SAFE-AID TS 7000 WINCH MONITORING SYSTEM MANUAL

! WARNING !

THE PURPOSE OF THIS MANUAL IS TO PROVIDE THE CUSTOMER WITH THE OPERATING PROCEDURES ESSENTIAL FOR THE PROMOTION OF PROPER MACHINE OPERATION FOR ITS INTENDED USE. THE IMPORTANCE OF PROPER USAGE CANNOT BE OVERSTRESSED. ALL INFORMATION IN THIS MANUAL SHOULD BE READ AND UNDERSTOOD BEFORE ANY ATTEMPT IS MADE TO OPERATE THE MACHINE.

SINCE THE MANUFACTURER HAS NO DIRECT CONTROL OVER MACHINE APPLICATION AND OPERATION, CONFORMANCE WITH GOOD SAFETY PRACTICE IN THIS AREA IS THE RESPONSIBILITY OF THE USER AND HIS OPERATING PERSONNEL.

ALL PROCEDURES ARE BASED ON THE USE OF THE SYSTEM UNDER PROPER OPERATING CONDITIONS, WITH NO DEVIATIONS FROM THE ORIGINAL DESIGN. ALTERATION AND OR MODIFICATION OF THE EQUIPMENT IS STRICTLY FORBIDDEN WITHOUT PRIOR WRITTEN APPROVAL FROM ELEC-MECH (PTY) LTD.

Contents

SYSTEM USE

The TS7000 unit is designed with ease of operation in mind. The touch screen is sensitive to touch therefore it is **not** necessary to **push hard** on the screen (*if touch screen does not work or selects incorrectly see* ***touch screen calibration***). The screen displays all the winches that are connected and all the relevant parameters for each winch. See **Figure 1**.

Figure 1

SYSTEM STARTUP

When powering up the TS7000 display the system runs through a set of internal system diagnostics (Figure 2) to make sure all inputs and outputs are working correctly. Once the system has done all the relevant checks the systems goes into the working screen.

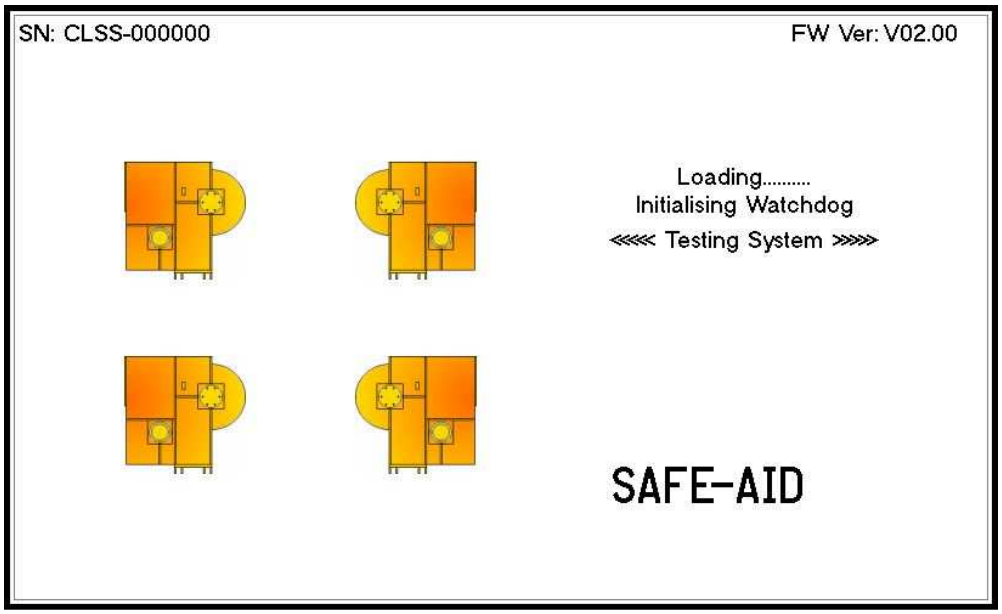

Figure 2

SYSTEM SETUP MENU

To enter the calibration, settings and test menu press the screen in the top left hand corner. See **Figure 3**. The password screen will appear and a password will be requested. See **Figure 4**. Enter the password **1 0 8 4** followed by the **Enter** key, the system setup menu will now be displayed. See **Figure 5**.

