MTNW LCI-90i DISPLAY
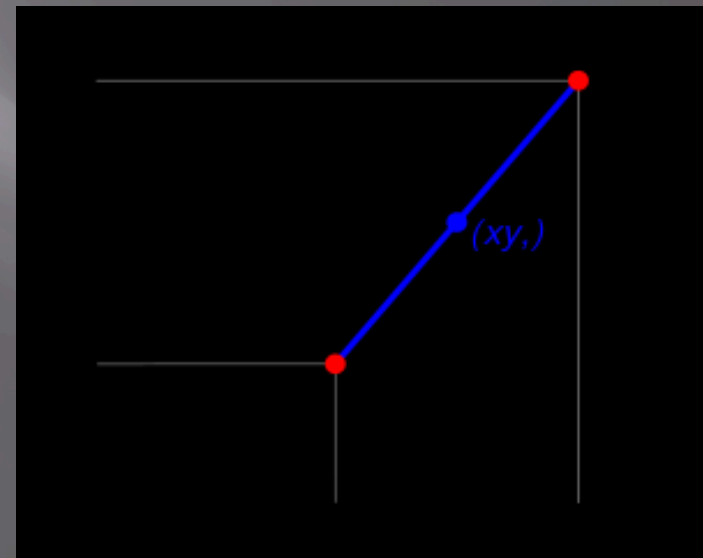
Calibration Procedure

Purpose

- 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

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'

Winch Selection & Tension Sample Rate

- 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 OUT!

- 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.

Upper Limit Tension 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

LCI-90*i* :
Main Menu

- Line Control Instrument (LCI-90*i*)

- 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'.

ALARM Configuration: Status is 'ON'

- 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

Alarm #2

- 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

- Change VARIABLE from TENSION to PAYOUT

PAYOUT ALARM

- 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
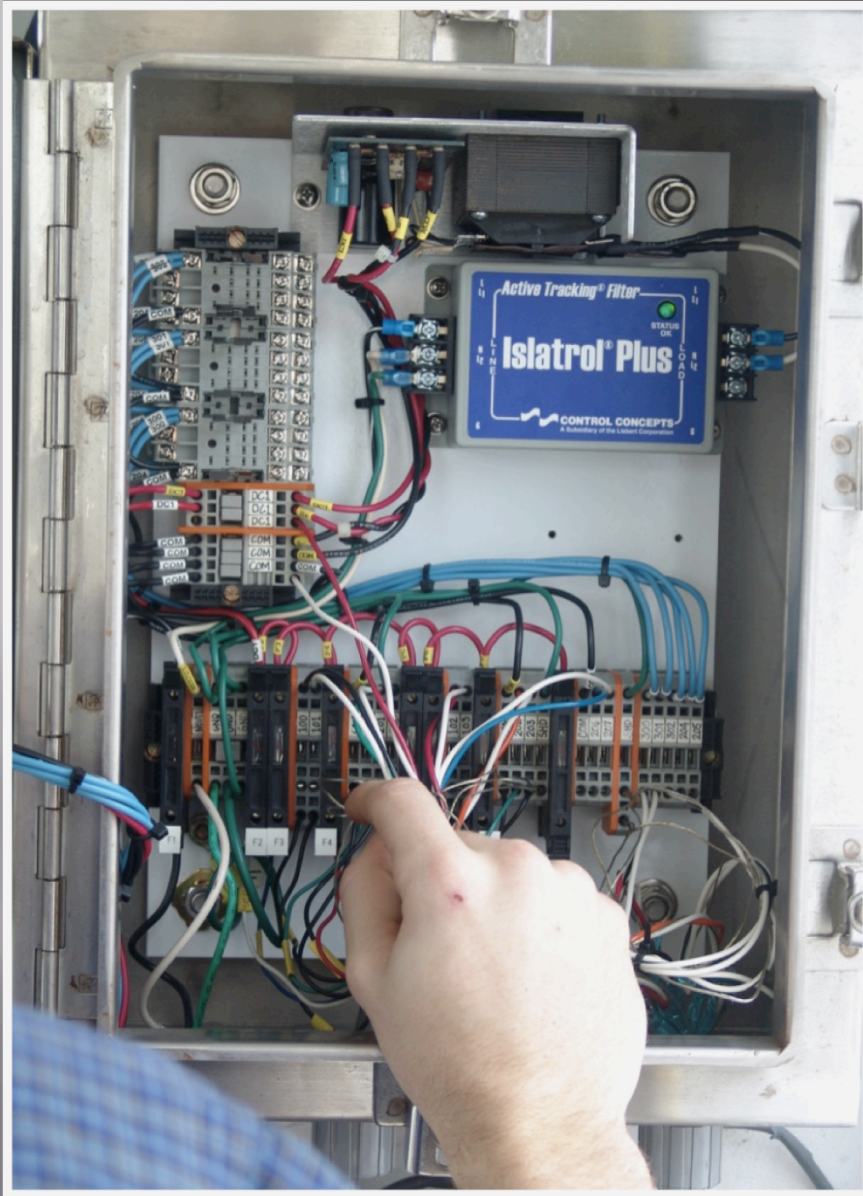
Another example…

- 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…