

R/V Robert Gordon Sproul

Calibration procedure for LCI-90i Tension Monitoring System

On the McElroy MDW-100-T winch

1. This tension monitoring system must be calibrated at least every 6 months. Notify the winch and wire engineer, Aaron Davis if the system is found to be inaccurate by more than 3%. If this occurs calibration will have to be done more frequently until an accuracy of 3% is maintained between tests.
2. With the a-frame inboard, reeve the .322" dia. cable through a block hung from the a-frame and attach it to a calibrated dynamometer.
3. Haul in until the .322" dia. cable tension, as indicated by either the winch tension meter or the dynamometer, reaches the wire rope's safe working tension of 2,000 lb. If the winch cannot pull this amount, slowly move the a-frame outboard until either meter reads 2,000 lb..
4. Calculate the percent difference between the readings on the winch tension meter and the dynamometer:

$$\% \text{ difference} = \frac{\text{winch tension meter reading} - \text{dynamometer reading}}{\text{winch tension meter reading}} \times 100$$

5. Record the % difference and date in the calibration log.
6. If the % difference is less than 3% the calibration is satisfactory. Go to step 9. If the % difference is more than 3% proceed to step 7.
7. Notify the winch and wire engineer that the % difference was more than 3%. They will publish a new calibration procedure with less time between calibrations.
8. Use the two-point live calibration procedure outlined in section 5.4.2 of the LCI-90i user manual, Rev. 1.04, to calibrate the winch tension meter. Capture the high point when the wire rope is at its safe working tension. Pay out, or move the a-frame inboard to remove the tension from the tension member. Go to step 3.
9. Let the vessel master and the winch and wire engineer know when the calibration is complete so they can make note of it in the appropriate vessel logs and the UNOLS wire pool database.