Figure 3

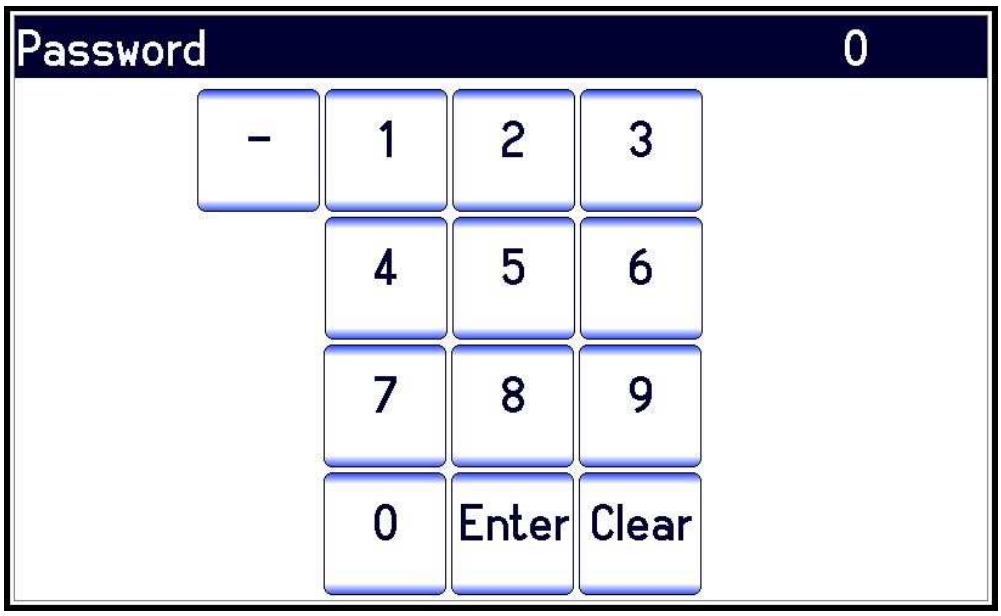

Figure 4

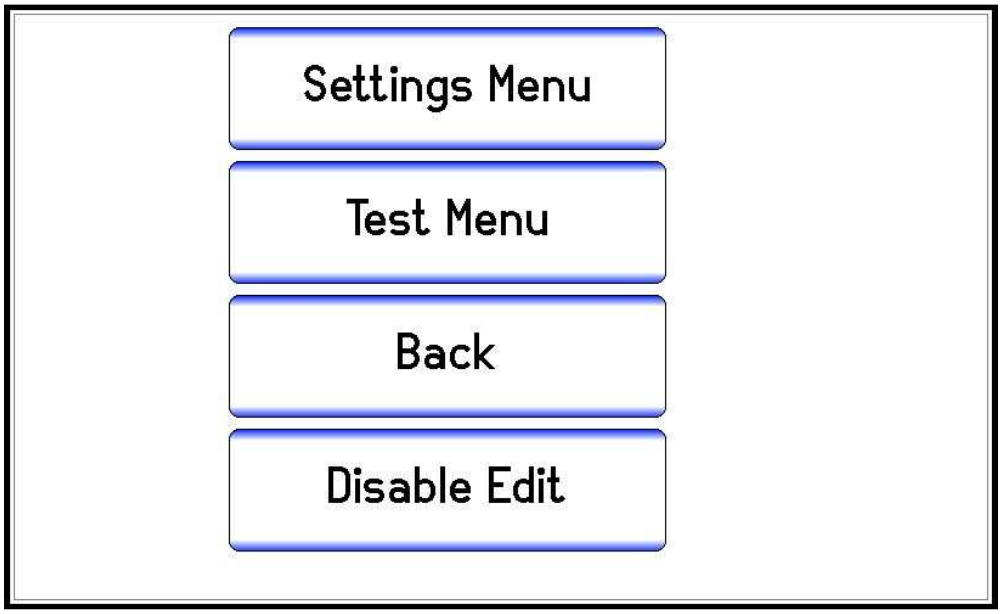

Figure 5

TEST MENU

From the test menu the **System Information** and the **Analogue to Digital Readings** can be viewed. To view the system information (serial numbers and software versions of connected boards) highlight **System Information** and press the **Select** button. See **Figure 6**.

