W1265 LOAD MOMENT
Calibration (Preliminary)

(Version 1265 V2.01)

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CALIBRATION FOR R1265 V.2.01

The calibration section will guide the technician and explain the procedures to follow, with both the crane and the system, in order to calibrate rapidly and efficiently.

The calibration of the sensors is performed through software by entering data using the display's keypad. The only exception is manually setting the amplifier jumpers.

Necessary Calibrating Tools	Portable angle Indicator with accuracy of 0.5 º or better. Test load that produces a line pull of approximately 90% of line pull. Each test load weight must be known accurately to within ± 1%.
Necessary Calibration Information	The rated line pull of each hoist line. The maximum number of parts of lines. The weight of each block, slings and attachment used for calibration. The hoist line weight per feet.

Internal Amplifier Setting

(If you do not use external amplifiers follow these instructions)

To adjust the internal amplifier, lift a test load on the appropriate hoist, that should provide around 90% of the maximum line pull. While in the diagnostic mode (refer to diagnostic mode at the end of this manual), check voltage displayed on AIN6. Open the display box.

Locate the amplifier jumpers near the square microprocessor.

They are noted as JA, JB, JC.

Note the arrangement and refer to table on next page to determine the amplifier level.

Gain Table

JA	JB	JC	GAIN
1	1	1	1
2	2	2	100
2	2	1	125
2	4	1	137

2	4	3	188
3	1	1	200
3	3	1	250
3	2	1	333
3	1	2	375
4	1	1	500
4	1	2	624
4	4	2	688
4	1	3	831
4	3	3	1000

If AIN6 is lower than 3 volts, set the jumpers to the next higher level until the voltage is above 3 volts and below 4 volts.

If AIN6 is above 4 volts, set the jumpers to the next lower level until the voltage is below 4 and above 3 volts.

100% line pull should not exceed 4.3 volts. The same gain will be use for main and auxiliary hoist.

Please refer to next page for location of gain setting jumpers.

PREPARATION

First step; rig the main hoist line with minimum parts of line; two, three or four parts is acceptable. If the hoist line friction is high, the calibration will be more difficult with four than three parts of line. Most important, the block must hang straight and directly below the head block.

Find a test load that will represent near maximum line pull when lifted by the main hoist reeve with one, two, three or four parts of lines as discussed in the above paragraph. Test load weight must be known with ± 1 % accuracy.

Repeat this procedure with other hoist lines.

GENERAL PROCEDURE

General calibration data will be entered from the system's keyboard.

Before you start calibration, sensors need to be verified for good working order through the diagnostic mode. Refer to the diagnostic mode at the end of this manual.

1- Calibrate the angle sensor.
2- Calibrate main hoist line and the auxiliary hoist line, using test loads close to maximum line pull with minimum parts of lines.
3- Calibrate the boom radius. You will need to displace the boom at four different angles. When the boom radius calibration is completed, rig the auxiliary hoist on the rooster tip. If any other jibs are present, they will be rigged subsequently and calibrated with the same procedure.

Finally, if rope direction sensor has been fitted for hoist line friction, the jibs will be removed and a heavy lift will be performed on the main hoist line to verify and adjust the hoist line friction. The test load should represent 50% of crane maximum rated capacity and reeved close to the maximum number of parts of lines.

CALIBRATION MODE

The calibration mode is a separate entity of the 1265 system. It is totally independent of the regular operating mode as if it was a different system. The purpose of the calibration mode is to calibrate the angle sensor, the load sensor(s), the radius and numerous factors or set points. Calibration mode will use the bottom key definition on the keypad.

The calibration mode is accessed by a slide switch button located in the connection box (behind the display). The exact procedures are described in the next section.

The calibration mode is organized in a linear sequence. A series of 15 items will appear. The ROLL UP (#1) or ROLL DOWN (#2) button will allow you to scroll through these items. Although once in calibration menu, it is possible to scroll and access any stage of the calibration.

It is recommended to follow the progressive order as described in this manual.
Example: You must calibrate step # 6 before you calibrate step # 7

You will find on next page, an organization chart that explains the sequence for calibration.

