

# View Tech Load Moment Indicator Operator Manual RT100



Rev 7 4-15-11 Software RT100 TXW0020PE

**326** Technologies

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### Introduction

### WARNING

The View system is an LMI and Range limiting monitoring features.

The system should be checked for the shutoff functions prior to programming the Operating mode and confirming by trying to move the boom functions to ensure the shutoff is disabled.

A full check confirming all features on the system are functioning properly prior to lifting any loads!

To obtain the optimum performance from this system we recommend that you read and understand this manual before using the system.

Thank you for choosing 3B6 !

### WARNING

For proper use of the system, carefully read and understand this page.

<u>MAINTENANCE</u> The View-Tech system power and engine monitoring cables must be disconnected when welding, battery replacement, charging or jump starting the battery. Failure to comply will result in serious damage to the system.

<u>MACHINE WASHING</u> If washing the machine with a high pressure power washer, you must protect all the system components from direct spraying to avoid damage to the components.

Failure to comply with the above warnings will result in voiding the warranty!

### Lockout Bypass Switch;

The machine is equipped with an emergency bypass key switch feature located outside the cab. When the key switch is turned and released it enables the shutoff functions until power has been cycled on the crane to disable this feature. Red pushbutton inside the cab is not used. See page 6 for location area

#### WARRANTY

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, MADE BY EITHER THE DISTRIBUTOR OR THE MANUFACTURER ON NEW 3B6 SYSTEMS AND COMPONENTS, EXCEPT THE MANUFACTURER'S WARRANTY AGAINST DEFECTS, MATERIAL AND WORKMANSHIP SET OUT BELOW.

#### NEW EQUIPMENT WARRANTY

"The manufacturer warrants each new product made by the manufacturer to be free from defects in material and workmanship, its obligation and liability under this warranty being limited to replacing free of charge at its factory any part proving defective under normal use and service within twelve (12) months from the date of initial sale, providing the product is on record with the manufacturer as being installed by the distributor. If the product is not on record as being installed by the distributor, the manufacturer will consider the date of shipment from the factory as the date of initial sale. This warranty is in lieu of all other warranties, expressed or implied and the obligation and liability of the manufacturer under this warranty shall not include any transportation or other charges or the cost of installation or any liability for direct, indirect or consequential damages or delay resulting from the defect. Any operation beyond rated capacity or the improper use of the product or the substitution upon it of parts not approved by the manufacturer shall void this warranty. This warranty covers only the products of 3B6. The products of other manufacturers are covered only by such warranties as made by their manufacturers.

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## System Layout



## System Components



ACQ Cable Reel





Ref.	Icon	Description			
1		Working data display (4 display pages for data)			
2		<i>Two Green lights indicating normal operating (0-89% of capacity)</i>			
3		Yellow light indicating pre alarm condition (90-99% of capacity)			
4	0	<i>Red light indicating the Overload (100% or higher of capacity/A-2-B condition</i>			
5	F1	To select outrigger, rubber or language configurations			
6	F2	To select the unit of measurement, counter weight configuration ( If applicable) or winch selection			

## View Tech Display

Ref.	Icon	Description
7	F3	N/A
8	F4	Select the machine configuration and hook ball
9	F5	<i>N/A</i>
10		Confirm an action ( operating mode, procedure, limit, etc )
11		Increase contrast in normal operation mode or Scroll up inside the menu in calibration mode <b>onl</b> y
12		Decrease contrast in normal operation mode or Scroll down inside the menu in calibration mode <b>only</b>
13	$\mathbf{\nabla}$	Page back for the screen mode or Shift Left in Calibration mode
14		Page next for the screen mode or Shift Right in Calibration mode
15	Þ	Select the Part of Line
16	F	Disable audible alarm
17	131	Select Rigging & Travel mode and scrolling in Calibration Mode
18		N/A
19	SARE LIC	Clears the alarm messages on the display and range limiting
20	~	Select Set-up, setting page for Language and Unit of measurement and range limiting

## System Start Up

The View-Tech is equipped with multiple pushbutton functions and display pages to indicate the crane condition information such as, LMI and Engine data. The View display will automatically power up once the machine is started. The unit will indicate the software version crane model number and perform a self test.

#### NOTE!

If you press and release the ENTER pushbutton during the self test the display will indicate a PASSWORD 4477 in the information box. Recycle the power and let the system complete the self test!



The display will change to the LMI SET-UP screen for Configuring the crane setup. The system will store the last configuration that was confirmed. Press and release the ENTER pushbutton to confirm or press and release the Wrench pushbutton to reconfigure and press and release the ENTER pushbutton to confirm the new configuration. The system will be in an inactive mode and audible alarm enabled until the system is setup and confirmed.



