



Load Moment Indicator SW1.5A4 Operator Manual





Rev 9 OME 7-10-19 Software 1.0 - 1.5A4

Office: 815.270.0088 Email: info@controlsystemsw.com **Operator Manual**

Introduction

WARNING

The 1.5x software has full Engine control functions when the system is in any alarm or fault condition. The only exception is when the Head unit is disconnected. Once the Head unit is reconnected the engine control will resume to is last selection.

The system should be checked for the shutoff function 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.

Low Level Fuel warning When fuel level is at 12% the message will appear Low Fuel Level and audible alarm will sound.

WARNING

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

MAINTENANCE 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 feature. When enabled for any reason, the display will indicate Alarm Code 2 above the Code number and will remain there until it is cleared by pressing and releasing the TARE/ESC pushbutton.

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.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND OF ANY OTHER OBLIGATIONS OR LIABILITY OF THE PART OF THE MANUFACTURER, AND 3B6 NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH SUCH EQUIPMENT.

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System Layout



System Components



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View Tech Display



Ref.	Icon	Description
1		Working data display (3 display pages for data)
2		Two Green lights indicating safe operating condition
3		Yellow light indicating pre alarm condition
4	0	Red light indicating the Overload/A-2-B condition
5	F1	Function pushbutton to Increase Engine RPM
6	F2	Function pushbutton to Decrease Engine RPM

View Tech Display

Ref.	Icon	Description
7	F3	Function pushbutton for Engine RPM Idle, ISC1 and ISC2
8	F4	Function pushbutton to increase Operating Mode Page
9	F5	Function pushbutton to decrease Operating Mode Page
10	Enter	Confirm an action (operating mode, procedure, limit)
11		Increase contrast in normal operation mode or Scroll up inside the menu in calibration mode onl y
12	V	Decrease contrast in normal operation mode or Scroll down inside the menu in calibration mode only
13		Shift Left in Calibration mode only
14		Shift Right in Calibration mode only
15		Part of Line Selection
16	F	Disable audible alarm
17		Operational in Calibration Mode only
18		Change Display view or page
19	TARE	Deletes the alarm messages on the display
20	~	Wrench button to enter the calibration menu. In order to have access and configure the system, the user must scroll up to the operating page. This function is available only if provided with the password

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System Start Up

The View-Tech HC106 is equipped with multiple pushbutton functions and display pages to indicate and control the machine RPM and machine condition information such as, LMI, Engine and Level/Slope condition. The View display will automatically power up once the machine is started. The unit will indicate the software version 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. Recycle the power and let the system complete the self test!



The display will briefly indicate the LMI screen and then go directly to the engine screen for engine data. **Some Models are not equipped with the engine screen**.



1.58-1.5A1 updated to 1.5A2



System Start Up

Once the engine data has been reviewed by the operator, press and release the page pushbutton to check the level of the machine. Press and release the page pushbutton again to set up the LMI.



The display will change to the last selected program and part of line in a shut off condition (Red Stop Icon and Red Light). If the selected program is correct, confirm by pressing and releasing the **ENTER pushbutton**. The system will reset in a normal operational condition.

1.0-1.55 updated to 1.5A4







Pushbutton Functions in LMI screen operating mode

The View-Tech HC106 is equipped with multiple pushbutton functions and matching icon for that function to operate the system. These pushbuttons perform the following functions in the LMI screen page. The Hook block icon works with the hook block pushbutton to change the parts of line.



Press and releasing the pushbuttons to select the function or change the function. System Selection of Program, Parts of Line, Engine RPM settings, and confirmation is on page 15-17. Some models are not equipped with engine monitoring or speed control features.



System Selection of Program, Parts of Line, Engine RPM settings, and confirmation is on page 15-17. Some models are not equipped with engine monitoring or speed control features.

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The View-Tech HC106 is equipped with complete Engine Control/Monitoring and Hydraulic monitoring. The system will indicate different lamps when a condition occurs. This display page replaces the traditional mechanical gauges on the dash and integrated within the display. The system also indicates the Engine SPN or FMI fault codes.

Some models are not equipped with engine monitoring or speed control features.

System Selection of Program, Parts of Line, Engine RPM settings, and confirmation on page 15-17.

View Slope and Levelling Screen Information

The View-Tech HC106 is equipped with a levelling and slope condition of the machine relative to the Upper of the machine. When the machine is level the X and Y boxes will indicate 0.0. When the machine is within 1 degree for X and Y axis the green center bar will illuminate

All Relative Main Boom geometry/LMI data is present on the right hand side of the screen.

Press and release the Page pushbutton to change the display/page



System Selection of Program, Parts of Line, Engine RPM settings, and confirmation is on page 15-17.

View Set up

Program/Operating Mode selection

Once the display has completed the start- up process, the display will change to the LMI operating page. To change the program/operating mode to the proper machine configuration, press and release the F4 or F5 pushbuttons until the proper program/operating mode is selected. Then press and release the ENTER pushbutton to confirm. Some models are not equipped with engine monitoring or speed control features.