They are numbered 0 to 15

CALIBRATION MODE

1-Calib OFF/ON

PASSWORD ACCESS to enter CALIBRATION MODE

Select Program 2-Zero Angle

Select Program 3-Span Angle

BOOM ANGLE CALIBRATION

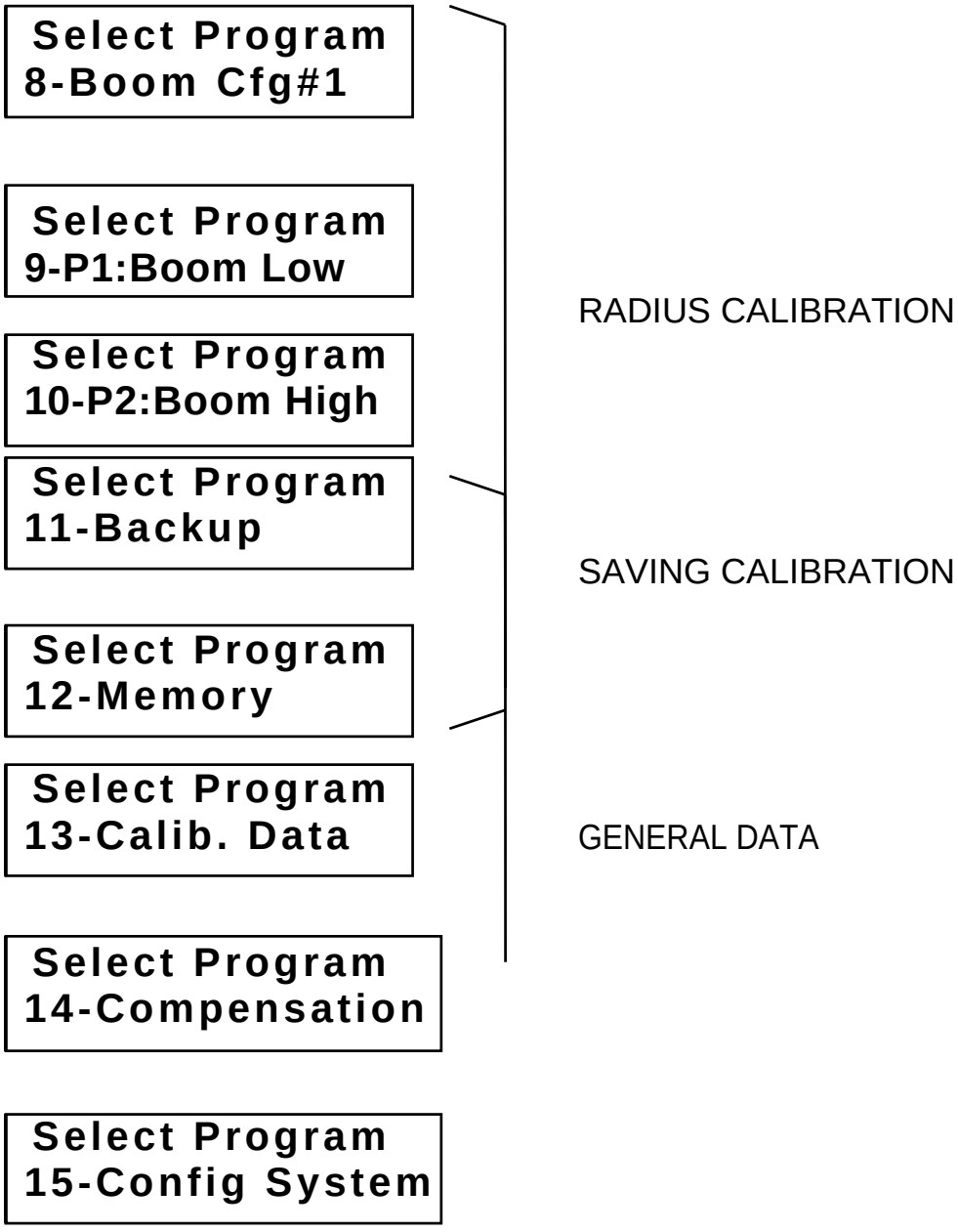
Select Program 4-Hoist num:1

Select Program 5-Part Line:3

Select Program 6-Zero Load

Select Program 7-Span Load

LOAD CALIBRATION



ENTER CALIBRATION MODE:

To enter in calibration mode, remove back cover to get access to the connection board. Turn system on, wait until the system loads the basic screen display with load, angle, radius, etc. Then slide the switch button located near the 2 fuses.

The menu will appear on bottom display:

Select Program
0-Run

The system is now in the calibration mode.

By pressing the buttons DOWN (#2) or UP (#1), it is possible to scroll through the calibration menu.

PASSWORD ACCESS:

Select Program 1-Calib Off

PASSWORD ACCESS

It is possible to scroll through the entire calibration menu with the calibration enable (ON) or disable (OFF); however, it is not possible to confirm a new calibration or a re-calibration unless the MENU 1 shows: ON.

To enable calibration mode, scroll down to the MENU 1- CALIB. OFF. Press button ENTER (#3). Like a bank teller machine, the system will ask for the password. The password has five numbers.

YOUR PASSWORD:_____

The reference numbers can be found on the upper left corner of each push buttons on keyboard. Enter the numbers one after the other. If an error is made, start the sequence again at the same point or press the ENTER button twice. Once the system receives the exact password, it will display automatically CALIB. ON. The calibration of the system can now be performed.

The CALIB. ON will remain activated on a permanent basis whether or not, the system is turned off.

Warning: The calibration must be disabled once completed to prevent accidental operator access.

To disable the calibration mode, scroll to MENU 1- CALIB ENABLE. Press ENTER. Enter any wrong password and press ENTER. The CALIB. ON will automatically be disabled and display: CALIB. OFF

INITIALIZE MEMORY IN BANK A

Select Program
12-Memory

Before you start calibrating any sensors, scroll down to menu # 12-MEMORY.

Press the enter button. Scroll down to item called INIT. MEMORY A. Enter sequence 1-2-3 and Press ENTER.

This will obliterate all calibrations from the bank A. This should be done only when a system is installed for the first time.

(Refer to page 28 of this manual for more details).
Press ESC. to return to main menu. You are ready to configure your system.

CALIBRATION DATA

It is important to complete the calibration data at this point. Go to page 29 and complete item # 21-22-23-24-25 and 28.

Once done return to this position (page10)

RETURN TO NORMAL OPERATING MODE or SYSTEM TEST:

Warning : It is recommended not to return to normal operating mode during the calibration procedure. Otherwise, error codes and warnings will appear.

Select Program
0-Run

You are able to return to normal operating mode or to do a system test in any time. Simply scroll all the way up to the very first menu: 0 - RUN. Then press the button ENTER (#3).

