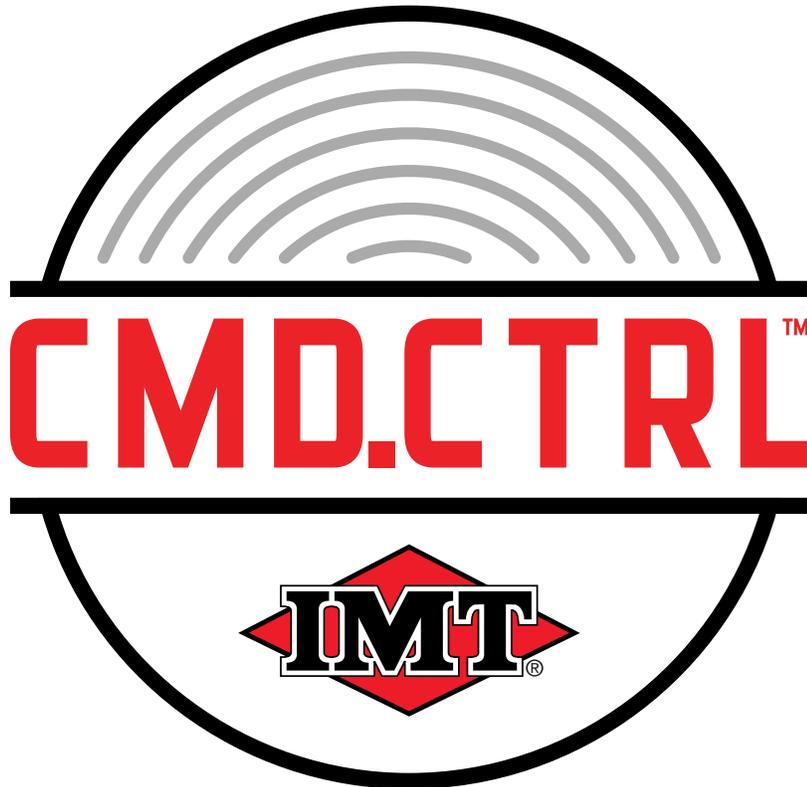




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Operator's Manual

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 WARNING
<p>Operating, servicing and maintaining this vehicle or equipment can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle or equipment in a well-ventilated area and wear gloves or wash your hands frequently when servicing. For more information go to www.P65Warnings.ca.gov.</p>
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Table of Contents

Introduction	1
Introduction	2
Safety	3
Navigation	5
Menu Screen (Display Settings)	6
Table—Body Operations	7
Display Screen & Keypad	9
Splash Screen.....	10
Main Menu Previews.....	12
Lights	15
Lights	16
Stabilizers	17
Stabilizers	18
Crane	21
Crane	22
Crane—Lights, Crane Screen, Override, Recovery.....	23
IPU	25
Integrated Power Unit (IPU) Activation	26
Vehicle Functions	27
Vehicle Functions Screen—PTO	28
Vehicle Functions Screen—Engine Start / Stop.....	29
Vehicle Functions Screen—Trans Inhibit Override	30
Diagnostic	31
Diagnostics—Input States.....	32
Diagnostics—Output States	33
Diagnostics—Fault Codes	34
Diagnostics—Hours	35
Diagnostic—Stabilizer Acknowledgement.....	36
Diagnostic—Crane Overload Events	36
Diagnostics—Compartment Fans	37
Section - 9	39
Operator Settings	39
Operator Settings—Lights.....	40
Operator Settings—Exit Cab Lights	41
Operator Settings—Reverse Flood Lights	42
Operator Settings—Search Lights	43
Operator Settings—Auto Boom Tip Lights	44
Operator Settings—PTO.....	45
Operator Settings—Aux Activation Menu.....	46

