use hydraulic jacks that have sufficient capacity plus (+) a safety factor for the size of the vessels you are installing the Omnicells.

   b. Blocking material to support lifted vessel.

   c. Determination of how the scale system will be calibrated.
      - Calibration weights (Only application method for NTEP system)
        i. Get calibration weights on site
        ii. Dolly, or other method, for moving weights
        iii. Means for lifting calibration weights (chains, Come-Along winch, etc.)
        iv. Lifting point on vessel for supporting calibration weights
      - Substitution – Product measured by other device (scale, flow meter, etc.) then used as the calibration weight.
        i. Schedule product to arrive when needed
        ii. Determine how product will be put into, and removed, from vessel
      - MilliVolt calibration with Intalogix Technology
        i. Check to make sure the correct equipment was ordered (Q Series instrument and Quad Multiplexer Board or Flash Instrument, Smart Sectional Controller and Pit Power Supply)
        ii. Load cell calibration sheets

- Mechanical
  - iii. Hammer drill with bit – size dependent on the size of the Omnicell, reference the proper drawings for specifics.
  - iv. Wedge anchor bolts, epoxy anchor bolts, hex head bolt, etc. for both the base assembly and top plate.
  - v. Bolt size determine by capacity of Washers
  - vi. Quantity of fasteners dependent on the application.
  - vii. Hand or power tool to secure fasteners
  - i. Grease and anti-seize

d. Hand tools – Wrenches, small screwdriver, tie straps, electrical tape, etc.

3.3. INSTALLATION

3.3.1. Installation Steps Overview

Installation consists of the following:

- Foundation check, layout, and mounting assembly installation
- Tools, materials, documentation, and a lifting mechanism (crane or hydraulic jack)
- Installation of the mounting assemblies
- Installation of the load cells

3.3.2. Mechanical Installation

Install the Omnicells underneath the vessels legs. Many vessels have 3, 4, or more legs. The vessel design should be that the legs do not “spread” as the vessel is loaded. The Omnicells should be level and should be shimmed so that the load is roughly equal (+/- 20%) on each Omnicell used in the installation.

When the Omnicells are installed, position the units so that there is no side loading or binding.

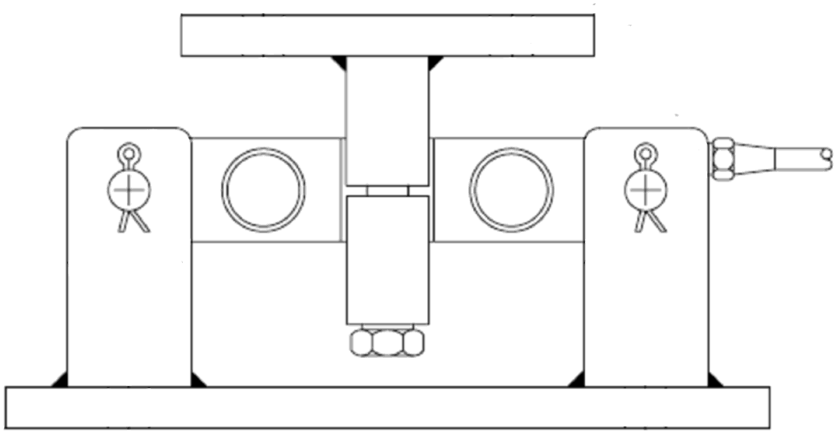
The Omnicells are designed to allow for lateral movement. The Omnicells should be oriented so that the major vessel expansion-contraction in in that plane.

The following are important considerations for Omnicell installations:

1. The Omnicells must be level and parallel so that side loads and bending moment loads are minimized.

2. The load on each Omnicell should be roughly equal. This can be easily checked by measuring the millivolt output signal or output counts from each load cell assembly. Shim as required to equalize the load cell output signals. For tank or hopper applications the signal output should be within +/- 20% of the load on each Omnicell used in the installation.
3. Since the Omnicells have a maximum deflection of about 0.015 inches, shimming or grout may be used to level the mount and is usually necessary to equalize the load cell outputs. If shimming is a problem and the vessel has alignment problems, neoprene rubber equalizing pads may be used on the top of each Omnicell to help equalize the loading. The top and bottom plates must be level within +/-0.5°.
4. The vessel should not touch or rub against supporting structures.
5. The filling or discharge piping should have flexible sections or be run in parallel to the vessel for approximately 3-4 feet so the piping will be decoupled from the vessel being weighed and not affect the weighing accuracy.
6. For lower capacity systems, less than 5K lbs., the attachment of pipes and feed chutes to the vessel is more critical in relation to weighing errors.

