Calibrate Omega Model TX-83, 241-A-350 Weight Factor and Specific Gravity Indicators

Tank Farm Plant Maintenance Procedure

CALIBRATION

USQ # GCX-2

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
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<tbody>
<tr>
<td>F-0</td>
<td>11/16/2016</td>
<td>Periodic Review</td>
<td>Inconsequential Changes Made</td>
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<tr>
<td>E-0</td>
<td>12/13/2013</td>
<td>All changes are as a result of the periodic review process.</td>
<td>Globally deleted/modified vague phrases. Modified wording in Step 5.5.2.</td>
</tr>
<tr>
<td>D-0</td>
<td>12/21/2010</td>
<td>Periodic Review</td>
<td>Reworded Section 5.1, Steps 5.2.4, 5.3.2 thru 5.3.5. Added New Step 5.1.5 to replace Steps 5.1.6 thru 5.1.8. Added Steps 5.2.5 and 5.2.6. These changes were made to meet Writer’s Standard.</td>
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Figure 3 – Span Pot Lay-Out .......................................................................................................................... 9
1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for calibrating the Omega Weight Factor and Specific Gravity indicators.

1.2 Scope

This procedure applies to Omega model TX-83, 241-A-350 Weight Factor and Specific Gravity indicators.

2.0 INFORMATION

NONE

3.0 PRECAUTIONS AND LIMITATIONS

3.1 Radiation and Contamination Control

Work in radiological areas will be performed using a radiation 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:

- Calibrated mA/mV source.
5.0 PROCEDURE

Special Instructions

If performance of any steps in this procedure is not required for procedure completion, steps not performed shall be indicated as such by entering "N/A" in appropriate Data Sheet signoff space.

5.1 Obtain As-Found Data

5.1.1 REMOVE equipment under test from service.

5.1.2 BEFORE making any adjustments, ENSURE shunt blocks are positioned to give correct decimal point. (see Figure 1)

5.1.3 CONNECT test equipment per Figure 2 - Calibration Set-Up.

5.1.4 APPLY values as specified on Data Sheet AND RECORD As-Founds on Data Sheet.

5.1.5 IF As-Found values are not within specified tolerance per Data Sheet, GO TO Section 5.2.

OR

IF As-Found values are within specified tolerance, but deemed marginal, and optimization is desired, GO TO Section 5.2

OR

IF As-Found values are within specified tolerance, RECORD As-Found values in As-Left column of Data Sheet AND

GO TO Restoration, Section 5.3.
5.2 Calibration

5.2.1 ALTERNATELY APPLY minimum and maximum input currents AND
ADJUST span pot per Figure 3 until span reading equals the difference between desired high display and desired low display value.

5.2.2 APPLY zero input value as specified on Data Sheet AND
ADJUST zero pot per Figure 3 until the low value of display is shown.

5.2.3 REPEAT Steps 5.2.1 and 5.2.2 until desired tolerance is reached.

5.2.4 APPLY input values as specified on Data Sheet AND
CHECK output values for tolerance.

5.2.5 IF values are within tolerance per Data Sheet, RECORD As-Left values on Data Sheet AND
GO TO Restoration, Section 5.3.

5.2.6 IF values are not within tolerance per Data Sheet, REPEAT Steps 5.2.1 through 5.2.5 until values are within tolerance

OR

IF unable to bring values into tolerance NOTIFY FWS/OE for resolution.
5.3 Restoration

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

5.3.2 DISCONNECT AND REMOVE test equipment.

5.3.3 RECORD test equipment information and calibration status on Data Sheet

5.3.4 CHECK equipment system restoration by observing indications are consistent with expected conditions.

5.3.5 NOTIFY Operations testing is complete and system may be returned to desired configuration.

5.4 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.

5.5 Review

5.5.1 INFORM FWS test is complete.

5.5.2 FWS REVIEW AND ENSURE the following:

- Completed Data Sheets meet acceptance criteria
- Data Sheet comments sections are filled out appropriately
- Any 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 Comments/Remarks section of Data Sheet, as applicable.

5.6 Records

The performance of this procedure generates no records. However, PM Data Sheets associated with the procedure, are records and are maintained in the work package as record material.

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.
### Figure 1 - Configuration

#### Configuration Chart

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Shunt block locations requiring shunt blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 5 mA</td>
<td>None</td>
</tr>
<tr>
<td>4 to 20 mA</td>
<td>J</td>
</tr>
<tr>
<td>10 to 50 mA</td>
<td>A</td>
</tr>
<tr>
<td>Normal span slope</td>
<td>G and a</td>
</tr>
<tr>
<td>Reverse span slope (RSS)</td>
<td>F and Z</td>
</tr>
<tr>
<td>Zero range</td>
<td>I</td>
</tr>
<tr>
<td>-2510 to -1420 (ZR1)</td>
<td>T</td>
</tr>
</tbody>
</table>

#### Configuration Chart

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Shunt block locations requiring shunt blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zero range</td>
<td>None</td>
</tr>
<tr>
<td>-470 to + 850 (ZR3)</td>
<td>None</td>
</tr>
<tr>
<td>Zero range</td>
<td>+760 to +2000 (ZR4)</td>
</tr>
<tr>
<td>Dummy right-hand zero</td>
<td>D</td>
</tr>
<tr>
<td>Decimal point 1.999 (DP1)</td>
<td>W</td>
</tr>
<tr>
<td>Decimal Point 19.99 (DP2)</td>
<td>L</td>
</tr>
<tr>
<td>Decimal Point 199.9 (DP3)</td>
<td>V</td>
</tr>
</tbody>
</table>

#### Display P.C.B.

![Side view of TX-B3/B4 with shunt blocks installed](image)

Shunt blocks shown for standard factory configuration
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Figure 2 - Calibration Set-Up

Precision Milliampere Source +

TX-83/84 +

-10K 100

TX-83/84 -

+ - +

Milliampere Range of 4 ½
Digit DMM

OR

10V

TX-83/84 +

-
Figure 3 – Span Pot Lay-Out