Simply slide the switch button back, the system will automatically return to the operating mode. You may press the test button for system test.

CONFIGURE SYSTEM

Select Program
15-Config System

SYSTEM CONFIGURATION

To configure system, simply scroll all the way down to the very last menu:
15 – Config. System. Then press ENTER (#3).

The system will ask to Enter Sequence 1-2-3. Enter this sequence 1-2-3.

Note: In this menu, the ESC button can be used to return to the main menu, and all setting are saved upon return. By scrolling up and down, the bottom display will offer many options:

1) Select System

This option is not used.

2) Select Version

This option is not used.

3) Charts Inter

This option will enable or disable the duty **chart interpolation** between radius. Simply press Enter (#3) to change the status

4) Nb Dynamometer (or any other Load Sensor)

This option is used to set the number of load sensors that will be used (Maximum of 4). Simply press Enter (#3) to change the value. This value will be saved when return to the main menu with ESC Key (#4).

5) Limit Warning

This option is not used
Press ESC to return to the main menu.

BOOM ANGLE CALIBRATION

Select Program **2-Zero Angle**

Scroll down to 2-ZERO ANGLE. Press ENTER.

Boom down to minimum angle, ideally zero degree (main boom parallel to ground). Take your portable inclinometer and measure the true boom angle. Note this value.

The system will display 2 lines.
First line, on upper right corner is your boom angle.
Second line, on lower right corner is the angle sensor signal in “Bits”

First line: This value must match the true value, you noted with your inclinometer. To adjust, Press ENTER. The value on upper right corner will start blinking. Use the set buttons (#1 or #2) to adjust the value of boom angle to match the actual boom angle you recorded earlier.

Second line: This value must be close to 100 “Bits”. To adjust this value, go to the angle sensor and turn it one way or the other. This will change the value on display. Keep turning the angle sensor until you reach the right position. Ensure your angle sensor will keep this position during the different test. That final position is going to be the one you need to mount the angle sensor against the boom.

Note:
The W 1265 works with a range of 0 to 1023 bits. All sensors display values in “bits”. Values in bits are described under AINO.

Press ENTER, press ENTER again to confirm.

Hint: When you increase or decrease a value with button (#1 or #2) and press button ESC (#4), it will increase the speed by a factor of 10.
Fast increase: (#1 and #4) , Fast decrease (#2 and #4)
Those buttons will be further called “Set” buttons

Select Program **3-Span Angle**

Scroll down to 3 -SPAN ANGLE. Press ENTER.

Boom up over 65 degrees (main boom referred to ground). The display will show on the upper right corner a value for boom angle. This value must match the true value you recorded with your inclinometer. To adjust do the following:

Press ENTER. The value on upper right corner will start blinking. Use the set buttons (#1) or (#2) or (#1 and #4) or (#2 and #4) to adjust the boom angle to match the value you recorded.

The value on lower right corner should be close to 600 Bits

Press ENTER, press ENTER again to confirm.

You completed the calibration of your angle sensor.

It is time to do calibration of your load sensor(s).
Go to menu #4 on next page.

MAIN HOIST LOAD CALIBRATION

Before beginning this section, menu 13-CALIB. DATA must be already completed. If not, refer to section 13.

Select Program	MAIN HOIST

4-Hoist num:1

To begin load calibration, scroll down to 4 – Hoist num. Press ENTER. The system will prompt the selection of the hoist to calibrate. The main hoist is referred to as MAIN and 1. Use the set buttons #1 and #2 to select the desired hoist. Press ENTER. Verify that the hoist number now showing on the screen matches the hoist selected for calibration.

Select Program **5-Part Line:3**	**MAIN HOIST**

Then scroll down to the next step: 5- PART LINE. Press ENTER to access setting. The number of parts of lines will blink. Use the set buttons #1 and #2 to set the maximum number of parts of lines that will be used. Then press ENTER. Verify that the number of parts of line is showing correctly.

If the parts of line is staying on one, the maximum parts of lines was not set in the MENU 13- CALIB. DATA. Refer to that section before continuing.

At this point, the load sensor is ready for calibration. Get the crane ready to lift the test load. The load should be near maximum line pull on the hoist line. The load sensor can be calibrated on any number of parts of lines. However, to avoid mixing hoist line friction and rope reading fluctuations, it is preferable to calibrate the hoist line on the fewest parts of line possible.

Rope friction: It is recommended to test with a second load that will be lifted with as many parts of lines as possible to verify and adjust the load span and to compensate for hoist line friction. That step will be done at the very end of the calibration to cut down on the rigging time.

Select Program **6-Zero Load**	**MAIN HOIST**

You must lift a small load with the crane that will correspond to ± 10% of crane maximum rated capacity. Weight of hook block is usually sufficient. Scroll down to 6-ZERO LOAD. Press ENTER. Press ENTER again to zero the sensor. The

value on the upper right corner will blink. Use the set buttons (#1 or # 2) to enter the true value of the total hanging weight (hook block, slings, hoist line below boom tip). Press ENTER and ENTER to confirm. Note this value.

Select Program 7-Span Load	MAIN HOIST

Lift the test load (90% of crane maximum rated capacity) and stop then lower a few inches and stop smoothly. Scroll down to 7 - SPAN LOAD. Press ENTER, press ENTER again. The value on the upper right corner will blink. Use the set buttons (#1 or #2) to adjust the display of true value of hanging weight (load, slings, hook block, shackles, hoist line below boom tip) in thousand pounds unit (ex: 30,000 = 30). Press ENTER and ENTER again to confirm. Note this value.