## System Start Up

To setup the system:

F1: Selects the Outrigger or Rubber configurations

F2: Selects the Counter weight options (if applicable)

F3: N/A

F4: Selects the Main boom, aux or jib configuration (Hook ball icon is auto selected)

F5: Selects the jib stowed or erected on the boom (has no effect on actual load reading)

Hook Block pushbutton: Selects the proper Parts of line.

Wrench pushbutton: Once in the Status LMI page, press and release the wrench pushbutton to return to the Set-up page to change the configuration of the machine. Examples; outrigger to rubber, jib to main boom, change parts of line, etc.

ENTER pushbutton: confirms selection (once confirmed the screen automatically changes to the Status LMI screen)

Right Arrow pushbutton: Scroll to the next screen Left Arrow pushbutton: Scroll to previous screen



## Status LMI information

The View monitors and indicates all crane geometry and conditions. If the symbol on the display is highlighted in **black** it is what is selected for current crane configuration

A2B condition (Icon is red when approaching A2B condition)



## Boom Mode/Fault information

The View also controls and monitors the boom mode and will alert the operator in the event of a fault. T6 ERR (indicates system detects motion or change in T6 stage. Fault T6 ERR is indicated T6 ON means T6 is enabled.

T6 OFF indicates T6 is disabled.

Stop for ISAAC/Range Limiting

System STOP

Boom Mode Display T.23 is Mode 2 Boom Mode Display T.45 is Mode 1

T6 ON is 6<sup>th</sup> section is enable to function T6 OFF is 6<sup>th</sup> stage is disabled T6 ERR is fault and STOP will be illuminated as well.

Alarm code message center See page 19-20 for definition of codes

## Rigging & Travel Mode

The Rigging and Travel mode can be selected from the STATUS LMI screen. To select this mode press and release the SEL pushbutton. See below



T\_23

Press and release the SEL pushbutton. Display changes



To Confirm select ENTER for YES or TARE/ESC pushbutton for NO.

## Rigging & Travel Mode

The Rigging and Travel mode is selected. The display will indicate the Rigging and Travel mode is enabled every 5 seconds with an audible alarm. Audible can not be silenced!



To Exit, press and release the SEL pushbutton and select No (Tare/ESC pushbutton). The screen will change back to the SETUP screen. Once setup is complete press and release the ENTER to confirm.



Prior to troubleshooting the View system, a simple check of the unit is necessary to avoid extended time. When the system is powered up it performs a self test of all components. During this self test if any components are disconnected or faulty it will indicate alarms in the message area code 6, 12, 13 and 190. Typically the result of pressing the ENTER pushbutton prior to the self-test completing.

This indicates that components did not pass the self test for communication, which creates the 190 communication code. A simple check is required to see the true faults if any by confirming the system by program, then once the unit has cleared and alarm codes are present press and release the Tare/ESC pushbutton on the display. The system will clear all non-faulted alarm code and display the faulted components codes only. To clear the fault memory leave power on for 20 seconds prior to turning the machine off.

### Alarm Message Reset

In the event there is a component failure within the system, a fault code is displayed. After the repair of the fault condition, the system must be cleared of the fault alarm by pressing and releasing the **Tare/ESC pushbutton**.



## AL\_View Alarm/Fault codes

MESSAGE	CAUSE	SOLUTION	
• Alarm 1 or 3 Angle sensor output is low ACQ cable reel (small reel connected to T3)	<ul> <li>Angle potentiometer inside Reel is faulty.</li> <li>Possible lack of continuity in wires carrying the signals</li> <li>Fault in connector</li> <li>Angle out of adjustment</li> </ul>	Check Wiring from cable reel to MC2MUnit • Check 5vdc supply, and ground in cable reel • Replace pot if damaged • Output is around 2.50 vdc at zero degree • Call service	
• Alarm 2 or 4 Angle output is high ACQ cable reel ( small reel connected to T3)	<ul> <li>Angle Potentiometer inside Reel is faulty.</li> <li>Possible lack of continuity in wires carrying the signals</li> <li>Fault in connector</li> <li>Angle out of adjustment</li> </ul>	de Reel is ty in wires Check Wiring from cable reel to MC2MUnit • Check 5vdc supply, ground in cable reel • Output at zero degree is aroun 2.50 vdc (A1) • Replace pot if damaged • Call service	
• ALARM 5 or 7 Angle sensor output is low ACMCP cable reel (Large reel connected to T6)	<ul> <li>Angle potentiometer inside Reel is faulty.</li> <li>Possible lack of continuity in wires carrying the signals</li> <li>Fault in connector</li> <li>Angle out of adjustment</li> </ul>	Check Wiring from cable reel to MC2MUnit • Check 5 vdc supply, ground in cable reel • Replace pot if damaged • output at zero degree is 2.50 vdc ( • Call service	
• ALARM 6 or 8 Angle sensor output is high ACMCP cable reel (Large reel connected to T6	<ul> <li>Angle potentiometer inside Reel is faulty.</li> <li>Possible lack of continuity in wires carrying the signals</li> <li>Fault in connector</li> <li>Angle out of adjustment</li> </ul>	<ul> <li>Check Wiring from cable reel to MC2MUnit</li> <li>Check 5vdc supply, ground wires in cable reel</li> <li>Replace pot if damaged</li> <li>Call service</li> </ul>	
• ALARM 15 Alarm M1_M2	• Timing issue between T23 and T456 booms	<ul> <li>Check Wiring from cable reel to MC2MUnit</li> <li>Check 5vdc supply, ground wires in cable reel</li> <li>Call service</li> </ul>	