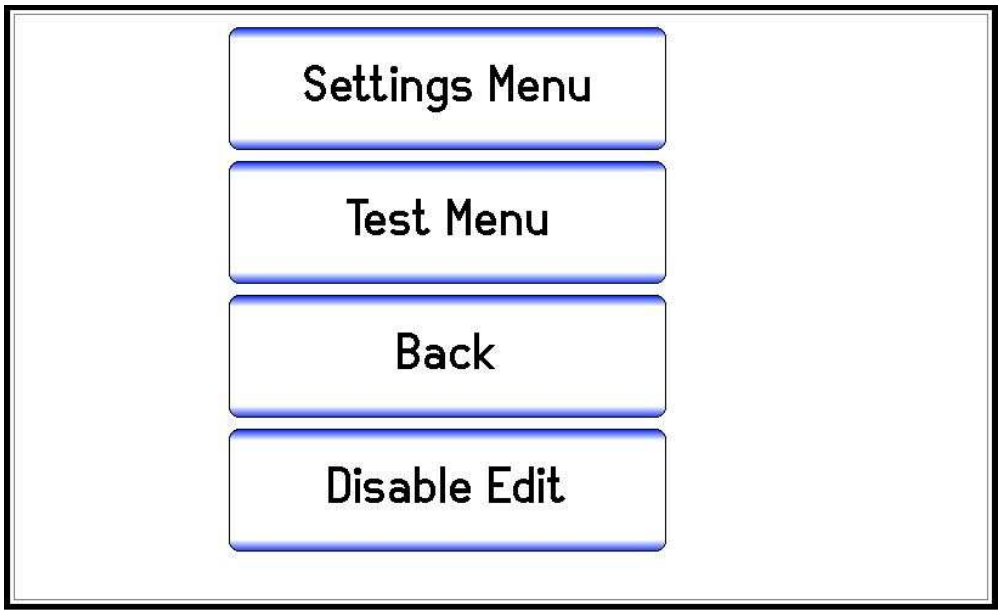

Figure 6

To go back to the test menu press the **Back** button. To view the analogue readings that have been converted to a digital format highlight Analogue to Digital Readings and press the **Select** button. This menu is for advanced diagnostics which is not covered in this manual. To return to the **System Setup Menu** press the **Back** button.

SETTINGS MENU

From the **Settings Menu** all the system settings can be set or adjusted. See **Figure 7**.

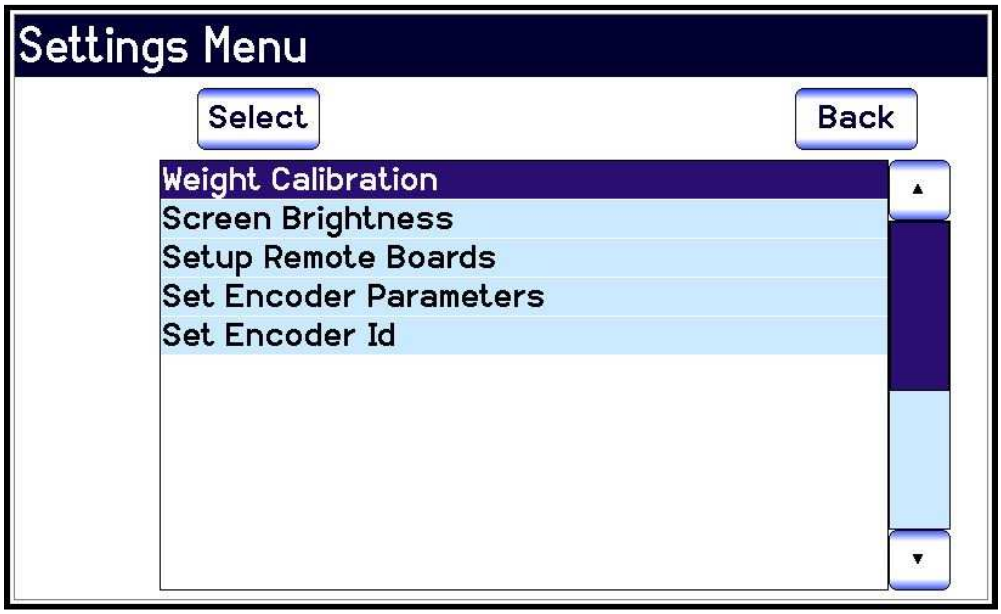

Figure 7

1. WEIGHT CALIBRATION

The weight calibration for each winch can be done by highlighting **Weight Calibration** and pressing **Select**. See **Figure 8**. Once you are in the weight calibration screen select the relevant winch that requires calibration by pressing on the winch name e.g. below the selected winch is Fore Port.