Return to "7 - SPAN LOAD" menu and press ENTER.
Verify the weight displayed with the load suspended. Hoist up and stop at least 5 different heights. Lower and stop at least 5 different heights. Hoist at constant speed. Lower at constant speed. Write the result on a record sheet.

The weight displayed must be between 100% and 110% of the true value of the test load in any state and height.

Then, deposit the test load on the ground. Verify the display of weight of the hook block with no load. The value should be between 70% and 130% of the actual total weight including hoist line.

RECORD SHEET: MAIN HOIST WITH SMALL TEST LOAD

DATE:					
TOT. WEIGHT:					
BLOCK WEIG:					
PART LINES:					
TIP HEIGHT:					
HOIST & STOP					
HEIGHT1:					
HEIGHT2					
HEIGHT3					
LOWEST:					
HIGHEST:					
LOWER&STOP					
HEIGHT 1:					
HEIGHT2:					
HEIGHT3					
LOWEST:					
HIGHEST:					
LOWERING					
AVERAG:					
LOWEST:					
HIGHEST:					
HOISTING					
AVERAG:					
LOWEST:					
HIGHEST:					

If consistent but inaccurate, it is possible that a fluctuation or a movement of the load while calibrating may have cause a load increase or decrease when pressing ENTER. Return to calibration mode and repeat menu 4 – HOIST NUM, 5- PART LINE, 6 - ZERO LOAD and 7 -SPAN LOAD. Repeat the procedure as many times as necessary until the hook load with and without the calibration weight shows proper accuracy.

If load reading is inconsistent even with one part line when hoisting and stop or when lower and stop, the hoist line may be unevenly worn or simply uneven. To correct the problem, change the hoist line or change the load sensor. Either replace the load sensor by a larger size model or double the load sensor capacity and double the rope deflection. Refer to load sensor technical specifications or obtain technical support to perform this task.

Please keep in mind the following advice; to test friction, we require you rig the crane with maximum parts of line. Since all the calibration procedures require minimum parts of line, we recommend you check the display of load while crane is rigged with minimum parts of line. This will allow you to do friction test at the end of the calibration procedures.

To proceed with the friction test: Lift a heavy load. The load should be at least 50% of the crane rated capacity and the reeving close to the maximum number of parts of lines. Verify the weight displayed with the test load suspended. Hoist and stop at least 5 different heights. Lower and stop at least 5 different heights. Hoist at constant speed. Lower at constant speed. Write the result on the main hoist record sheet.

If display of hook load is lower than the test weight in a particular state, it will be most likely when you "Lower and Stop".Return to calibration mode and repeat menu 6 - LOAD SENSOR, 7- PART LINE and 9 -SPAN LOAD. Repeat the procedure as many times as necessary until the hook load displayed remains equal or above the test weight.

AUXILIARY HOIST CALIBRATION

(The boom configuration has no impact on hoist calibrations. Therefore, the auxiliary hoist calibration can be done on main boom head block, on manual extensions, rooster tip or from a jib.)

Select Program 4-Hoist num:1	AUX. HOIST

To begin load calibration, scroll down to 4 – HOIST num. Press ENTER. The system will prompt the selection of the hoist to calibrate. The auxiliary hoist is referred to as AUX and 2. Use the set buttons #1 or #2 to select the desired hoist. Press ENTER. Verify that the hoist number now showing on the screen matches the hoist selected for calibration.

Select Program 5-Part Line:1	AUX. HOIST

Then scroll down to the next step: 5- PART LINE. Press ENTER to access setting. The number of parts of lines will blink. Use the set buttons #1 and #2 to set the proper number of parts of lines. Then press ENTER. Verify that the number of parts of line is showing correctly.

At this point, the load sensor is ready for calibration. Prepare crane to lift the test load. The test load should provide close to maximum line pull on single hoist line.

Select Program **AUX. HOIST**
6-Zero Load

You must lift a small load with the crane that will correspond to ± 10% of crane maximum rated capacity. Weight of hook block is usually sufficient. When ready to calibrate, Scroll down to 6- ZERO LOAD. Press ENTER. Press ENTER again to zero the sensor. The number on the right will blink. Use the set buttons to select the total hanging weight. (hook block, slings, hoist line below boom tip). Press ENTER and ENTER to confirm. Take note of this value.

Select Program **AUX. HOIST**
7-Span Load

Lift the test load (90% of crane maximum rated capacity) and stop then lower the load a few inches and stop smoothly. Scroll down to 7 - SPAN LOAD. Press ENTER, press ENTER again. The number on the upper line will blink. Use the set buttons to adjust the total hanging weight (load, slings, hook block, shackles, hoist line below boom tip). Press ENTER and ENTER again to confirm. Take note of this value.

Go to menu "9 - SPAN LOAD" and press ENTER. Verify the weight displayed with the suspended load. Hoist up and stop at least 5 different heights. Hoist down and stop at least 5 different heights. Hoist at constant speed. Lower at constant speed. Write the result on a record sheet.

The weight displayed must be between 100% and 110% of the actual test load in any state and height.

Then, check the display of weight with no test load on the hook block. The displayed load should be between 70% and 130% of the actual total weight including hook block and hoist line.