Program/Operating Mode

Enter pushbutton To confirm selection

Part Of Line Selection

Press and release the **Hook Block pushbutton** to change the part of line. The **Hook** block lcon will indicate what part of line is selected. To confirm, press and release the ENTER pushbutton.



Enter pushbutton To confirm selection

View Set up

Engine RPM selection

To set the engine RPM, press and release the F3 pushbutton for the Off (idle), ISC1 (speed1) and ISC2 (speed2). The F1 (increase +) and F2 (decrease -) pushbuttons are inoperable until the engine setting has been selected to either ISC1 (speed1 or ISC2 (speed 2) settings. Features are enabled unless Head unit is disconnected. Some models are not equipped with engine monitoring or speed control features.



Engine Data

Press and release the Page pushbutton to change the display/page.

The **F1**, **F2** and **F3** pushbuttons are active in this display page to set the Engine RPM and increase and decrease.



Note: The **F1, F2 and F3 pushbuttons** are inactive when system is in the Calibration mode.

Prior to troubleshooting the View HC 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 selftest 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**.



Program/Operating Mode Alarm Warning message

If any engine alarms are detected by the system the LMI page will automatically change to the Engine page for detecting what alarm Icon is faulted in Red. If the page is changed it will change back to the engine page for fault detection and continue every 5 minutes, until the fault is corrected. Not applicable on some models

Engine -Alarm



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		•
See Page	Icon	Description
12	1 3± ₹	It indicates the A-2-B limit switch status (A-2-B condition icon turns red when active)
12	0K	It indicates the machine is in the normal working condition (green)
12	\triangle	It indicates the machine is in the pre-alarm working condition (90%) (yellow)
12	stop	It indicates the machine is in the Shut off working condition (100%) (red)
12		Indication of the Load percentage bar
12	Act	Indication of the actual load. Value in pounds x 1000
12	MAX	Indication of the maximum load (Rated Capacity) x 1000
12	<u>-R-</u>	Indication of the main boom's radius. Value in meters or feet
12	<u> </u>	Indication of the main boom's angle. Value in degrees
12	4	Indication of the main boom's length. Value in meters or feet
12		Indication of the height from the ground. Value in feet
12	0	It indicates the boom extension of the main boom. Value in %
12	Alarm:	Indication of the Alarm code that is present at the moment
12	Code:	Indication of the Operation Mode and Code Chart Number.

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G	-	
See Page	Icon	Description
13	\diamond	Engine Oil Pressure Warning Light
13	6	Engine Oil Temperature warning light
13	Θ	Engine Water Temperature warning light
13	<u>C</u>	Air Filter Warning Light
13	া	Hydraulic Oil Temperature Warning Light
13	\diamondsuit	Pilot Filter Warning Light
13	<u>ک</u>	Hydraulic Oil Filter Warning Light
13		Water in Fuel Warning Light)
11	RPM	Increase Engine RPM (F1 pushbutton)
11	RPM	Decrease Engine RPM (F2 pushbutton)
11	4 2	Parts of Line Selection (Hook Block pushbutton) number selected is inside icon
11	*	Page up through Operating Modes (F4 pushbutton)
11	≽	Page down through Operating Modes (F5 pushbutton
9	MANTIS	Tadano/Mantis Crane Logo

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Alarm/Fault codes

MESSAGE	CAUSE	SOLUTION				
• ALARM 2	• Bypass key switch enabled	• Release bypass key switch				
• Alarm 6 Length output too Low	 Potentiometer inside Reel is faulty . Possible lack of continuity in wires carrying the signals Fault in Head unit connector Length min out of adjustment 	 Check Wiring from cable reel to Head Unit Check 5vdc supply to length pot in cable reel Replace pot if damaged Check spooling on cable reel Call service 				
• ALARM 7 Length output too High	 ALARM 7 Length output too High Potentiometer inside Reel is faulty. Possible lack of continuity in wires carrying the signals Fault in Head unit connector Length out of adjustment Check Wiring from Head Unit Check 5vdc supply in cable reel Replace pot if dam Call service 					
• ALARM 8 Length output actual too low	 Potentiometer inside Reel is faulty. Possible lack of continuity in wires carrying the signals Fault in Head unit connector. 	 Check Wiring from cable reel to Head Unit Check 5vdc supply to length pot in cable reel Check output in cable reel Check spooling on cable reel Replace pot if damaged Call service 				
• ALARM 12 Piston Pressure Sensor output too Low	 Piston pressure transducer broken Possible lack of continuity in connection wires Fault in Head unit connector 	 Check for 15vdc supply Check for output 0.5 vdc min Check connection wires. Check insertion of connector on transducer and wiring Replace Transducer if faulty Call service 				
•ALARM 13 Rod Pressure Sensor output too Low	 Rod pressure transducer broken Possible lack of continuity in connection wires Fault in Head unit connector 	 Check for15vdc supply Check for output 0.5 vdc min Check connection wires. Check insertion of connector on transducer and wiring Replace Transducer if faulty Call service 				