## AL\_View Alarm/Fault codes

MESSAGE	CAUSE	SOLUTION
• ALARM 20, 22, 25 or 27 Length Sensor signal low (ACQ cable reel connected to T3)	<ul> <li>Potentiometer inside Reel is faulty.</li> <li>Possible lack of continuity in wires carrying the signals</li> <li>Fault in MC2M unit connector</li> <li>Length min out of adjustment</li> </ul>	<ul> <li>Check Wiring from cable reel to MC2MUnit</li> <li>Check 5 vdc supply, ground in cable reel</li> <li>Replace pot if damaged</li> <li>Check output .250 vdc fully retracted boom length</li> <li>Call service</li> </ul>
• ALARM 21,23,26 or 28 Length Sensor signal high (ACQ cable reel connected to T3)	<ul> <li>Potentiometer inside Reel is faulty.</li> <li>Possible lack of continuity in wires carrying the signals</li> <li>Fault in MC2M unit connector</li> <li>Length exceeded maximum voltage</li> </ul>	<ul> <li>Check Wiring from cable reel to MC2MUnit</li> <li>Check 5 vdc supply, ground in cable reel</li> <li>Replace pot if damaged Call service</li> </ul>
• ALARM 30,32,35 or 37 Length sensor signal is low ACMCP cable reel (Large reel connected to T6)	<ul> <li>Potentiometer inside Reel is faulty .</li> <li>Possible lack of continuity in wires carrying the signals</li> <li>Fault in MC2M unit connector</li> <li>Length min out of adjustment</li> </ul>	<ul> <li>Check Wiring from cable reel to MC2MUnit</li> <li>Check 5 vdc supply, ground in cable reel</li> <li>Replace pot if damaged Output at fully retracted boom is around .250vdc</li> </ul>
• ALARM 31,33,36 or 38 Length sensor signal is high ACMCP cable reel (Large reel connected to T6)	<ul> <li>Potentiometer inside Reel is faulty .</li> <li>Possible lack of continuity in wires carrying the signals</li> <li>Fault in MC2M unit connector</li> <li>Length output exceeds 4.74 vdc</li> </ul>	<ul> <li>Check Wiring from cable reel to MC2MUnit</li> <li>Check 5 vdc supply, ground in cable reel</li> <li>Replace pot if damaged Call service</li> </ul>
• ALARM 50 or 52 Piston pressure sensor signal low	<ul> <li>Piston Pressure sensor faulty.</li> <li>Lack of continuity in wiring</li> <li>Moisture in connector.</li> <li>Sensor broken or disconnected</li> </ul>	<ul> <li>Check Wiring from pressure sensor to display</li> <li>Check 15vdc supply to pressure sensor</li> <li>Check output on pressure sensor</li> <li>Check connector for moisture or hydraulic fluid</li> </ul>