RECORD SHEET: AUXILIARY HOIST SMALL REEVING

DATE:					
TOT. WEIGHT:					
BALL WEIGH:					
PART LINES:					
TIP HEIGHT:					
HOIST & STOP					
HEIGHT1:					
HEIGHT2					
HEIGHT3					
LOWEST:					
HIGHEST:					
LOWER&STOP					
HEIGHT 1:					
HEIGHT2:					
HEIGHT3					
LOWEST:					
HIGHEST:					
LOWERING					
AVERAG:					
LOWEST:					
HIGHEST:					
HOISTING					
AVERAG:					
LOWEST:					
HIGHEST:					

If consistent but inaccurate, it is possible that a fluctuation or a movement of the test load while calibrating may have cause a load increase or decrease when pressing ENTER. Return to calibration mode and repeat menu 4 - LOAD SENSOR, 5- PART LINE, 6 - ZERO LOAD and 7 -SPAN LOAD. Repeat the procedure as many times as necessary until the hook load with and without the test load, show proper accuracy.

If load reading is inconsistent even with one part line when hoisting and stop or when lowering and stop, the hoist line may be unevenly worn or simply uneven. To correct the problem, change the hoist line or change the load sensor. Either replace the load sensor by a larger size model or double the load sensor capacity and double the rope deflection. Refer to load sensor technical specifications or obtain technical support to perform this task.

RADIUS CALIBRATION

MAIN BOOM (CFG#1)

Before you beginning this section, data must be entered in the sub-menu 13 – Calib Data, item 21-Slew Offset and 22-Sheave radius.

Each boom configuration must be calibrated before you start calibrate the boom radius. The main boom must be calibrated before any other boom configurations.

Select Program 8-Boom Cfg#1	MAIN BOOM

Since the menu 8 automatically defaults to Cfg #1 (main boom), skip this step.

Select Program 9-P1:Boom Low	MAIN BOOM

Scroll down to menu 9 - P1: Boom Low. Press ENTER. If this main boom is done for the first time, it will read 0.0. On the top right, the boom angle is displayed. Look at the boom angle display and bring the boom down between 15 and 20 degrees.

Once at correct angle Press ENTER. The theoretical radius will blink. Measure the actual radius in feet and decimals of feet and set the value on the display. Press ENTER and ENTER again to confirm.

Select Program **MAIN BOOM**
10-P2:Boom High

The system will scroll automatically to menu 10-P2: Boom High. Press ENTER. If this main boom is done for the first time, it will read 0.0. On the top right, the boom angle is displayed. Look at the boom angle display and boom up between 60 and 65 degrees. Press ENTER. While the radius blinks, set the correct radius. Press ENTER and ENTER again to confirm.

The system will scroll automatically to menu 11- BACKUP. Press ENTER to back-up.

CHECK POINT 3:

At this stage, the entire system should work properly up to the configuration calibrated. Slide the button back to return to the normal operating mode. Use the DUTY or PART buttons to configure the crane properly. Verify the radius, the angle and the load display at two different boom angles. For capacity comparison, use the load table matching the crane configuration selected in the system, and interpolate between radiuses if system is set up to interpolate.

Boom angle display must be as follow: For boom angle at 65 deg. or more, the angle displayed should be neither greater than the actual boom angle nor more than 2 deg. less than the actual boom angle. For boom angle less than 65 deg. , the angle displayed should be neither greater than the actual boom angle nor more than 5 deg. less than the actual boom angle.

Radius reading must be as follow: The indicated radius is to be not less than 100% of the actual radius, nor more than 110% of the actual radius.

Capacity reading must be as follow: The indicated capacity is to be not more than 100% of the actual capacity, nor less than 91% of the actual capacity.

ROOSTER / JIB 1 (CFG#2)

Return to menu 8 to select another boom configuration and proceed from menu 8 to menu 10 for each subsequent boom configuration.

Select Program **8-Boom Cfg#1**	**ROOSTER / JIB 1**

Scroll down to menu 8 -BOOM CFG #1. Press ENTER, use the set buttons to select the boom or jib configuration to calibrate. The display will show both the spelled description of the configuration and its designation number; remember the designation number.

Select Program **9-P1:Boom Low**	**MANUAL / JIB 1**

Scroll down to menu 9 - P1:Boom Low, Press ENTER.. On the top right, the boom angle is displayed. As the menu describes it, Boom down to between 15 and 20 degrees.

Once at the correct angle. Press ENTER. The radius will blink. Measure the actual radius in feet and decimals of feet and set the value on the display. Press ENTER and ENTER again to confirm.

Select Program **10-P2:Boom High**	**ROOSTER / JIB 1**

The system will scroll automatically to menu 10- P2:Boom High, Press ENTER. Boom up to between 60 and 65 degrees. Press ENTER. While the radius blinks, set the correct radius. Press ENTER and ENTER again to confirm.

The system will scroll automatically to menu 11- BACKUP. Press ENTER to back-up.

CHECK POINT 3:

At this stage, the entire system should work properly up to the configuration calibrated. Slide the button back to return to the normal operating mode. Use the DUTY or PART buttons to configure the crane properly.

Verify the radius, the angle and the capacity at two angles and two boom lengths. Record the data on the following table. For capacity comparison, use the load table matching the crane configuration selected in the system, and interpolate between radiuses if system is set up to interpolate (Consult technical support or sales agreement).