Section - 10	47
<hr/>	
Vehicle Configurations	47
<hr/>	
Vehicle Configuration—PIN Setup	48
Vehicle Configuration—Chassis	49
Vehicle Configuration—Chassis Type Table	50
Vehicle Configuration—Transmission	51
Vehicle Configuration—PTO Start Delay	52
Vehicle Configuration—Crane.....	53
Vehicle Configuration—Crane Placement.....	54
Vehicle Configuration—Stabilizers.....	54
Vehicle Configurations—Compressor; Master Locks; Searchlights; Reverse Lights; Aux 1 E-Brake; Aux 2 E-Brake; Trans Inhibit Alarm	55
Vehicle Configuration—RPM Speed	56
Vehicle Configuration—Search Lights / Reverse Lights	56
Vehicle Configuration—Compartment Fans.....	57
Vehicle Configuration—Auxiliary E-Brake	58
Crane Configuration—Crane Model.....	59
Crane Configuration—Hydraulic Mode	59
Crane Configuration—Remote Control Type	60
Crane Configuration—Boom Length Sensor	60
Crane Configuration—Boom Angle Sensor	61
Crane Configuration—Crane Tilt Derate	62
Crane Configuration—Boom Lift Max	62
Crane Configuration—Boom Telescope Max.....	63
Crane Configuration—Boom Rotate Max	63
Crane Configuration—Winch Max	64
Display Settings	65
<hr/>	
Display Settings—Language.....	66
Display Settings—Brightness.....	67
Display Settings—Working Sleep Time	68
Display Settings—Standby Sleep Time	69
Display Settings—System Version Menu.....	70
Glossary of Icons	71
<hr/>	
Radio Remote	75
<hr/>	
List of Equipment (70735198 & 70735199)	76
Handheld Remote (70735198).....	77
Handheld Remote, Toggles & Icons.....	78
Faceplate - Top Bar Icons	79
Power Up the Handheld Remote	82
Screen Order	83
Association Screen	84
Crane Screen.....	86
Stabilizer Screen.....	87
Light Screen.....	88
Compressor Activation	89
Battery Installation / Replacement	90
Base Unit (70735199).....	93
Base Unit Specifications	94
Base Unit LED Diagnostic Troubleshooting.....	94
Base Unit Details	94

Exposure to Radio Frequency Energy	95
RF Exposure Considerations	95
Identification Label Locations	96
Crane Glossary Icons	97
<hr/>	
Glossary of Icons - Radio Remote	98
Body Quick Guides	101
<hr/>	
Navigation	102
Navigation	103
Lights	104
Operating Settings	105
Engine Start / Stop	106
Compressors	107
Crane	108
Stabilizers	109
Fault Codes	110
Crane Quick Guides	111
<hr/>	
Faceplate Identification	112
Toggle Identification	113
Top Bar Icons	114
Fixed Function Icons	115
Crane Operations	116
Light Operations	117
Stabilizers Operations	118
Operations	119
Compressor	120
Crane Icons	121
Light Icons	122
Operation Icons	124
Stabilizer Icons	125
Cab Controls	126
Association	127
GM/IH CV Chassis PTO Setup	128
Pop-Up Screens	129
<hr/>	
Pop-Up Screens	130
Setup / Diagnostics	133
<hr/>	
Setup / Diagnostic - Operator - Min / Max	134
Stand Alone Crane	135
<hr/>	
Stand Alone Crane—Crane Screen	136
Stand Alone Crane—Operations	137
Stand Alone Crane—Compressor Activation	138
Stand Alone Crane—Engine Speed Control	139
Body Codes	141
<hr/>	
Body—Fault Code Definitions	142
Body—Fleet Configuration	143
Body—User Configuration	145
Body—Fault Tables	135

Crane Fault Codes	145
Crane—Fault Code Definition	146
Crane—Fleet Configuration	147
Crane—Fault Table	148

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Section - 1

Introduction

Introduction

PURPOSE OF MANUAL

This Operator Manual provides operation and operator instructions.