IMPORTANT: Load from vessel must be centered over the top plate.



Section 4: Electrical Installation

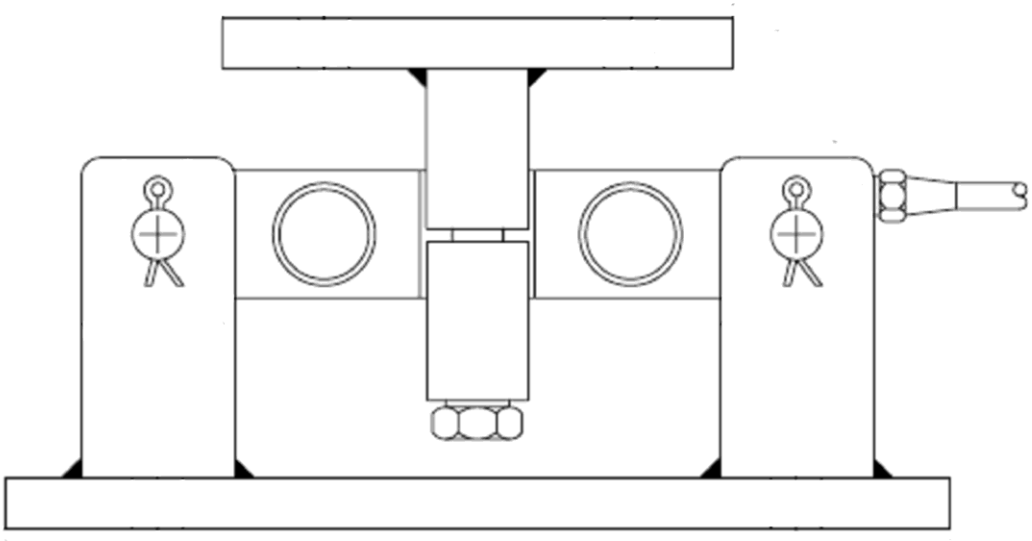
4.1. ANALOG JUNCTION BOX

1. Introduction – The analog j-box should be installed on the vessel, and in an easily accessible location, whenever possible. It is recommended that it be installed in a vertical position.
2. Description – The analog j-box has four (5) terminal blocks to connect four (4) load cells and one (1) for a cable that connects to the analog instrument. Load cells are adjusted using adjusting potentiometers.
3. Installation –
   a. Route the load cell cables so they will not be damaged or cut. The cables should not be routed in areas where they become in contact with moisture or exposed to chemicals, solvents, or heat sources. Do not cut any load cell cable supplied with the load cell. Cutting the load cell cable will affect the load cell's temperature compensation. Excess cable should be coiled and placed out of areas where it can be damaged.
   b. Be sure to provide a drip loop in all cables to prevent liquids from wicking down the cables towards the load cell or junction box.
   c. If conduits are required to protect the cables, use flexible conduit and conduit connectors at the load cell.
   d. Use sense leads when the distance from the instrument to the junction box exceeds 25 feet.
   e. Boxes: The box has tabs for bolting to mounting brackets on the side of the vessel. Attach the ground wire lug to one of the mounting bolt studs and tighten securely to provide a good electrical ground.
   f. Wiring: Cable used in all wiring must be a minimum of 24 AWG. Use cable 20903 or equivalent.