Angle reading must be as follow: For boom angle 65 deg. or more, the indicated angle is to be neither greater than the actual boom angle nor more than 2 deg. less than the actual boom angle. For boom angle less than 65 deg. , the indicated angle is to be neither greater than the actual boom angle nor more than 5 deg. less than the actual boom angle.

Radius reading must be as follow: The indicated radius is to be not less than 100% of the actual radius, nor more than 110% of the actual radius.

Capacity reading must be as follow: The indicated capacity is to be not more than 100% of the actual capacity, nor less than 91% of the actual capacity.

SAVING CALIBRATION

Select Program
11-Backup

BACKUP

Scroll to menu 11- BACKUP. Press ENTER. The system will save the calibration in a spare bank called B bank.

If in the next calibration stages, an error is made, it will be possible with the menu 12 - MEMORY to discard the new changes and retrieve the previously saved calibration.

The use of this function is not necessary to store calibration. Calibration is saved when confirmed, and stored in the calibration bank A.

This bank like the bank B are permanent EEPROM bank. They are not battery backed up and are non volatile. The calibration will be stored forever unless changed by re-calibration or damaged by powerful electrostatic or electromagnetic fields. To our knowledge, this is a very improbable situation not yet recorded for this product.

Select Program
12-Memory

MEMORY MANAGEMENT

Scroll to menu 12 - MEMORY. In this menu, the ESC button can be used to return to the main menu. Press ENTER. The top display will indicate the status of both the memory banks A and B. A must read OK for the system to operate. By scrolling up and down, the bottom display will offer many options:

A > B

This is just like the menu 11, by pressing ENTER and the safety access code(1-2-3) , the content of the bank A will be copied into the bank B.

B > A

This retrieve option will copy the content of the bank B into the bank A. The safety code (1-2-3) must be entered to proceed. All the data already in bank A will be lost.

SWAP A <> B

This option will place the bank A into the bank B and at the same time the bank B in bank A. Both bank will be preserved but switched. The safety code (1-2-3) must be entered to proceed.

INIT. MEMORY A

This option will obliterate all calibrations from the bank A. This should only be done when a system is installed for the first time or if an incompatible operating system is installed in the system. This must never be done during or after calibration. Press ENTER and the safety code (1-2-3) to proceed.

INIT. MEMORY C

This option is not used.

CALIBRATION DATA

The general calibration data menu is a sub-menu to access 16 different variables used in various operations of the systems. These variables are located in a sub-menu not to over crowd the main menu.

Select Program 13-Calib. Data	GENERAL DATA

Scroll down to menu 13 - CALIB. DATA .

In this menu, the ESC button can be used to return to the main menu at step 13. Also, there is no double confirmation when calibrating. Press ENTER. The different variables are automatically accessed. Scroll through the variables.

General Procedure:

Press ENTER to obtain the setting mode. Use the SET buttons to change the value and press ENTER once to confirm. Then scroll to the next variable.

The Variables are listed below:

Select Program 21-Slew Off:-1.0

The distance between the center of rotation and the boom base pin in feet and tenths of feet. Negative if the boom base pin is behind the center of rotation, otherwise positive. Use the set button to adjust the value.

Select Program 22-Shve Rad:0.3

The radius of the boom head sheave block in feet and tenths of feet. It is used to compensate the radius when lifting with one part line.

Select Program
23-Height Off:6.0

The height offset is the distance between the ground and the boom base pivot. It is used to determine the height of the boom head sheave block from the ground. Add the clearance height above the boom head sheave block to use the height display as the head room height of the crane (this will be safe but not accurate).

Select Program
24-Main Hst :4.5

This is the maximum line pull permitted per part of line on the main hoist according to the chart. This value will be used as the load limitation if lower than the radius capacity.

Select Program
25-Aux Hst:1.0

This is the maximum line pull permitted per part of line on the auxiliary hoist. This value will be used as the load limitation if lower than the radius capacity.

Select Program
26-Whip Hst1:1.0

This is the maximum line pull permitted per part of line on the whip (3rd) hoist. This value will be used as the load limitation if lower than the radius capacity.

Select Program
27-Whp2 Hst:1.0

This is the maximum line pull permitted per part of line on the second whip (4th) hoist. This value will be used as the load limitation if lower than the radius capacity.

Select Program
28-Max Parts:4

Set the maximum number of parts of lines. This will apply to all hoists.

Select Program
29-%/Part:2.0 %

This value allows de-rating of the hoist line capacity when reeving with more than one part. The total rope capacity will de-rate by the percent set except for one part.

Select Program
30-Block 1:50.0

This variable is an internal hook load limit beyond which the operator will not be allowed to change the reeving or the configuration. Outside Europe, it is usually set to a greater value than the crane's capacity. Block 1 only applies to the main boom configuration.

Select Program
31-Block 2:50.0

This variable is an internal hook load limit beyond which the operator will not be allowed to change the reeving or the configuration. Outside Europe, it is usually set to a greater value than the crane's capacity. Block 2 applies to all jib configurations, manual and rooster included.

Select Program
32-Alarm#1:85.0%

This setting is the pre-alarm on load. When the set percentage is reached, an intermittent buzzer is activated as well as pre-warning indicator light.

Select Program
33-Alarm#2:100.0

This limit is the maximum load limit set by the rope capacity or the chart. The percent used should be 100%. When reached, the red indicator light with the octagon and the pre-warning indicator light are on and the buzzer is continuous. The lock-out is not activated.