SCOPE

This manual provides information for use by the equipment operator under the following headings:

1. **Safety.** Includes important safety information.
2. **General.** Includes equipment identification.
3. **Operation.** Includes control functionality and normal equipment operation.
4. **Troubleshooting.** Includes basic troubleshooting information for the operator.

PARTS AND SERVICE

Contact your local dealer, or IMT Technical Support Team: 800-554-4421 or 641-923-3711 to order parts, receive service information, or for other assistance.



DISCLAIMER

This manual must not be used to repair your vehicle. Repair information is available by calling IMT Technical Support Team, 800-554-4421 for this equipment.

All information, illustrations, and specifications in this manual are based on the information available at the time this manual was published. The illustrations used in this manual are intended as representative reference views only. Because of our continuous product improvement policy, we may modify information, illustrations, and / or specifications to explain and / or exemplify a product, service, or maintenance improvement. We reserve the right to make any change at any time without notice.

Safety

READ AND UNDERSTAND THIS ENTIRE MANUAL BEFORE OPERATING, REPAIRING, OR ADJUSTING YOUR IMT PRODUCT.

THOSE WHO USE AND MAINTAIN THIS EQUIPMENT MUST BE THOROUGHLY TRAINED AND FAMILIAR WITH THE PRODUCT.

IF INCORRECTLY USED OR MAINTAINED, THIS EQUIPMENT CAN CAUSE SEVERE INJURY.

Always keep this manual in a location where it is readily available for persons who operate or maintain the product. Additional copies of this manual are available from Iowa Mold Tooling Co. Inc. Please contact IMT Technical Support Team if you require additional manuals or if you have any questions about the information in this manual, this product, or safe operating procedures.

THESE SAFETY PROCEDURES ARE FOR YOUR OWN PROTECTION.

Do not operate this equipment until you have read its contents thoroughly. Should operators of this equipment have a reading or learning disability, dyslexia, or other such condition, they must be assigned a mentor/trainer to read and explain to them the entire contents of this manual as well as the safety guidelines, danger, cautions, and warnings associated with your equipment. Such individuals should not be allowed to operate this equipment until they thoroughly understand all of these materials. Failure to do so can result in serious injury or death.

Refer to your S4 Telescopic Hydraulic Crane Operator's Manual, part number 99906578, for safety rules, procedures, operations, and maintenance schedules. Safety and safe working procedures must be followed at all times.

SAFETY NOTICE

Use appropriate Personal Protective Equipment (PPE) as required by your company. Read and understand the following instructions found within this document prior to starting work on the chassis.

SAFETY NOTICE

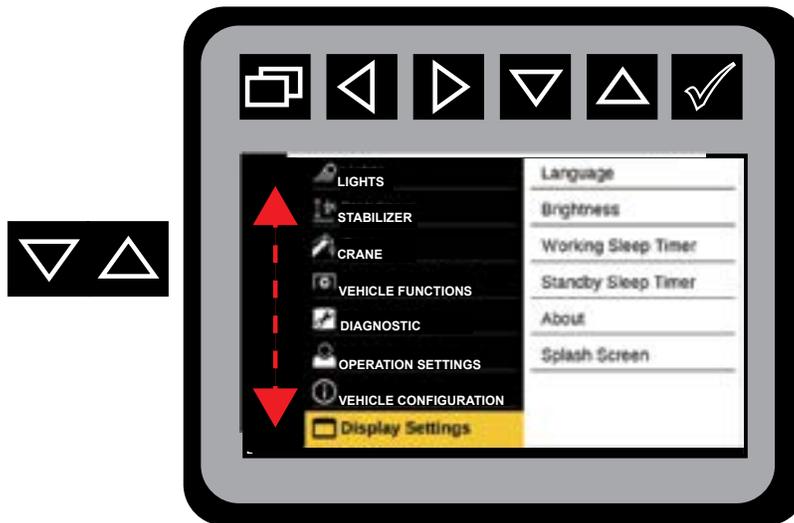
Follow your company's Lock-Out/Tag-Out procedures to prevent the truck from being started or moved while performing work on this crane. If your company does not have a Lock-Out/Tag-Out procedure, follow OSHA 1910.147, Lock-Out/Tag-Out.