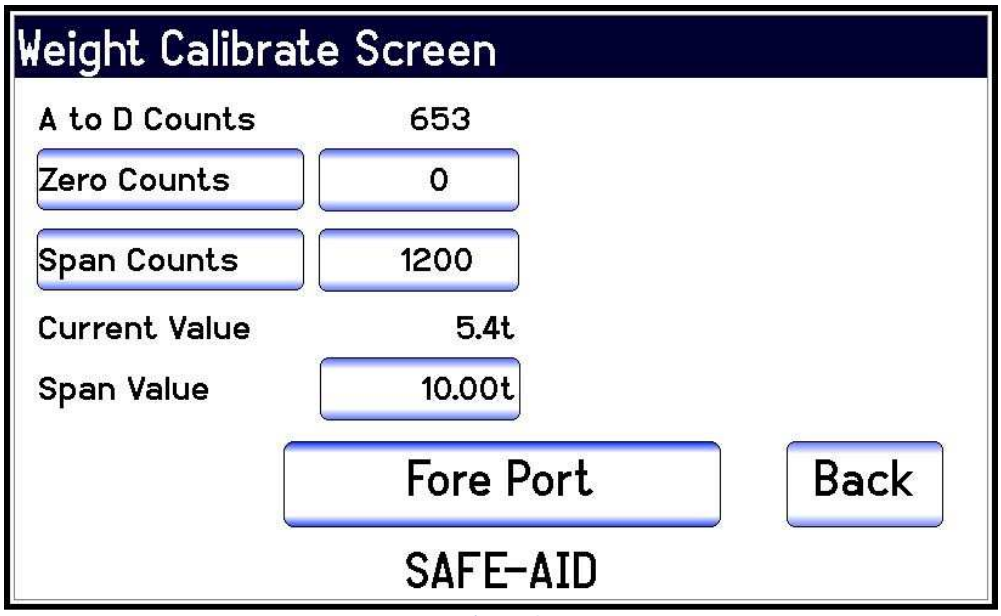

Figure 8

The **A to D Counts** value is the raw digital value returned from the relevant load cell. This value cannot be edited or changed in any way without force (load) on or off from the load cell.

The **Zero Counts** is the value when there is no force (load) on the load cell i.e. zero weight on winch rope. This is automatically set when pressing the **Zero Counts** button, the current **A to D Counts** value will now be showing in the button next to **Zero Counts** (they should be the same).

The **Zero Counts** can be manually set in by pressing the button next to **Zero Counts**; a numerical keypad will appear when the button is pressed. See **Figure 9**. Use this keypad to enter in the required value followed by the **Enter** key.

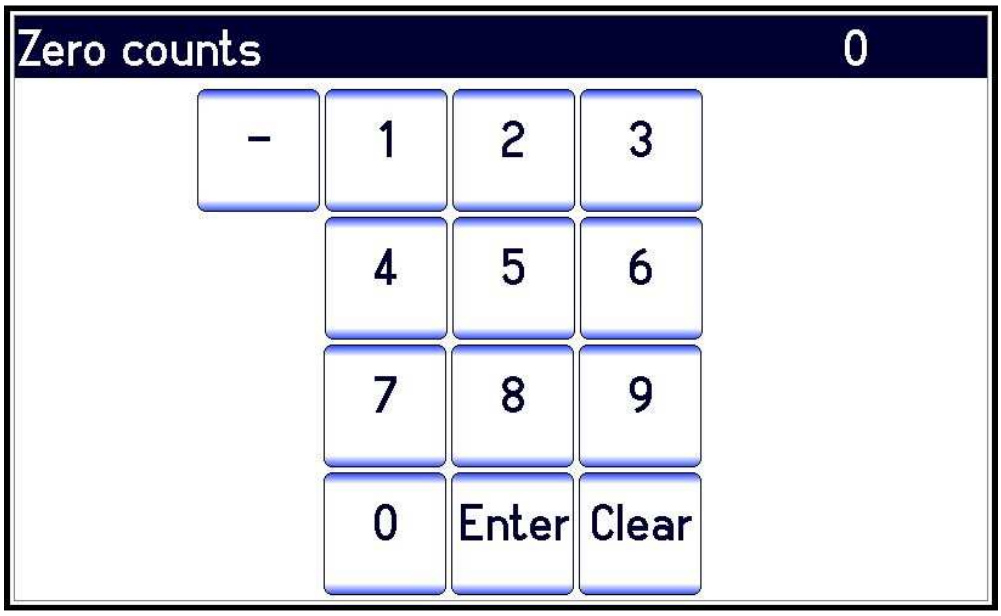

Figure 9

The **Span Counts** is the value when there is known force (load) on the load cell i.e. a test weight on the winch rope. Lift the known load weight for the load to stabilize and set this automatically by pressing the **Span Counts** button, the current **A to D Counts** value will now be showing in the button next to **Span Counts** (they should be the same).

The **Span Counts** can be manually set in by pressing the button next to **Span Counts** and following the manual procedure for **Zero Counts.**

The **Current Value** is the correct actual load after a complete calibration has been done.

The **Span Value** is the actual load that is being held by the rope running through the rope deflector. The weight calibration must be done using a known test weight at least 50% of the maximum line pull as specified by the manufacturer. Press the number next to **Span Value**, a numerical keypad will appear See Figure10. Type the metric ton value in with two decimal places, entry of the decimal place is not required.