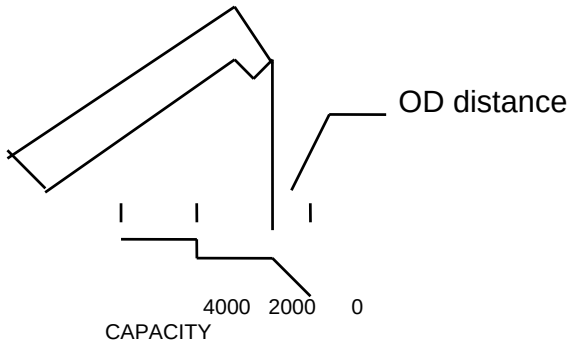
Select Program
34-Alarm#3:102.0

The alarm 3 is the lock-out activation. It is based on the percent of maximum load.

Select Program
35-OD Radius:0.5

This variable represents a transition distance between the last radius rating and zero capacity. If the operator is lifting a load and exceed the maximum boom radius, the alarm will be triggered even if there is no overload. The System will not allow you to go beyond maximum radius given by the load charts.

The OD (OUT of DUTY on RADIUS) will allow the system to create a straight line from the zero value of load chart and will extend the rated capacity over the distance set by this variable.



Select Program
36-OD Angle:0.0

The OD variable on the angle applies to angle based charts and allow a smooth transition from the lowest degree capacity on the chart to zero capacity. This variable is set in degrees. Usually 1.

Select Program
37-OD Lgth:0.0

The OD length variable represent the acceptance zone where the specific boom length based capacity chart is still accepted. This is a very important factor when the displayed boom length exceed the maximum boom length on the chart. The distance entered for this variable will extend the acceptable boom length for the maximum boom length on the chart.

Select Program
38-ID Lgth:0.0

The ID length variable fulfill the same task as the OD length variable but applies to the minimum retracted boom length acceptable to obtain the retracted boom length chart. Not used for lattice crane.

Select Program
39-Rig Ang:10.0

The RIG ANGLE is a set angle below which the operator can bypass permanently the lock-out by pressing on the RIG button. This function is used to allow the rigging of jibs or reeving at angles below the chart and at which the operator would be locked. The RIG function is canceled when the operator booms up above the set angle or if the system is turned off.

Press ESC to return to the main menu.

FRICTION COMPENSATION

The general friction compensation menu is a sub-menu to access different variables used for friction compensation when rope direction sensor is fitted. These variables are located in a sub-menu not to over crowd the main menu.

Select Program 14-Compensation

If you don’t have rope direction sensor, all of those variables must stays at 0 value.

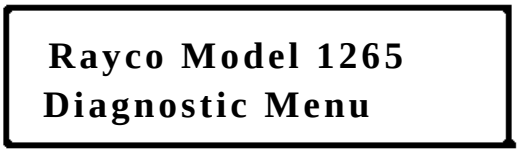
Press ESC to return to the main menu.

Diagnostic Menu

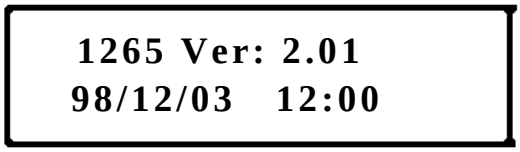
ACCESS

The Diagnostic menu is not accessible from the calibration, it access must be done though the normal operating mode.

In normal operating mode, Press the **INFO** button (#4) until you see the reference letter E: at the bottom left corner of the LCD display. Then press ENTER (#3)

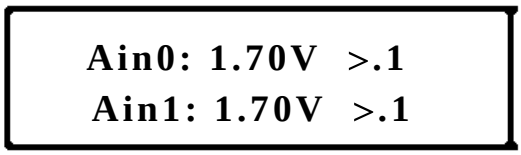


Then press button 2 (**DOWN V**) to scroll down through the various diagnostic informations.



VERSION

This is the operating software with version date and time of issue. This information is important when calling for technical support or making changes in charts or upgrading the operating system. This manual is written for the operating software 1265 Version 2.01, issued December 3, 1998 and later.



Boom Angle

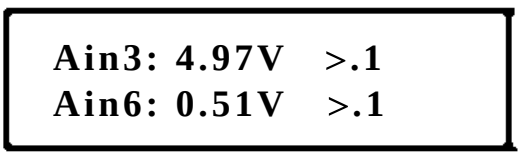
AIN0 is the voltage you receive from the angle sensor. It must be above 0.1 Volt. You will need minimum 0.3 Volt to calibrate. The exact voltage will vary from one model of angle sensor to another. Refer to your angle sensor specification sheet. Most important:

Voltage must increase at least 1.0 Volt from 0 degree to 70 degrees

Make sure that the voltage varies at any boom angles

Make sure voltage never exceeds 4.8 Volts.

AIN1, AIN2, AIN3 will not be used for this software version, so just to scroll down until you could see AIN6



LOAD SENSOR

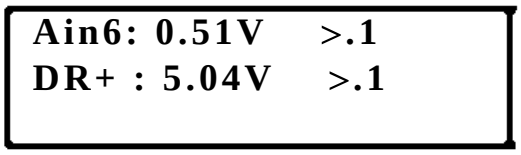
AIN6 is the load sensor voltage, it must be above 0.1 Volt, You need minimum 0.3 Volt to calibrate. AIN6 is the only load sensor voltage available; it can represent the main hoist, the auxiliary, the whip1 or the whip2. The voltage displayed will correspond to the selected hoist in the operating mode or in the diagnostic mode (see Hoist: 1 = Main on next page).