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Section - 2

Navigation

Menu Screen (Display Settings)



Using the   will navigate through the Menu Screen Display Settings. The down arrow moves the selection towards the bottom of the display settings, and the up arrow moves the selection towards the top of the display settings. When **“Navigate to”** is listed on the step-by-step instructions, the   icon need to be used to move up and down the Menu Screen Display (left sidebar). To reduce redundancy, the up and down arrow icons will not be shown in the step-by-step instructions found throughout this manual when **“From The Main Menu Navigate to”** is referred to.



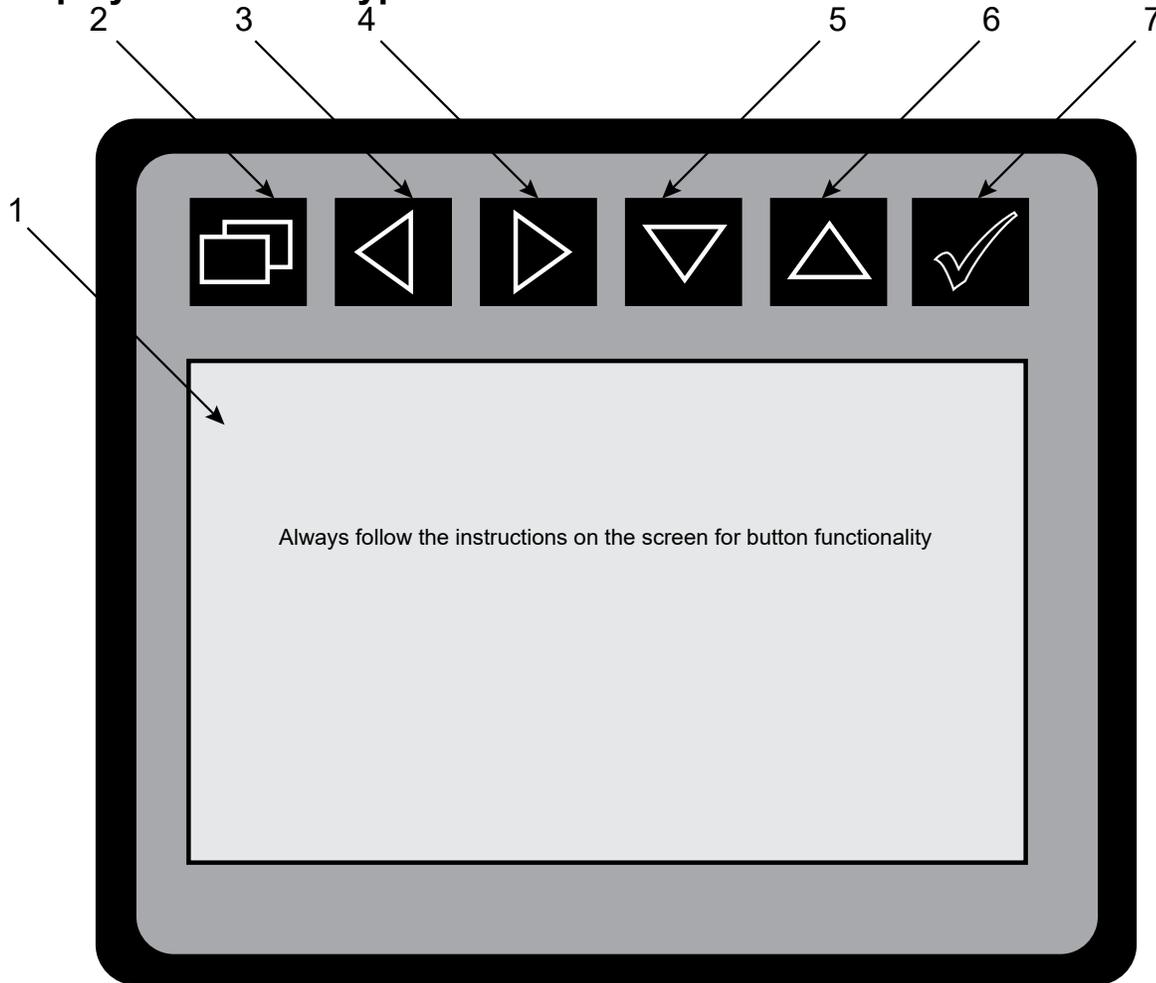
Once you have navigated to your desired selection on the Menu Screen, use the  to move to the Preview Screen. This process is the same throughout all of the screens in the Body instructions.