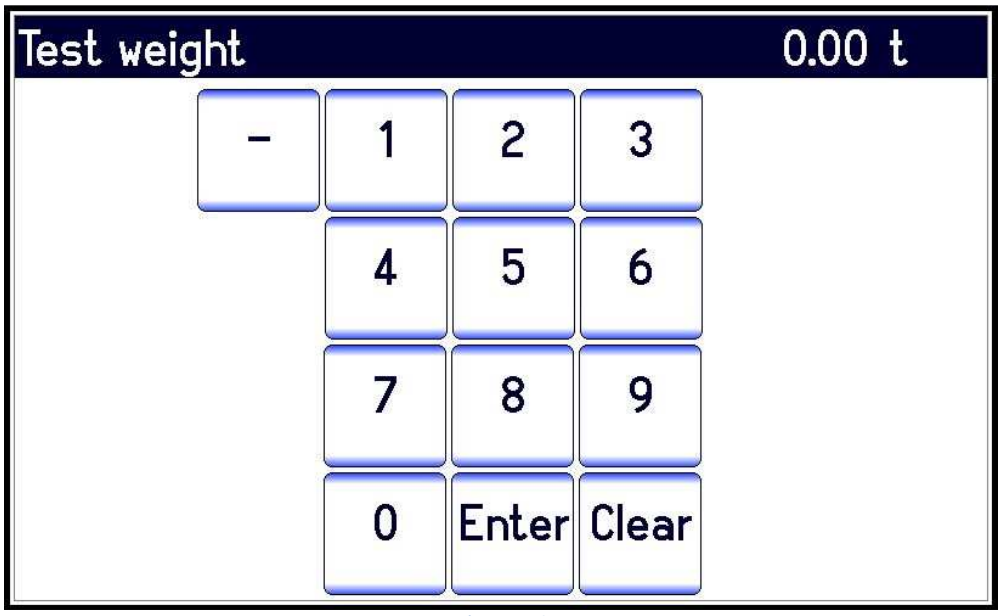

Figure 10

2. SCREEN BRIGHTNESS

The brightness of the screen can be adjusted by highlighting **Screen Brightness** and pressing the **Enter** key. See Figure 11. Use the slider bar to adjust the percentage from zero to hundred where 100% is the brightest setting possible. Once the brightness adjusted press the **Back** key to go to the **Settings Menu**.

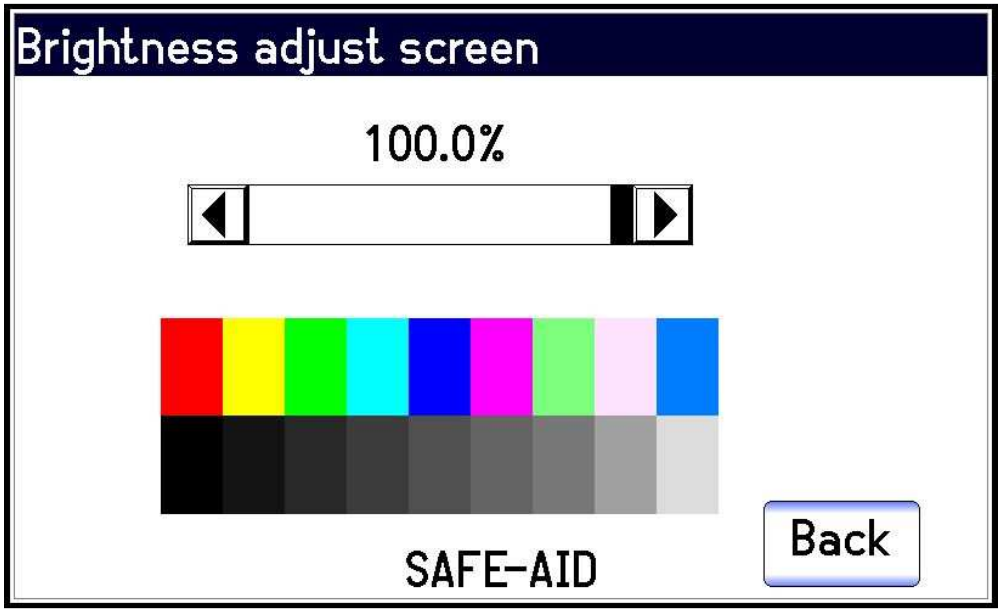

Figure 11

3. SETUP REMOTE BOARDS

The **Setup Remote Boards** is used to set the A400 board serial number for each of the relevant winches, this allows the user to set the position where each board is connected i.e. which winch. If an A400 board is replaced the A400 must be allocated to the correct winch.

From the **Settings Menu** highlight **Setup Remote Boards** and press the **Select** key. All the A400 boards currently connected will be listed by serial number select the serial number of the board that needs to be changed and select at which winch it is positioned at. E.g. A400 serial number 7853 is connected at the Fore Starboard position.

