Hydraulic RHGSE Reprogramming Displays
Appendix E

Table Contents

Please contact Zephyr International LLC with any questions.

Technical Contact Zephyr Support

Email: info@zephyrintl.com or mmitchell@zephyrintl.com

Phone: 1-843-365-2675

Online Support

Visit website at www.zephyrintl.com

Sign up for the Members Only section

- Register your serial number information and identify a point of contact for future service bulletin release(s).
- Browse available information and resources

NOTE

The displays will not illuminate if the inboard battery is discharged as a result of neglecting to charge the batteries.

If the displays start blinking, then go out completely, the battery has dipped below 8 volts. This can happen when the battery charger is left unplugged or the system is used continuously for more than two hours.

The Indicator readouts may also fail due to low voltage or a blown fuse. If this occurs, the operator must use caution and visually watch the cable as it approaches the starting position.

E1.0 Load Indication System : Checking, Adjusting, Scaling,

The Ground Support System **is not intended** for precision load application, but only as a tool to be used to apply approximate loading to ensure the cable is tensioned and conditioned during ground maintenance. However, in the event one desires to understand the accuracy of the load display then the following section applies.

NOTE

The display of the load is accurate to within +/- 5% only in the retracting direction. Each machine is tested in the factory to ensure it is within these limits.

A. The displayed load in the extend direction is slightly higher than the actual load due to the slight inefficiency of the capstans and the fact that the motor must overhaul the load.

B. The load indication system consists of a load cell and a load display. The load cell reacts to the torque of the hydraulic motor as it pulls or resists the pull of the wire rope.

C. Therefore, the exact calibration curve for each machine is measured in the factory, and a calibration curve calculated. The calibration curve is supplied with each machine.

WARNING

Do not attempt to tighten or loosen the bolt that attaches the load cell to the reaction arm. Doing so will change the load cell display and render it inaccurate.

E2.0 Two methods to set the load cell display.

A. One is with a fixed hoist test facility.

B. The other is to use the known weight of the RHGSE to set the display at the point where the RHGSE starts to lift off the ground.

E2.1 Method using the Fixed Hoist Test Facility

In order to adjust the load display system, the RHGSE must be checked on a fixed hoist test facility. In the event the FHTF is available, the following procedure applies:

A. Perform a load calibration run. Set up the Omega DP25BS as follows:

1. Set Dip switches for a 0-100 MV input signal
12345678
XOCOOXXO

2. Set dip switches for a 10 V excitation voltage
12345678
COCOOCOO

3. Program the meter as follows
- **a.** Select input type **INPt**
  - i. **100M**
- **b.** Select decimal point display
  - **i. FF.FF**
- **c.** Scale with unknown loads as follows:
- **d.** Determine the load cell sensitivity from the load cell calibration sheet. Load Cell sensitivity is mV out = LSC=_____
  - **i.** IN1= **internal meter value (press tare twice then press Menu to store the value**
    IN2= LSCx5x100=_____
  - **ii.** Rd1=**0000**
  - **iii.** Rd2=**LSC**
- **e.** Select Reading Configuration to set the input resolution
  - **i.** Set R.2=1 for a 20mV input signal

4. Set up the system and measure the actual loads indicated by the test frame and the output of the load cell in mV and record them on the test data sheet.

5. Plot the results and calculate the slope of the curve in lbs. (m)V and the y intercepts point.

6. Calculate the GSE max load **Y= M x LSC+B** to determine the mechanical correction factor

7. Change the decimal point display to **FFFF**

8. Reprogram the meter with the new Rd2=**Y=**_____

9. Make another run and measure the actual test frame indicated loads and the GSE indicated loads
- **a.** Plot the new loads and determine if the indicated loads are with 5% of each other at the high end of each range.
  i.e. extending maximum load range is 300 lbs. (136 kg)
  i.e. retracting maximum load range is 600 lbs. (272.2 kg)

10. Enter the results into the calibration test data record and include the data into the ATP record for the particular unit.