Table—Body Operations

MENU SCREEN DISPLAY (LEFT SIDEBAR)	PREVIEW SCREEN 1 (RIGHT SIDEBAR)	PREVIEW SCREEN 2
LIGHTS	ALL, LIGHTS COMPARTMENT LIGHTS, FRONT, REAR, LEFT, RIGHT, BOOM TIPS	
STABILIZERS	REAR LEFT, REAR RIGHT, FRONT	
CRANE	CRANE CONTROL, CRANE RECOVERY, PTO, BOOM TIP LIGHTS	
VEHICLE FUNCTION	PTO, COMPRESSOR, AUX 1, AUX 2, HORN, ENGINE START, ENGINE STOP	
DIAGNOSTICS	SYSTEM STATUS, FAULT CODES, HOUR METERS	INPUT / OUTPUT STATES, FAULT CODES, CRANE FAULT CODES HOURS , STABILIZER ACKNOWLEDGE, CRANE OVERLOAD EVENTS
OPERATOR SETTINGS	TRUCK SETTINGS	LIGHTS INSTALLED, EXIT CAB LIGHT SWITCH, REVERSE FLOOD LIGHTS, SEARCH LIGHTS, AUTO BOOM TIP LIGHTS, PTO ACTIVATION, AUX 1, AUX 2,
	CRANE SETTINGS	ELECTRONIC GATING, LIFT UP, LIFT DOWN, TELESCOP OUT, TELESCOPE IN, CRANE ROTATE CW, CRANE ROTATE CCW, WINCH OUT, WINCH IN, REMOTE TIMEOUT, BLACKLIGHT BRIGHTNESS, BLACKLIGHT TIMEOUT, REST CRANE SETTINGS
VEHICLE CONFIGURATION	TRUCK SETTINGS	CHASSIS TYPE, CHASSIS OPTIONS, TRANSMISSION TYPE, PTO TYPE,

MENU SCREEN DISPLAY (LEFT SIDEBAR)	PREVIEW SCREEN 1 (RIGHT SIDEBAR)	PREVIEW SCREEN 2
VEHICLE CONFIGURATION	TRUCK SETTINGS	PTO START / DELAY, CRANECRANE PLACEMENT, STABILIZERS, COMPRESSOR INSTALLED, MASTER LOCK INSTALLED, RPM SPEEDS, AUTO PTO ENABLED, SEARCH LIGHTS ENABLED, REVERSE LIGHTS ENABLED, COMPARTMENT FANS, AUX 1 E-BRAKE, AUX 2 E-BRAKE, TRANSMISSION INHIBIT, CRANE STOW SENSOR, CHASSIS TILT SENSOR,
	CRANE SETTINGS	CRANE MODEL, HYDRAULIC TYPE, REMOTE CONTROL TYPE, BOOM LENGTH SENSOR, BOOM ANGLE SENSOR, BOOM ROTATION SENSOR, BOOM LIFT MAX, BOOM TELESCOPE MAX, BOOM ROTATE MAX, WINCH MAX,
DISPLAY SETTINGS	LANGUAGE	ENGLISH ESPANOL FRANCAIS
	BRIGHTNESS, WORKING SLEEP TIMER, STANDBY SLEEP TIMER, ABOUT SYSTEM, SPLASH SCREEN	