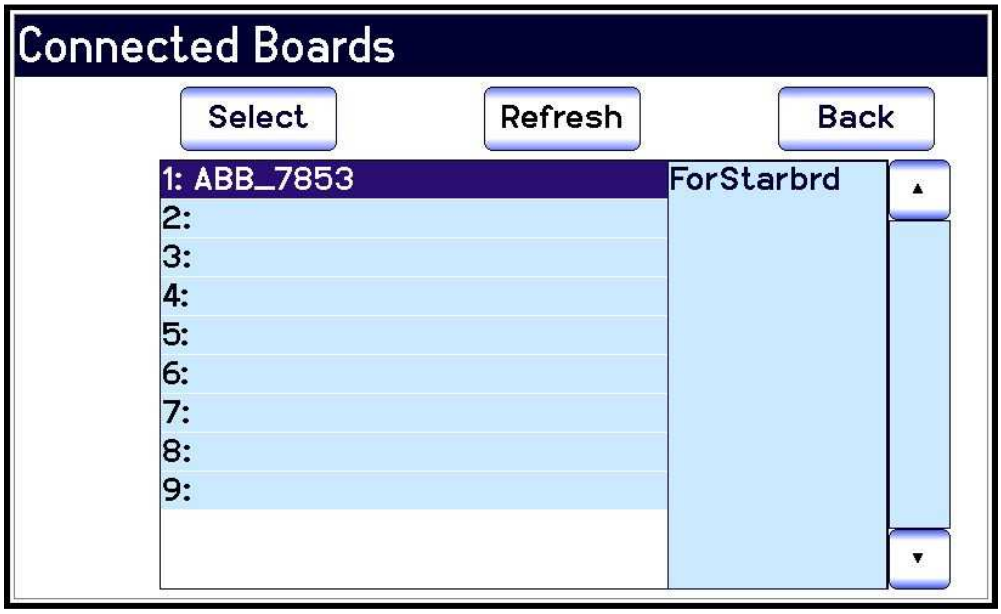

Figure 12

4. SET ENCODER PARAMETERS

The system uses the parameters entered in this screen to calculate length and speed of the rope. The encoder has its own memory so even if the system's power is off and the winch is used the system will know the length of the rope.

To set the encoder parameters from the **Settings Menu** highlight **Set Encoder Parameters** and press the **Select** key.

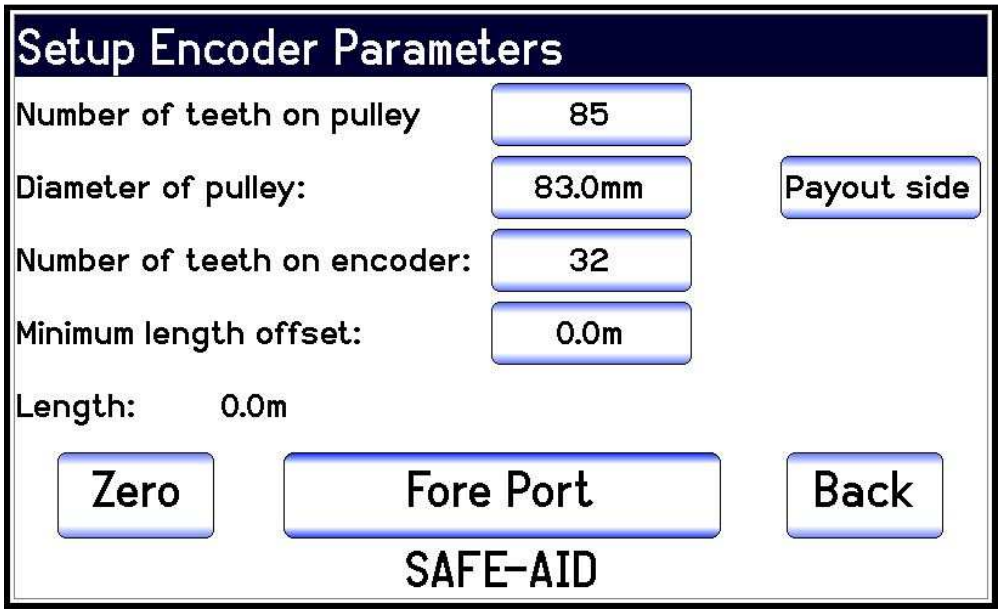

Figure 13

All the parameters for length measurement (done by absolute encoder) can be edited from this screen.

Select the winch that you need to setup by pushing the key at the bottom centre of the screen with the winches name. Each push will change the winch when you are on the correct winch start to change the values.

- **Number of teeth on pulley** – The centre pulley of the rope deflector has been geared on one outside edge; this is the total number of teeth on this edge.

- **Diameter of pulley** – This measurement is the diameter of the centre pulley where the rope is seated

- **Number of teeth on encoder** – The encoder has a gear on the shaft; This is the number of teeth on this gear.

- **Minimum length offset** – This value is the amount of cable still out after the zero has been set.

- **Length** – This value cannot be edited and is the current length of the rope.

- **Zero** – Press the **Zero** key to set the zero point; the point where the winch rope is completely wound up. See Minimum length offset.

- **Payout Side** – Use this if the encoder is mounted on the pay-out side of the centre pulley.