Load cell wiring color codes

LCF-9104-xxZ

Black	(-) Excitation
Red	(+) Excitation
White	(-) Signal
Green	(+) Signal
Clear	Shield



Notes:

- This Omnicell is designed to provide protection from the effects of moisture. The load cells is calibrated with the cable attached, and therefore the cable should NOT be cut.
- The cable is connected directly to the junction box or SSC through a sealed bushing that MUST be tightened properly to keep water/moisture out of the box.
- All cabling must 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. WIRING FOR INTALOGIX™ SYSTEMS

1. Introduction – Intalogix™ systems utilize smart sectional controllers (SSCs) and pit power supplies (PPSes) for load cell excitation and signal processing.
2. Description – SSC boxes have four (4) terminals, two (2) for load cells, and two (2) for interconnecting to other SSC boxes or terminating to a pit power supply. Make sure the proper number of SSC boxes are order based on the application requirements. All cell and scale adjustments are made via the Intalogix™ system instrument.
3. Installation – Boxes: The box has tabs for bolting to adapters on the side of the modules. Wiring: Cable used in all wiring must be a minimum of 18 AWG. Use cable 17204 or 17246. Use appropriate service manual for the instrument being installed.
    a. Smart Sectional Controller – Wire cells into each section's SSC per the appropriate manual. Remember that odd numbered cells go to TB1 location, and even numbered cells go to TB2 location. Load cell drain wires connect to the ground lug on the sectional controller box exterior.
    b. Grounding SSCs – Intalogix™ systems must have two (2) ground rods in the pit for proper connection. Pit power supplies use a ground separate from the steel and SSC ground rod.
    c. Instrument-to-PPS cable connection – Prepare the cable ends in the standard manner. Use the appropriate manual for wiring instructions of all SSCs and pit power supplies. Connect the instrument interface cable to the instrument in the in the scale house per the instructions in the appropriate instrument service manual.

NOTE: Intalogix™ installations utilize a different numbering system for load cells because of digital addressing of the SSCs. Number the load cells as follows:

With respect to the following starting position, face the vessel from where the instrument is located.

The cell at the upper left (far side) of the platform is Cell 1.

The cell positions along the far side will be odd cell number, and the near side locations will be even cell numbers.

NOTE: SSCs have connections for two (2) load cells, TB1 and TB2. The odd-numbered cell should go to the TB1 connection, and the even-numbered cell to the TB2 connection.

d. Wiring – Intalogix Junction Box

1. Cells to Smart Sectional Controller (SSC)

Position		TB1	TB2
1	BLACK	(-) EXC	(-) EXC
2	RED	(+) EXC	(+) EXC
6	CLEAR	*SHIELD*	*SHIELD*
7	GREEN	(+) /SIG	(+) /SIG
8	WHITE	(-) SIG	(-) SIG

2. SSC to SSC or SSC to Pit Power Supply

Position		To TB3	From TB4
1	BLACK	(-) 8 VDC	(-) 8 VDC
2	GREEN	(+) 8 VDC	(+) 8 VDC
5	BLUE	DC RETURN	DC RETURN
6	SHIELD	*SHIELD*	*SHIELD*
7	WHITE	(+) RS485	(+) RS485
8	RED	(-) RS485	(-) RS485

3. Pit Power Supply to instrument

Position		TB1 (PPS)	To TBx (instrument)
1	BLACK	(-) 28 VAC	(-) 28 VAC
2	GREEN	(+) ACR	(+) ACR
3	BLUE	(+) 20 VDC	(+) 20 VDC
4	ORANGE	(-) ENABLE 5 VDC	(-) ENABLE 5 VDC
6	SHIELD	*DC RETURN*	*DC RETURN*
7	WHITE	(+) RS485	(+) RS485
8	RED	(-) RS485	(-) RS485

Section 5: Maintenance

5.1. SCALE MAINTENANCE

1. Check for accumulations of solid material under the Omnicells that may affect the accuracy (ice, frozen mud, debris).
2. Check to see that the customer is doing routine cleaning around the vessel.
3. Inspect load cells for damage to the ends/cables.
4. Inspect and adjust all check bolts (if applicable) using anti-seize on the threads.
5. Check for all clearances around the scale for any obstructions or interference with the free movement of the platform.
6. Check all load cells for plumb and level.
7. Inspect the boxes for leaks; the interior should be clean and dry. If there is moisture inside, clean and dry it thoroughly. Check all connections at the terminal blocks to ensure they are tight.

