MTNW LCI-90i DISPLAY

Calibration Procedure
A winch calibration is completed via a linear interpolation between 2 points.

Requires 2 references
- Known lower weight
- Known upper weight

Live 2-point calibrations are the most accurate & remove all misalignments of the winch config

2 addt’l methods (scale & offset, look up tables)
Dynamometer & Loads

Working Load Limit
25,000 lbf / 1,000 kgf
Preliminary Steps

- System takes time to warm up, settle
- Pick up and set load 2-3 times, inching up and down to get system working properly
- Convert sensor reading to sensor output for tension
- Note weight of varying loads
- Note maximum load on wire, breaking strength
Calibration Procedure

- Select ‘MENU’ on front panel of display
- Arrow down to Item 2 - ‘CALIBRATION’
Select proper winch # using ‘DECR’ or ‘INCR’ on front panel display. Then, ‘ENT’.

Note Item 6: Tension Sample Rate, as this may need adjustment. Set sample rate to 20 Hz per the standard.
Lower Limit Tension Calibration

- Arrow ‘DOWN’ to Item 2, ‘TENSION CALIBRATION’. Select ‘ENT’.

- On Menu 2.2, if not already set, change Item 1 by using arrow up/down to the ‘TWO-PT’ calibration mode. (vs. SCALE or LOOKUP)

- Enter known values of low load weight, then high load weight using arrow keys on each numeral.

- Ensure ‘LIVE’ mode is selected for live capture.
- Boom load out off stern. Since calibrating, A-frame should be fully extended. Calibrations should be conducted in the same manner in which most loads will be positioned.

- View ‘INPUT LOW’ values. Once reading is relatively stable, in signal output, press ‘ENT’ to capture.

- NOTE ‘INPUT LOW’ in signal output for logbooks. The sensor samples rather quickly. This may make it difficult to capture the correct reading.

- If system is too noisy, use ‘ESC’ to return to the previous menu. Reduce ‘SAMPLE RATE’ to 1 or 10 Hz. This will average the sampling rate of the sensor and give a more accurate reading.

- Verify winch number has not changed before proceeding with the calibration.
Return load to deck and change to known heavy load. The heavy load used for the initial calibration was 2300#. (FS=2.9)

If using a dynamometer, confirm weight after raising load from the deck.

Again, boom the load out over the stern, with A-frame fully extended.

Ensure proper winch is selected.

Capture 2nd point by selecting ‘ENT’ when values have settled. (i.e. 4.693 for ma output)

Return load to deck

Ensure everything on main display screen resets to zero.
Always Remember: SAFETY FIRST!!

Don’t forget your hard hat! (What is *wrong* with this picture?)
SETTING ALARMS

On the LCI-90i display to RVSS,
Appendix A Standards
• Line Control Instrument (LCI-90i)

• NOTICE the bar at the bottom showing ‘PAYOUT1 L’

• Indicates alarm is on for amount of wire out

• To Begin: Press ‘ALRM’ at bottom of display unit 2X or ‘MENU’

NOTE: ALRM button is used to silence the alarm

NOTE 2: Bar graph range can be set to show approach to high tension
Main Menu

• From the Main Screen, select the first option:

  1  SET ALARMS

• SELECT ‘ENT’ BUTTON to enter.
Display Screen 1.0: SET ALARMS

- User may set up to 6 alarms
- Low alarm for payout
- High alarm for tension
- All winches - may run low on alarm settings if multiple winches monitored by one display
- Select ‘UP’ to get to #7 quickly ‘CHANGE CONFIGURATION’
Changing the Alarm Configuration(s)

- ALARM NO. is set to #1. Change this for successive alarms!

- Arrow down to ‘STATUS’.

- ‘ON’ or ‘OFF’ is highlighted.

- Change Status to ‘ON’ by clicking the DECR or INCR buttons, then ‘ENT’.
• Click on ‘ENT’ to move down to VARIABLE

• 3) Select ‘TENSION’ or ‘PAYOUT’ depending on alarm you are setting.

• 4) Select Winch number

• 5) Alarm type ‘HIGH’ for Tension, ‘LOW’ for Payout.

• 6) LIMIT – This is where you do your math.
Setting LIMITS according to Appendix A

- Begin with the ABL (Assigned Breaking Load) of the tension member.

- Divide by the appropriate value for Factor of Safety
  - For FS = > 5.0 NO ALARM
  - For FS = 5.0 to 2.5, use 2.7 (**RVSS has typo, reads 2.4)
  - For FS = <2.5 to 2.0, use 2.2
  - For FS = <2.0 to 1.5, use 1.7
  - NOTE: each is 0.2 above the lowest end of the FS range

  - Example: FS = <2.5 to 2.0 USE 2.2 as dividing factor
  - ABL = 6750
  - LIMIT = 6750 / 2.2 = 3068.18
Next...

- Confirm TENSION alarm, note the arrow (greater than due to High alarm)
- Select ‘UP’ or ‘DOWN’ to #7 again to CHANGE CONFIGURATION on the next Alarm
- Select ‘ENT’ to select
- Highlight ALARM NO.

- Increase to proper Alarm #

- Check Status, ensure ‘ON’ is displayed

- Deadband is not set here. It should be set to some number, perhaps 50-100 LBS, as the window for resounding the alarm as you approach the limit on successive high tension conditions
Change VARIABLE from TENSION to PAYOUT
After changing the VARIABLE to PAYOUT, select ‘ENT’ to save selection.

- Arrow down to ALARM TYPE

- Select ‘DECR’ or ‘INCR’ to increment

- Alarm should sound or illuminate as the amount of wire reaches the low limit you set.
PAYOUT LIMIT

- Note the limit units will change from LBS (pounds) to M (meters)

- This display is now set to alarm when the payout reaches 100M on retrieval

- The deadband is the amount you determine for the alarm to stop
Another example...

- Here, LIMIT is set to 50M
- DEADBAND is 10M
- You can set one of 4 relays in order to select the type of alarm: i.e. sound or light
- Click ‘ENT’ to save changes, ‘ESC’ to return to the Main Display...
Back to Main Display

- Notice the ‘PAYOUT1 L’ bar at the bottom of the main display screen

- Since Payout is less than 50M
If all else fails...

Call a technician!!
THE END...