If no fixed hoist test facility is available, you can check the load readout by retracting at medium to fast speed.

NOTE

The RHGSE will start to lift off the ground at around 600 lbs. (272.2 kg).

E2.2 Method using Scaling with known loads Method

With the Extend/Retract Rocker Switch in the Retract position, i.e. pump running, but no movement:

1. Press the **MENU** button until the meter shows RD.S.O.
2. Press the >**TARE** button. The meter shows IN1 (Input 1).
   IN1 (Input 1) is the unscaled display reading at minimum input.
3. Press the >**TARE** button again. The meter shows last stored value for Input 1.
4. Press the >**TARE** button once more. The meter shows the actual signal being received.
5. Press the **MENU** button to store this value as IN1 (Input 1). The meter shows
   RD1 (Read 1). RD1 (Read 1) is the desired display reading at Input 1.
6. Press the >**TARE** button. The meter shows the last stored value for Read 1.
7. Press the ^**NT/GRS** button to change the value of your digits to 0000
8. Press the >**TARE** button to scroll horizontally to the next digit.
9. Press the **MENU** button to store value as RD1. The meter shows IN 2(Input 2).
10. Start retracting the load with the hoist, and adjust the load on the GSE until the GSE just starts to lift off the ground. Try to keep the load as steady as possible. (This requires an assistant to run the hoist while the next steps are performed.
11. Press the >**TARE** button again. The meter shows the last stored value for Input 2.
12. Press the >**TARE** button once more. The meter shows the actual signal being received.
13. Press the **MENU** button to store Input 2 value. The meter shows RD 2(Read 2).
    RD2(Read 2) is the desired display reading at input 2.
14. Press the >**TARE** button. The meter shows the last stored value for Read 2.
15. Press the ^**NT/GRS** button to change the value of your digits to 0600
16. Press the >**TARE** button to scroll horizontally to the next digit until the meter reading matches the load cell meter reading of 600
17. Press the **MENU** button to store value as RD 2(Read 2). The meter momentarily shows STRD, followed by RD.CF. Meter scaling is now complete.

E3.0 Length Display : Checking and Resetting the Alarm set point.

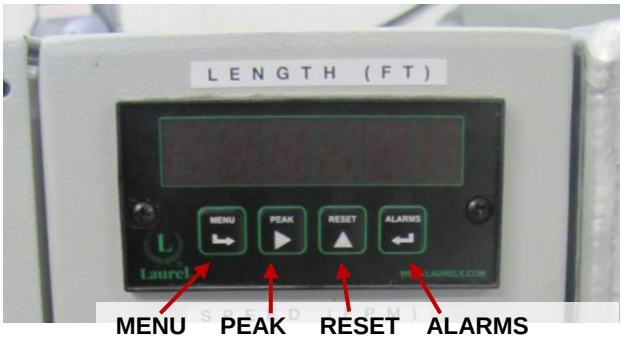
If the alarm set point has been changed

Step 1 Determine if the set point needs to be reset by pressing **"ALARMS"** to display the set point.

NOTE

The set point must be set to -0.1 or -00000.1.

If set point is correct skip to Step 7.



NOTE

It may also display -0.1 and the red LED and the display will be flashing.

Step 2 If not -00000.1, press **"PEAK"** within 30 seconds.

Step 3 Press **"MENU"** to scroll across the digits to reset them to -00000.1.

Step 4 For the first digit, press **"RESET"** to change the digits until the negative sign appears.

Step 5 Press **"MENU"** to scroll to the next digit, and then press **"RESET"** until it displays 0.

NOTE

Repeat Step 5 for the next five (5) digits.

Step 6 Press **"MENU"** to scroll to the next digit, and then press **"RESET"** until it displays 0.1.

Step 7 Press **"ALARMS" twice** and the display should return to 0.0