Section 6: Parts

6.1. PARTS LIST

9104 FB Series Omnicell Complete Assembly	
PN	**Description**
32954	9104 FB Series Omnicell, Alloy Steel, 1k capacity, 20' cable, Non-NTEP
32955	9104 FB Series Omnicell, Alloy Steel, 2.5k capacity, 20' cable, Non-NTEP
32956	9104 FB Series Omnicell, Alloy Steel, 5k capacity, 20' cable, Non-NTEP
32957	9104 FB Series Omnicell, Alloy Steel, 10k capacity, 20' cable, Non-NTEP
32958	9104 FB Series Omnicell, Alloy Steel, 15k capacity, 20' cable, Non-NTEP
32959	9104 FB Series Omnicell, Alloy Steel, 25k capacity, 20' cable, NTEP
32960	9104 FB Series Omnicell, Alloy Steel, 35k capacity, 20' cable, NTEP
32961	9104 FB Series Omnicell, Alloy Steel, 50k capacity, 20' cable, NTEP
33001	9104 FB Series Omnicell, Alloy Steel, 75k capacity, 20' cable, NTEP
32962	9104 FB Series Omnicell, Stainless Steel, 1k capacity, 20' cable, Non-NTEP
32963	9104 FB Series Omnicell, Stainless Steel, 2.5k capacity, 20' cable, Non-NTEP
32964	9104 FB Series Omnicell, Stainless Steel, 5k capacity, 20' cable, Non-NTEP
32965	9104 FB Series Omnicell, Stainless Steel, 10k capacity, 20' cable, Non-NTEP
32966	9104 FB Series Omnicell, Stainless Steel, 15k capacity, 20' cable, Non-NTEP
32967	9104 FB Series Omnicell, Stainless Steel, 25k capacity, 20' cable, Non-NTEP
32968	9104 FB Series Omnicell, Stainless Steel, 35k capacity, 20' cable, Non-NTEP
32969	9104 FB Series Omnicell, Stainless Steel, 50k capacity, 20' cable, Non-NTEP
32970	9104 FB Series Omnicell, Stainless Steel, 75k capacity, 20' cable, Non-NTEP
32971	9104 FB Series Omnicell, Hybrid Construction, 1k capacity, 20' cable, Non-NTEP
32972	9104 FB Series Omnicell, Hybrid Construction, 2.5k capacity, 20' cable, Non-NTEP
32973	9104 FB Series Omnicell, Hybrid Construction, 5k capacity, 20' cable, Non-NTEP
32974	9104 FB Series Omnicell, Hybrid Construction, 10k capacity, 20' cable, Non-NTEP
32975	9104 FB Series Omnicell, Hybrid Construction, 15k capacity, 20' cable, Non-NTEP
32976	9104 FB Series Omnicell, Hybrid Construction, 25k capacity, 20' cable, Non-NTEP
32977	9104 FB Series Omnicell, Hybrid Construction, 35k capacity, 20' cable, Non-NTEP
32978	9104 FB Series Omnicell, Hybrid Construction, 50k capacity, 20' cable, Non-NTEP
32979	9104 FB Series Omnicell, Hybrid Construction, 50k capacity, 20' cable, Non-NTEP

