Perform Floor Scale Calibration

Tank Farm Maintenance Procedure

MAINTENANCE

USQ # GCX-2

CHANGE HISTORY (≤ LAST 5 REV-MODS)

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-1</td>
<td>08/02/2017</td>
<td>inconsequential change</td>
<td>Update Records Section</td>
</tr>
<tr>
<td>B-0</td>
<td>11/11/2014</td>
<td>Periodic Review</td>
<td>Section 2.1 and Section 5.7, Removed references to CHAMPS</td>
</tr>
<tr>
<td>A-2</td>
<td>03/19/2014</td>
<td>Maintenance Request</td>
<td>Changed 75 to 100 lbs. at Step 3.1.2 and in Note prior to Step 5.2.5. Changed 5,000 to 1,000 lbs. in Note prior to Step 5.1.1. Changed “calibrated” to “known” in Steps 5.1.1, 5.1.3, and 5.3.14. Added “calibrated” to Steps 5.2.5, 5.2.11, 5.2.17, 5.2.23. Added “known” to Step 5.3.8.</td>
</tr>
<tr>
<td>A-0</td>
<td>09/12/2012</td>
<td>Engineering Request</td>
<td>New Procedure</td>
</tr>
</tbody>
</table>

Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>PURPOSE AND SCOPE</td>
<td>3</td>
</tr>
<tr>
<td>1.1</td>
<td>Purpose</td>
<td>3</td>
</tr>
<tr>
<td>1.2</td>
<td>Scope</td>
<td>3</td>
</tr>
<tr>
<td>2.0</td>
<td>INFORMATION</td>
<td>3</td>
</tr>
<tr>
<td>2.1</td>
<td>General Information</td>
<td>3</td>
</tr>
<tr>
<td>3.0</td>
<td>PRECAUTIONS AND LIMITATIONS</td>
<td>3</td>
</tr>
<tr>
<td>3.1</td>
<td>Personnel Safety</td>
<td>3</td>
</tr>
<tr>
<td>3.2</td>
<td>Radiation and Contamination Control</td>
<td>3</td>
</tr>
<tr>
<td>4.0</td>
<td>PREREQUISITES</td>
<td>4</td>
</tr>
<tr>
<td>4.1</td>
<td>Special Tools, Equipment and Supplies</td>
<td>4</td>
</tr>
<tr>
<td>4.2</td>
<td>Performance Documents</td>
<td>4</td>
</tr>
<tr>
<td>4.3</td>
<td>Field Preparation</td>
<td>4</td>
</tr>
<tr>
<td>5.0</td>
<td>PROCEDURE</td>
<td>5</td>
</tr>
</tbody>
</table>
## Perform Floor Scale Calibration

5.1 Obtain As Found Span ................................................................. 5
5.2 Load Cell Calibration ................................................................... 6
5.3 Scale Calibration ........................................................................... 10
5.4 Restoration .................................................................................. 11
5.5 Acceptance Criteria .................................................................... 11
5.6 Review .......................................................................................... 11
5.7 Records ......................................................................................... 11

Figure 1 - Weight placement diagram for load cell Calibration ......................................................... 12

Figure 2 - Potentiometer Location ................................................................................................. 13
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for a safe, uniform method to perform maintenance, verification, and calibration of Fairbanks Weighing System.

1.2 Scope

This procedure involves calibration of Rice Lake Load Cells and Fairbanks Weighing Systems located at the 616 facility and other locations.

2.0 INFORMATION

2.1 General Information

The space between the platform side and pit frame, and the surface beneath the platform must be cleaned periodically to prevent debris build-up, which may cause erroneous readings.

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Personnel Safety

3.1.1 Junction box on the load cell has been evaluated and is less than 50 volts.

3.1.2 Use two person lift when positioning small weight during calibration activities, weight will be less than 100 lbs.

3.1.3 Current field conditions and hazards not mentioned in this procedure will be addressed in a work package Job Hazard Analysis (JHA) during the pre-job.