- **Winch Side** – Use this if the encoder is mounted on the winch side of the centre pulley.

5. SET ENCODER ID

This is used if setting up a new encoder. In the **Settings Menu** highlight **Set Encoder ID** and press the **Select** key. This is in advanced programming option and should only be done by a qualified technician.

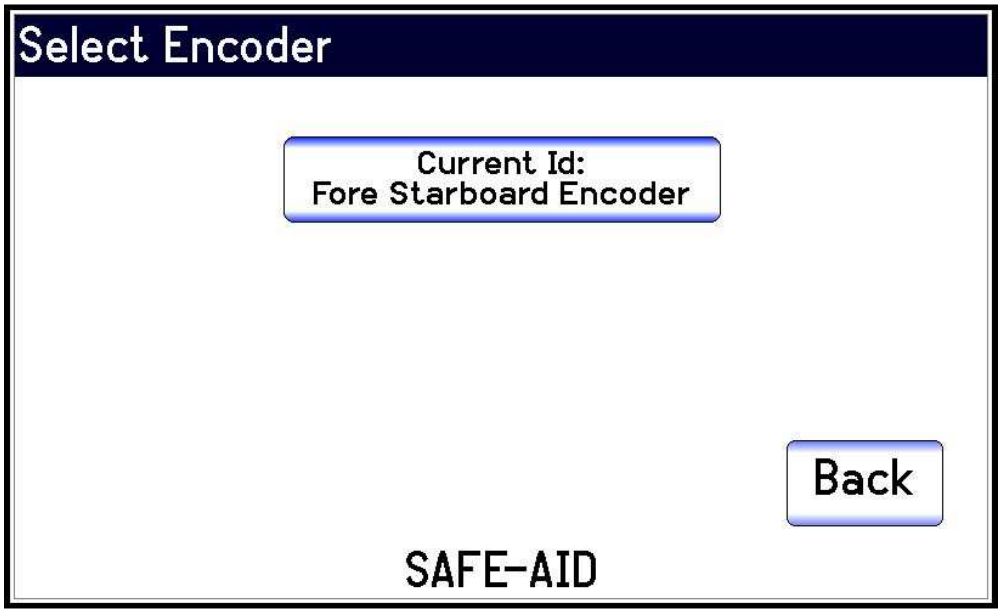

Figure 14

TOUCH SCREEN CALIBRATION

If the screen is not responding correctly to touch the touch screen may need to be calibrated.

Switch the TS7000 system power off then power up the TS7000 and wait for the splash screen (Figure 15) to appear.

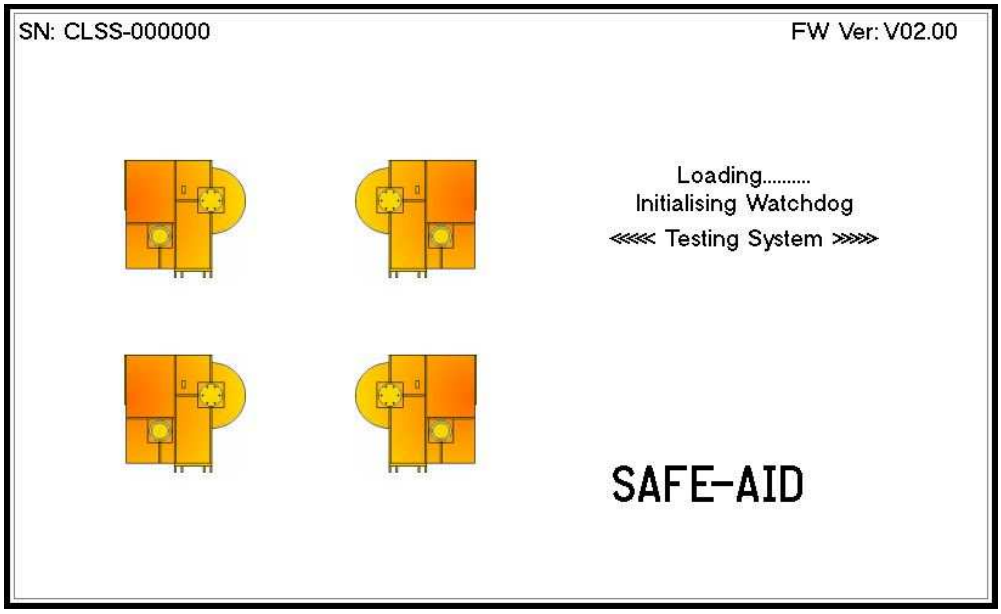

Figure 15

While the splash screen is on, press and hold the screen for five full seconds in the centre until the touch calibration is activated and loaded (Figure 16).