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Alarm/Fault codes

MESSAGE	CAUSE	SOLUTION
• ALARM 15 Angle output too Low	 Angle Sensor inside Reel is faulty. Possible lack of continuity in wires carrying the signals Fault in Head unit connector Angle sensor out of adjustment 	 Check Wiring from cable reel to Head Electronic Check 5vdc supply to angle sensor in cable reel Check output in cable reel Replace Angle Sensor if faulty Call service
•ALARM 22 Piston Pressure Sensor output too High	 Piston pressure transducer broken Possible lack of continuity in connection wires Fault in Head unit connector Boom hoist in full raise position 	 Check for 15vdc supply Check for output Check connection wires. Check insertion of connector on transducer and wiring Replace Transducer if faulty Lower boom angle
• ALARM 23 Rod Pressure Sensor output too High	 Rod pressure transducer broken Possible lack of continuity in connection wires Fault in Head unit connector 	 Check for 15vdc supply Check for output Check connection wires. Check insertion of connector on transducer and wiring Replace Transducer if faulty Call service
• ALARM 25 Angle output too High	 Possible lack of continuity in wires carrying the signals Fault in Head unit connector Angle Sensor inside Reel is faulty or needs adjusted 	 Check Wiring from cable reel to Head Electronic Check 5vdc supply to angle sensor in cable reel Check output in cable reel Replace Angle Sensor if faulty Call service
ALARM 56 EEPROM View	Memory problem in View Display	•Call service
•ALARM 190 Head Communication	• Error in communication View and head unit.	Check connection wires. • Check insertion of connector on display Call service
•ALARM 191 ASA Slope Sensor	No Communication between ASA Slope Sensor and Head Unit	Check connection wires. • Call service • Check connector

AUTO DIAGNOSTIC HYDRAULIC PRESSURE DATA

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



- PLadc : Value (bit) directly from the pressure sensor
- PLact: Value of the pressure on the piston side in bars

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

Р	Η	a	d	С		Ρ	H	a	С	t			
				1	0	0			2	0	0		

- PHadc : Value (bit) directly from the pressure sensor
- PHact: Value of the pressure on the rod side in bars

Continuing to press and release the RIGHT ARROW 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 **RIGHT ARROW pushbutton** the display will indicate the length (S1) values.



- S1adc : Value (bit) directly from the potentiometer of the Length 1
- S1act: Value (centimeters) of the main boom length

Press and release the **RIGHT ARROW pushbutton** the display will indicate the length (S2) values.



This feature is not utilized on the HC106 system.

- S2adc : Value (bit) directly from the potentiometer of the Length 2
- S2act: Value (centimeters) of the main boom length

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



- 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 **RIGHT ARROW 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.



Active inputs for HC106 systems 3 = (right hand side 3) fuel in water active 7 = Bypass key switch active

AUTO DIAGNOSTIC

Digital Sensor Outputs

Press and release the **RIGHT ARROW 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. Feature not used on HC106 systems.



AUTO DIAGNOSTIC External Components

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



- HEAD: counter control value for the Head unit. The value will count to indicate the head is active.
- ENCODER: This feature is not used on the HC106 system.

Language Setting

Starting from the main LMI screen, press and release the **Wrench pushbutton**. The display will change to the Language menu.



Press and release the **ENTER pushbutton** the display changes to allow a new selection of the language. Then press and release the LEFT or RIGHT ARROW to move the asterisk over the value to change it.



Press and release the **UP or DOWN pushbutton** to select the proper language number. To confirm this setting press and release the **ENTER pushbutton**. The asterisk will disappear. Allow 20-30 seconds before cycling power to save the change.

Language/text settings

- 0 = English/SAE
- 1 = Spanish
- 2 = French
- 3 = English/metric

Press and release the TARE/ESC pushbutton, twice to return to the main LMI screen.

Progressive LMI Light Bar (Option)

The HC106A can be equipped with a external mount set of light bars to indicate the condition of the system to other ground personnel.
Progressive Light Bar Identification.
3 green, 1 amber and 1 red strobe lamps

Condition; No Lamps illuminated when; No programmed or parts of line selected and confirmed.

Alarm code condition (component fault)

Condition; System confirmed and no faults present

1st Green strobe flashing with capacity at 0-30%.
2nd Green strobe flashing with capacity at 30-60%
3rd Green strobe flashing with capacity at 60-90%
Amber strobe flashing with capacity at 90-100%
Red strobe flashing with 100% plus capacity

Condition; A2B condition

0-30% green strobe flashing and Red strobe flashing

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Revisions

Rev 1	10-19-11	
Rev 2	11-28-11	
Rev 3	1-19-12	Updated for 1.5A1 software and revision page 27 added
Rev 4	2-9-12	Changed logo cover page to COBO
Rev 5	11-6-12	Changes to front cover text and page 9 & 10 added displays. Pages, 11, 12,13, 15, 16 and 17 were text changes only
Rev 6	2-21-13	contact information change front cover
Rev 7	4-30-13	Correction page 25 for language. Setting is only text not unit of measurement.
Rev 8	3-17-17	corrected page 25 for language.
Rev 9	1-30-19	updated for 1.5A4 sw