6.1. Parts lists, continued

9104FB Omnicell Replacement Parts List	
PN	**Description**
33640*	Alloy Steel Complete Mounting Assembly, 1-5k Capacities
33641*	Alloy Steel Complete Mounting Assembly, 10-35k Capacities
33642*	Alloy Steel Complete Mounting Assembly, 50 & 75k Capacities
33643*	Stainless Steel Complete Mounting Assembly, 1-5k Capacities
33644*	Stainless Steel Complete Mounting Assembly, 10-35k Capacities
33645*	Stainless Steel Complete Mounting Assembly, 50 & 75k Capacities
33646	Top Plate, Alloy Steel, 1-5k Capacities
33647	Base Plate, Alloy Steel, 1-5k Capacities
33648**	Hardware Kit, Alloy Steel, 1-5k Capacities
33653	Top Plate, Alloy Steel, 10-35k Capacities
33654	Base Plate, Alloy Steel, 10-35k Capacities
33655**	Hardware Kit, Alloy Steel, 10-35k Capacities
33656	Top Plate, Alloy Steel, 50 & 75k Capacities
33657	Base Plate, Alloy Steel, 50 & 75k Capacities
33658**	Hardware Kit, Alloy Steel, 50 & 75 Capacities
33659	Top Plate, Stainless Steel, 1-5k Capacities
33660	Base Plate, Stainless Steel, 1-5k Capacities
33661**	Hardware Kit, Stainless Steel, 1-5k Capacities
33662	Top Plate, Stainless Steel, 10-35k Capacities
33663	Base Plate, Stainless Steel, 10-35k Capacities
33664**	Hardware Kit, Stainless Steel, 10-35k Capacities
33665	Top Plate, Stainless Steel, 50 & 75k Capacities
33666	Base Plate, Stainless Steel, 50 & 75k Capacities
33667**	Hardware Kit, Stainless Steel, 50 & 75k Capacities

* Mounting assemblies contain: top plate, base plate and hardware kit.

** Hardware kits include: 2 pins, 4 cotter pins, 4 washers, 2 bolts and 2 lock washers.

6.1. Parts lists, continued

9104 FB Series Load Cells - Replacement	
PN	**Description**
32980	LCF-9104-11Z, DESB, alloy steel, 1k capacity, 3.0 mV/V, 20' cable, Non-NTEP
32981	LCF-9104-13Z, DESB, alloy steel, 2.5k capacity, 3.0 mV/V, 20' cable, Non-NTEP
32982	LCF-9104-14Z, DESB, alloy steel, 5k capacity, 3.0 mV/V, 20' cable, Non-NTEP
32983	LCF-9104-15Z, DESB, alloy steel, 10k capacity, 3.0 mV/V, 20' cable, Non-NTEP
32984	LCF-9104-16Z, DESB, alloy steel, 15k capacity, 3.0 mV/V, 20' cable, Non-NTEP
32985	LCF-9104-21Z, DESB alloy steel, 25k capacity, 3.0 mV/V, 20' cable, NTEP
32986	LCF-9104-18Z, DESB, alloy steel, 35k capacity, 3.0 mV/V, 20' cable, NTEP
32987	LCF-9104-19Z, DESB, alloy steel, 50k capacity, 3.0 mV/V, 20' cable, NTEP
32988	LCF-9104-20Z, DESB, alloy steel, 75k capacity, 3.0 mV/V, 20' cable, NTEP
32989	LCF-9104-1Z, DESB, SS, 1k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP
32990	LCF-9104-3Z, DESB, SS, 2.5k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP
32991	LCF-9104-4Z, DESB, SS, 5k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP
32992	LCF-9104-5Z, DESB, SS, 10k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP
32993	LCF-9104-6Z, DESB, SS, 15k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP
32994	LCF-9104-7Z, DESB, SS, 25k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP
32995	LCF-9104-8Z, DESB, SS, 35k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP
32996	LCF-9104-9Z, DESB, SS, 50k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP
32997	LCF-9104-10Z, DESB, SS, 75k capacity, 3.0 mV/V, 20' cable, welded covers, Non-NTEP

Appendix I: Specifications

Capacities	1K to 75K lbs
Mount construction	Nickel-plated mild alloy steel; stainless steel
Load cell:	
Full scale output (FS)	3.0 mV/V/ohm ± 0.1%
Combined error	≤ 0.05% FS
Non-linearity	≤ 0.03% FS
Creep error (20 min.)	≤ 0.03% FS
Compensated temperature	14° F to 104° F (-10° C to 40° C)
Excitation voltage	5-15 VDC
Overload	Safe = 150%; Ultimate = 300%
Sideload	100% FS
Uplift	100% FS
Bridge resistance	700 ohms nominal
Construction	Alloy steel; Stainless steel 17-4 PH
Cable	Polyurethane: 20ft.
Approvals	NTEP #13-039, (Alloy steel load cells 20K-75K capacities), FM approval (All load cells)

9104 FB Series Omnicell

Installation Manual

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