The exact voltages will vary from one model and size of load sensor to another. Refer to your load sensor specification sheet. The important thing is: there must be an increase of at least 2.5 Volt from no load to maximum line pull. The voltage must vary with different test loads.

For load sensor used with amplifiers see amplifier specification sheet for the voltage input.

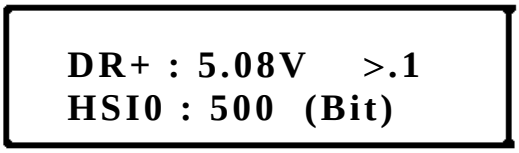
If the signal is out of range or too low with maximum line pull, see amplifier adjustment in the installation section.

If no amplifier is used and the signal is below 0.25 Volt, the wires may be cut or not connected or not connected properly. If the voltage is above 4.9 Volt with no load, one wire may be cut or open. See load sensor trouble shooting specification.



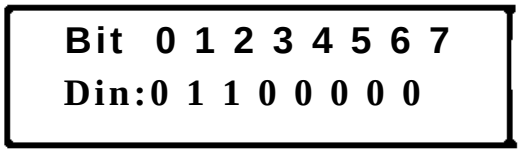
SENSOR SUPPLY DR+

The DR+ is the sensor supply voltage. It normally indicates 5.04 Volts $\pm$ 0.08 Volt. If the voltage is below 4.90 Volts, a sensor wire is shorted causing a drain of power. If the voltage is above 5.25 Volts, a load sensor wire is damaged or the internal amplifier is set incorrectly causing the load sensor voltage to increase above 4.95 Volts. A wrong DR+ will affect the readings on all sensors.



HSI

You don't need to understand this value. The HSI0 is the value of AIN6 in term of bits. Just like AIN6, the HSI0 is used for all the load sensors. Instead of using a voltage like AIN6 for reference, the HSIO uses the value from Analog to Digital converter with a raw resolution of 1023 increments (Bits).



DIN (DIGITAL INPUTS)

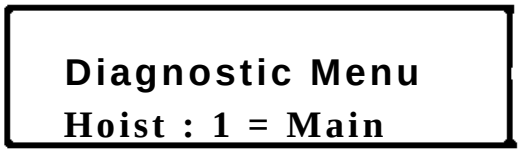
Din stands for Digital Input. There are 8 digital inputs and are commonly called switch inputs. Only four are readily available on the terminal strip of the control unit.

Bit stands for the address or name of each digital input. Numbers 0 and 1 next to Din stand for the status of each input. 0 means ground (0V) and 1 means positive (VP). Example; Din 0 is ground, Din 1 is positive, Din 2 is positive and Din 3 is ground. When the terminal is left open, it defaults to the supply voltage 12 or 24 Volts (VP) and a 1 is displayed. When the terminal is grounded (0V), it displays a 0. Note: this is the standard setting. Each or all of the input switches can be reversed to default to 0V instead of VP.

Digital input 0 is used for the Anti-Two-Block. When unconnected, the terminal defaults to 1 causing the A2B alarm and lockout to be activated.

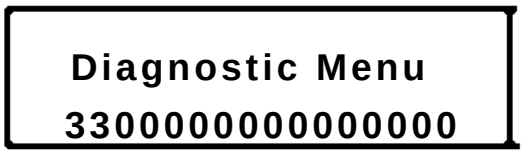
Digital input 1 is used for the main slew switch. When grounded, it usually means over front or over rear. If the load charts are included in this manual, you will notice that when Din1 is 0, selection 1 for slew position is used in the chart. When Din1 is 1, selection 0 for slew position is used in the chart.

All the digital inputs positive source come from the VP terminal. The VP terminal is only used for powering switches, proximity switches and external amplifiers. The VP or Voltage Positive is a fused power supply source. The fuse for VP is the lower one in the control unit. If the fuse blows, all digital inputs turn to 1.



HOIST

This is a quick access to the hoist selection while in the diagnostic mode. Use the **ENTER (#3)** buttons to change hoist and verify the voltage input on AIN6 and the HSI input. Changing hoist here, will change the hoist in the operating mode but not the parts of lines and the configuration. Using the **DUTY** button in the operating mode will re-establish the proper settings.



CALIBRATION

On this screen, a number appears on the bottom line. Either 0, 1, 2 or 3. The bottom line represent the boom configuration from 1 to 16 starting from the left. For instance, most numbers on left represent the main boom configuration.

Each number indicates the status of the radius calibration for the specific boom configuration. 0 indicates that this boom radius configuration is not calibrated. 1 indicates that P1 and P2 are calibrated.

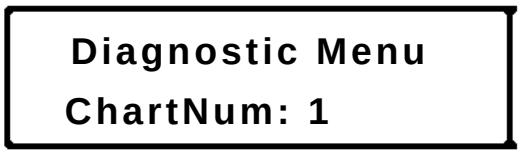


CHART NUMBER

This is the chart number. For programming use only.

BINARY CHART VALUE

This value is used only during programming of charts.

FILE NUMBER

This is a file number containing the programmed charts. If any problems with selection of load charts, selection of text and value of rated capacity, refer to this file to verify and make

the corrections. This file is kept by the local manufacturer's office where the system originated.

Press ESC (#4) to return to the primary display. You can press the ESC button any time while in the diagnostic mode to return to the primary display.

You also can press the UP-button #1, to view previous information.