3.1.4 Comply with TFC-ESHQ-S_1S-C-07 “Power Industrial Trucks”.

3.1.5 Wear protective footwear while performing this procedure.

3.2 Radiation and Contamination Control

Work in radiological areas will be performed using a Radiological Work Permit following review by Radiological Control per the ALARA Work Planning procedure TFC-ESHQ-RP_RWP-C-03.
4.0 PREREQUISITES

4.1 Special Tools, Equipment and Supplies

The following supplies may be needed to perform this procedure:
- Medium straight blade screwdriver
- Level
- Other tools, equipment, and supplies as identified by Shift Manager/OE/FWS/User.

4.2 Performance Documents

The following documents may be needed to perform this procedure:
- Rise Lake 4-Channel Junction Box Installation Guide.

4.3 Field Preparation

4.3.1 CLEAN area between side pit, pit frame and surface.
5.0 PROCEDURE

5.1 Obtain As Found Span

NOTE - The large known weight will be loaded using a forklift and may weigh between 1,000 to 20,000 pounds.

5.1.1 PLACE the large known weight in the center of the scale.

5.1.2 RECORD the scales displayed weight as the As-Found weight on Data Sheet.

5.1.3 REMOVE the large known weight from center of the scale.

5.1.4 IF reading is within tolerance specified on Data Sheet, GO TO Section 5.4.

5.1.5 IF reading is not within tolerance specified on Data Sheet, GO TO Section 5.2.
5.2 Load Cell Calibration

NOTE - Figure 1 identifies the 4 corners of weight placement used in performing load cell calibration.

- Figure 2 shows the potentiometers location within the junction box.

5.2.1 CLEAN the scale of any articles that might affect its operation (e.g. tools, sand, debris, etc.).

Check Scale Gradient Size

NOTE - Scale has adjustable feet to be used for leveling.

5.2.2 ENSURE scale is level and free of obstacles.

NOTE - Switch SW3 is located on the back side of the Fairbanks Indicator H90-5200-A.

5.2.3 ENTER operating parameters by performing the following:

5.2.3.1 REMOVE the display on Fairbanks Indicator.

5.2.3.2 PRESS SW3 switch on the back of display.

5.2.3.3 REPLACE the display on Fairbanks Indicator.

5.2.3.4 PRESS “FUNC” key.

5.2.3.5 PRESS “7” key.

5.2.3.6 PRESS “ENTER” key twice, after which, the display should show the Gradient Size value “GSxxx”.

5.2.3.7 CHECK the Gradient Size (GS) value is set to 5.

5.2.3.8 IF Gradient Size value is not set to 5, SET value to 5 using the up/down arrows (▲/▼).

5.2.3.9 PRESS “ENTER” key to store the value in memory.

5.2.3.10 PRESS “GROSS/NET” key to exit programming.
5.2 Load Cell Calibration (Cont.)

**Equalizing Load Cells**

5.2.4 OPEN the junction box located between corners 1 and 4.

NOTE - The small calibrated weight will be placed using two man lift and will weigh less than 100lbs.

5.2.5 PLACE small calibrated weight in corner 1.

5.2.6 RECORD the scales displayed weight as the As-Found weight on Data Sheet.

5.2.7 IF the scales displayed weight is equal to the known calibrated weight, RECORD the As-Left weight value on Data Sheet AND PROCEED to Step 5.2.11.

5.2.8 ADJUST potentiometer [PT1] until the scales displayed value matches the known weight value.

5.2.9 IF unable to match the scale displayed value to known weight value, PERFORM the following:

5.2.9.1 STOP work.

5.2.9.2 NOTIFY FWS AND CONTACT engineering for resolution.

5.2.10 RECORD the As-Left value on the Data Sheet.

5.2.11 PLACE small calibrated weight in corner 2.

5.2.12 RECORD the scales displayed weight as the As-Found weight on Data Sheet.

5.2.13 IF the scales displayed weight is equal to the known calibrated weight, RECORD the As-Left weight value on Data Sheet AND PROCEED to Step 5.2.17.

5.2.14 ADJUST potentiometer [PT2] until the scales displayed value matches the known weight value.
5.2 Load Cell Calibration (Cont.)