## AL\_View Alarm/Fault codes

MESSAGE	CAUSE	SOLUTION	
• ALARM 51 or 53 Piston pressure sensor signal high	<ul> <li>Piston Pressure sensor faulty.</li> <li>Lack of continuity in wiring</li> <li>Moisture in connector.</li> <li>Sensor broken or disconnected</li> </ul>	<ul> <li>Check for 15vdc supply</li> <li>Check for output</li> <li>Check connection wires.</li> <li>Check insertion of connector on transducer and wiring</li> <li>Replace Transducer if faulty</li> </ul>	
• ALARM 60 or 62 Rod pressure sensor signal low	<ul> <li>Rod Pressure sensor faulty.</li> <li>Lack of continuity in wiring</li> <li>Moisture in connector.</li> <li>Sensor broken or disconnected</li> </ul>	<ul> <li>Check for 15vdc supply</li> <li>Check for output</li> <li>Check connection wires.</li> <li>Check insertion of connector on transducer and wiring</li> <li>Replace Transducer if faulty</li> </ul>	
• ALARM 61 or 63 Rod pressure sensor signal high	<ul> <li>Rod Pressure sensor faulty.</li> <li>Lack of continuity in wiring</li> <li>Moisture in connector.</li> <li>Sensor broken or disconnected</li> </ul>	<ul> <li>Check for 15vdc supply</li> <li>Check for output</li> <li>Check connection wires.</li> <li>Check insertion of connector on transducer and wiring</li> <li>Replace Transducer if faulty</li> </ul>	
• ALARM 100 • ALARM 101 • ALARM 105 • ALARM 106	E2Prom alarm CRC Run fault CRC Tab fault CRC Program fault	<ul> <li>Recycle power on system</li> <li>Check CAN BUS lines</li> <li>Replace View display</li> <li>Call service</li> </ul>	
<ul> <li>ALARM 950</li> <li>ALARM 951</li> <li>ALARM 952</li> <li>ALARM 953</li> <li>ALARM 954</li> <li>ALARM 955</li> </ul>	Output Joystick Output Joystick Joystick fault sensor Joystick fault sensor Joystick Joystick	Check connections Replace joystick Call Service	

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## AL\_MC2M Alarm/Fault codes

MESSAGE	CAUSE	SOLUTION			
• ALARM 1 CRCPAR fault Error MC2M Controller internal		<ul> <li>Check Wiring to MC2MUnit</li> <li>Check supply, ground and CAN wires to MC2M</li> <li>Replace MC2M unit</li> <li>Call service</li> </ul>			
• ALARM 29 TEST SEND CPU1	Error MC2M Controller internal	<ul> <li><i>Replace MC2M unit</i></li> <li><i>Call service</i></li> </ul>			
• ALARM 40 • ALARM 41 • ALARM 42	CRC Program error MC2M controller CRC Tab Error MC2M controller CRC Run Error MC2M controller	<ul> <li>Check Wiring to MC2MUnit</li> <li>Check supply, ground and CAN wires to MC2M</li> <li>Replace MC2M unit</li> <li>Call service</li> </ul>			
<ul> <li>ALARM 50</li> <li>ALARM 51</li> <li>ALARM 60</li> <li>ALARM 61</li> <li>ALARM 61</li> <li>ALARM 62</li> <li>ALARM 63</li> <li>ALARM 63</li> <li>ALARM 65</li> <li>ALARM 66</li> <li>ALARM 67</li> <li>ALARM 68</li> <li>ALARM 69</li> <li>ALARM 70</li> <li>ALARM 71</li> </ul>	Turret Front error Turret Stop Error Boom Raise error Boom Lower error Winch Main Up error Winch Main Down error Rotate CW error Rotate CCW error Tele T23 extend error Tele T23 retract error Tele T456 extend error Tele T456 retract error Winch Aux Up error Winch Aux Down error	<ul> <li>Check Wiring from MC2MUnit</li> <li>Check supply, ground and CAN wires to MC2M controller</li> <li>Call service</li> <li>Call service</li> </ul>			
• ALARM 150 Joystick Tout Dx fault	Joystick fault	<ul> <li>Check Wiring</li> <li>Call service</li> </ul>			
• ALARM 151 Joystick Dx fault	Joystick fault	Check Wiring • Call service			
• ALARM 152 Joystick Tout Sx fault	Joystick fault	<ul><li>Check Wiring</li><li>Call Service</li></ul>			
• ALARM 153 Joystick Sx fault	Joystick fault	<ul><li>Check Wiring</li><li>Call Service</li></ul>			
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### AUTO DIAGNOSTIC HYDRAULIC PRESSURE DATA

Starting from the Status LMI screen, press and release the **ENTER pushbutton**. The Program/Operating area will indicate the piston pressure values. When raising the boom PL act should increase in value.



- PL adc : Value (bit) directly from the pressure sensor
- *PL* act: Value of the pressure on the piston side in bars (14.6 psi equals 1 bar)

Press and release the Up **pushbutton**. The display will indicate the Rod pressure values. When raising the boom PH act should stay relatively stable at the value displayed.



- PH adc : Value (bit) directly from the pressure sensor
- PH act: Value of the pressure on the rod side in bars (14.6 psi equals 1 bar)

Continuing to press and release the UP pushbutton will allow viewing of other system data information for troubleshooting. To return to the main LMI screen, press and release the TARE/ESC pushbutton.