Display Screen & Keypad

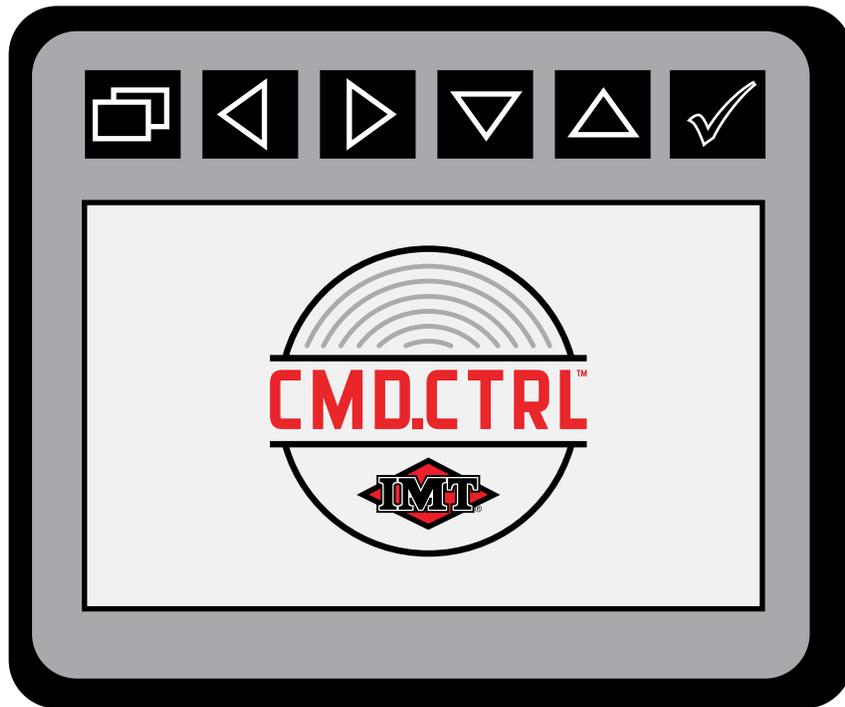


Hand-Held Body Module

The Display Screen is NOT a touch screen application

NO.	NAME	DESCRIPTION
1.	Display Screen	Displays text and graphic illustrations to the operator.
2.	Backspace	Exit back to the previous screen or back to the Main Menu.
3.	Select	Selects current highlighted configuration..
4.	Arrow Buttons	Arrow buttons are used both for navigation and operating the equipment, depending on the current screen.
5.		
6.		

Splash Screen



Splash Screen Display

The Splash Screen will be displayed for the first 30-seconds after the system boots up, or until a key is pressed on the display. The module will display the Main Menu.

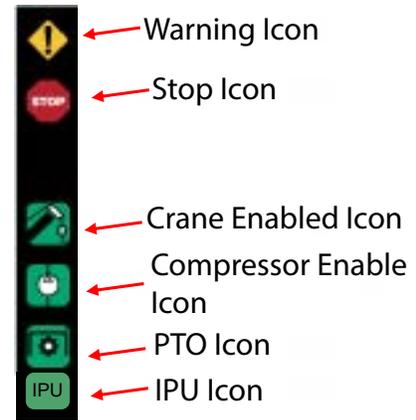
The display will go into screen saver mode if no keys are active for a set time. The display will turn on when a key is pressed. This key press will only wake up the display and will not cause a screen selection or system operation.



Main Menu Display



Status Icons, Left Sidebar



Status Icons Locations

👉 The Status Icon Display will have an area of the screen on the left sidebar. The status icon screen will be shown for all screens except for the Splash and About Screens. There will be a dedicated space for the following icons in this area; Warning, Stop, Crane Enabled, Compressor Enabled, PTO Active, and IPU Active.