Equalizing Load Cells (Cont.)

5.2.15 IF unable to match the scale displayed value to known weight value, PERFORM the following:

5.2.15.1 STOP work.

5.2.15.2 NOTIFY FWS AND CONTACT engineering for resolution.

5.2.16 RECORD the As-Left value on the Data Sheet.

5.2.17 PLACE small calibrated weight in corner 3.

5.2.18 RECORD the scales displayed weight as the As-Found weight on Data Sheet.

5.2.19 IF the scales displayed weight is equal to the known calibrated weight, RECORD the As-Left weight value on Data Sheet AND PROCEED to Step 5.2.23.

5.2.20 ADJUST potentiometer [PT3] until the scales displayed value matches the known weight value.

5.2.21 IF unable to match the scale displayed value to known weight value, PERFORM the following:

5.2.21.1 STOP work.

5.2.21.2 NOTIFY FWS AND CONTACT engineering for resolution.

5.2.22 RECORD the As-Left value on the Data Sheet.

5.2.23 PLACE small calibrated weight in corner 4.

5.2.24 RECORD the scales displayed weight as the As-Found weight on Data Sheet.
5.2 Load Cell Calibration (Cont.)

**Equalizing Load Cells (Cont.)**

5.2.25 IF the scales displayed weight is equal to the known calibrated weight, RECORD the As-Left weight value on Data Sheet AND PROCEED to Section 5.3.

5.2.26 ADJUST potentiometer [PT4] until the scales displayed value matches the known weight value.

5.2.27 IF unable to match the scale displayed value to known weight value, PERFORM the following:

5.2.27.1 STOP work.

5.2.27.2 NOTIFY FWS AND CONTACT engineering for resolution.

5.2.28 RECORD the As-Left value on the Data Sheet.
5.3 Scale Calibration

5.3.1 **IF** zero is good, **PLACE** large weight on scale.

**NOTE** Switch SW3 is located on the back side of the Fairbanks Indicator H90-5200-A.

5.3.2 **REMOVE** the display on Fairbanks Indicator.

5.3.3 **PRESS** SW3 switch twice **AND**

**CHECK** display reads “CAL 0”.

5.3.4 **REPLACE** the display on Fairbanks Indicator.

5.3.5 **PRESS** [1] key.

5.3.6 **PRESS** “ENTER” key.

5.3.7 **PRESS** “ZERO” key.

5.3.8 **PLACE** the large known weight in the center of the scale.

5.3.9 **ENTER** known large weight value.

5.3.10 **PRESS** “ENTER” key.

5.3.11 **ENTER** scale capacity 20,000 lbs.

5.3.12 **PRESS** “ENTER” key three times to exit calibration mode.

5.3.13 **RECORD** the As-Left value on the Data Sheet.

5.3.14 **REMOVE** the large known weight from center of the scale.
5.4 Restoration

5.4.1 IF any problems were encountered with calibration, INFORM FWS.

5.4.2 RECORD the test equipment information and calibration status on Data Sheet as applicable.

5.4.3 STORE AND SECURE test weight(s).

5.5 Acceptance Criteria

Acceptance criteria has been met when steps in this procedure have been satisfactorily performed and As-Left values meet the specifications and tolerance(s) per the Data Sheet.

5.6 Review

5.6.1 INFORM FWS test is complete.

5.6.2 FWS REVIEW AND ENSURE the following:
- Completed Data Sheets meet the acceptance criteria.
- Comments sections are filled out appropriately.
- Work requests needed as a result of this procedure are identified and generated.
- Work request number(s) of any work documents generated as a result of this procedure, are recorded in the Comments/Remarks section of the Data Sheet, as applicable.

5.7 Records

This procedure is performed within a work package, as such, the procedure in its entirety will be maintained as a record per the Work Control process.

The record custodian identified in the company-level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.
Perform Floor Scale Calibration

Figure 1 - Weight placement diagram for load cell Calibration
Perform Floor Scale Calibration

Figure 2 - Potentiometer Location