**AUTO DIAGNOSTIC** Length and Angle Data

Press and release the UP pushbutton the display will indicate the length (L1) values.



- L1adc : Value (bit) directly from the potentiometer of the Length 1
- L1act: Value (centimeters) of the main boom length

Press and release the **UP pushbutton** the display will indicate the main boom angle (A1) values.

Al a d	d c	A1	a	С	t			
	7 0	0			7	8	0	

- A1adc : Value (bit) directly from the angle sensor
- A1act: Value (degree x 10) of the main boom angle

### AUTO DIAGNOSTIC

Digital Sensor Inputs

Press and release the **UP pushbutton** the display will indicate the digital input s. if an asterisk is present, the input is active. If the asterisk is not present the input is inactive.



**AUTO DIAGNOSTIC** Digital Sensor Outputs

Press and release the **UP pushbutton** the display will indicate the digital output s. if an asterisk is present, the input is active. If the asterisk is not present the output is inactive.



AUTO DIAGNOSTIC External Components

Press and release the **UP pushbutton** the display will indicate the external component values.

### AUTO DIAGNOSTIC

Rotation/Area definition (Swing potentiometer) Angle Data

Press and release the **UP pushbutton** the display will indicate the rotation 1 (R1) values. Swing pot



- R1 adc : Value (bit) directly from the potentiometer of the Rotation1
- R1 act: Value (degrees) of the rotation 1 swing pot angle

Press and release the **UP pushbutton** the display will indicate the rotation 2 (R2) values. Swing pot

R2 a	d c	R2 a c	t		
	7 0	0	7	8	0

- R2 adc : Value (bit) directly from the angle sensor
- R2 act: Value (degrees) of the rotation 2 swing pot angle

## Language/Unit of measurement

Changing the Language or Unit of Measurement. Press and release the **Wrench** pushbutton from the SETUP page.



Use the F1 to change the language or F2 to change the unit of measurement. Press and release the **ENTER** pushbutton to save the changes.



Press and release the Wrench or Right Arrow pushbutton to return to the SETUP page.

## ISAAC/Range Limiting set up

### These features are visual warning only and do not enable the lockout functions of the machine

To set up the limits of the Angle, Height or Radius you must position the boom in the condition and then press and release the F1, F2 or F3 pushbuttons.



To enable the limit settings position the boom in the proper angle, height or radius and press and release the

F1 to set the Angle limit

F2 to set the Height limit

F3 to set the Radius limit

To disable the limit press and release the F1, F2 or F3 pushbutton and limit value will return to the default value of 999, 328.0 or 99.9.

From the Status LMI screen

When any of the above limits are set and active, the text message will flash in the message area at 90% of the limit and stop flashing when the limit is at a 100%

Flashing (90%) or Solid (100%) Message ISAAC ANGLE ISAAC HEIGHT ISAAC RADIUS

## ISAAC/Range Limiting set up

These features are visual warning only and do not enable the lockout functions of the machine

To set up the limits of the Rotation you must position the boom in the condition and then press and release the F1, or F2 pushbuttons.



To enable the limit settings position the boom in the proper area and press and release the

F1 to set the Left limit

F2 to set the Right limit

To disable the limits press and release the F1, F2 or F3 pushbutton and limit value will return to the default value of 999, 328.0 or 99.9.

From the Status LMI screen

When any of the above limits are set and active, the text message will flash in the message area at 90% of the limit and stop flashing when the limit is at a 100%

Flashing (90%) or Solid (100%) Message

## ISAAC/Range Limiting Enable/Disable

#### These features are visual warning only and do not enable the lockout functions of the machine



To Disable ISAAC: from the Status LMI page (LMI page) press for 5 seconds the and and same time. Release the two buttons when you ear acoustic signal.

To Enable ISAAC:

from the Status LMI page (LMI page) press for 5 seconds the *same time.* Release the two buttons when you ear acoustic signal.



at the

## A2B connections Boom, Aux and Jib

The system is equipped with junction box connections for Main boom, Aux nose sheave and jib. The photo above reflects the A2B setup for Main winch only. The dummy plug is connected to the Main boom Junction box.



The Aux sheave or Jib is equipped with a switch junction box. The switch has two positions to enable or disable the circuit when the Aux nose sheave or jib is erected but not used.

Position I is enabled Position II is disabled.

If the Aux nose sheave or jib is erected and used the cable from the attachment must be connected to the main boom junction box and the dummy plug is stowed.