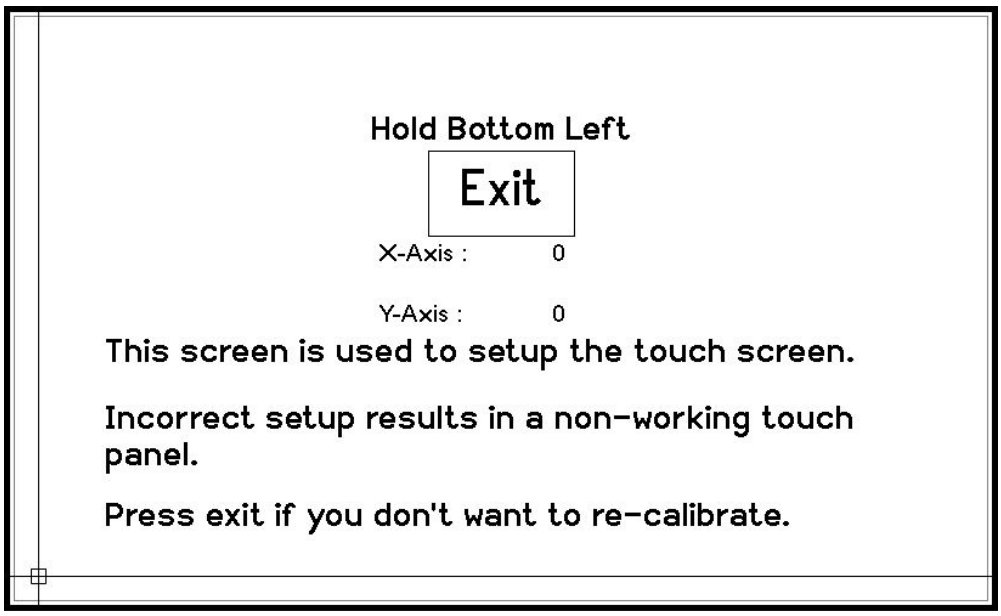

Figure 16

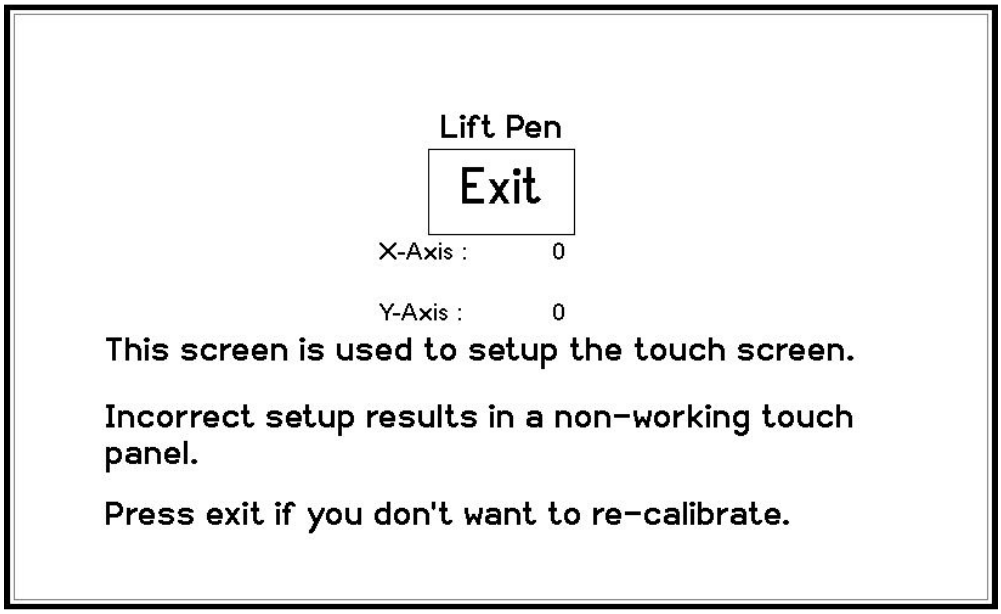

Figure 17

If the calibration screen has been entered by accident and touch calibration is not necessary, press the **Exit** button without pushing anywhere else on the screen. This takes you out of the touch screen calibration and back to the normal operations.

If touch calibration is required follow the below procedures:

Press and hold finger where the two lines meet inside the small box (Figure 16 bottom left hand corner). Calibration works fine when using a finger but for better results use a pen taking care not to press too hard or you will damage the screen.

Hold finger/pen in this area until prompted to lift (Figure 17). The software will then ask for three more touch zones resulting in co-ordinates for all four corners of the screen.

Once calibration is complete the software automatically goes to the working screen.

CONTACT DETAILS

System Manufacturer: Elec-Mech (Pty) Ltd
Tel: + 27 (0)11 792 1084
Fax: + 27 (0)11 793 7004
E-Mail: cranesafety@icon.co.za
Web: www.cranesafety.co.za

Installed By: _____
_____
_____
_____

Notes: _____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____