👉 The IPU and PTO Active icons will share the same space. The PTO Active icon will not be shown if the IPU Chassis option is selected. The icons will have three-on modes: Full On, Flashing 1 Hz, and Flashing at 2 Hz.

WARNING ICON: System has detected an abnormal condition.

STOP ICON: System has been stopped. All system functions are disabled. Use the Diagnostic Functionality and the Fault Tables to troubleshoot the issue.

CRANE ENABLED ICON: Crane has been enabled.

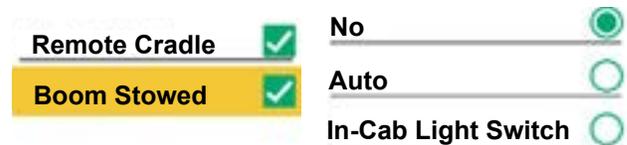
COMPRESSOR ENABLED ICON: Compressor has been enabled by the system.

PTO / IPU ICON: PTO is running / IPU has been enabled.

Use the Diagnostics Functionality and the Fault Tables, found in Chapter 12, to troubleshoot the issues.

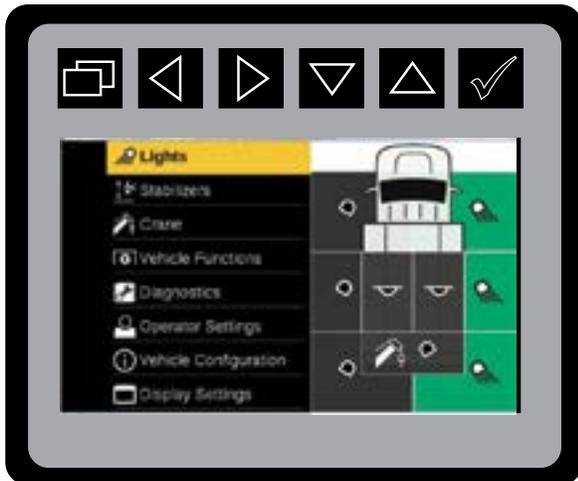
👉 When a configuration item can have more than one selection, square boxes with a check mark indicating the selected will be used. When a configuration item can have only one option, a radio button will be used.

Example of square selection boxes, and radio selection buttons.



Main Menu Previews

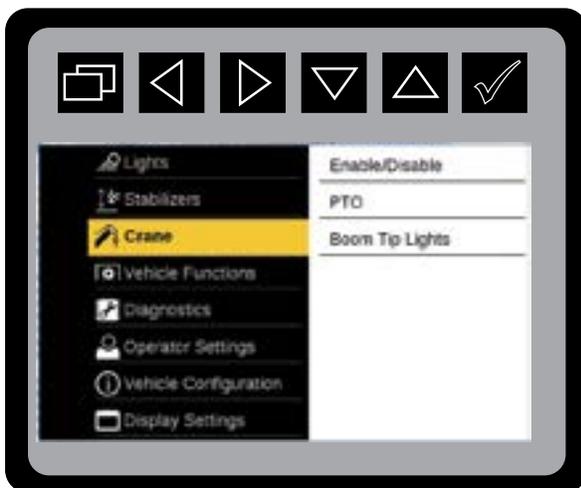
The Main Screen will show the following options: Lights, Stabilizers, Crane, Vehicle Functions, Diagnostics, Operator Settings, Vehicle Configuration, and Display Settings. When a menu item is highlighted using the   it will show a preview of the context for that menu in the right sidebar.



Main Menu: Lights Preview



Main Menu: Stabilizer Preview



Main Menu: Crane Preview



Main Menu: Vehicle Functions

MAIN MENU, CONTINUED



Main Menu: Diagnostics



Main Menu: Operating Settings



Main Menu: Vehicle Configuration



Main Menu: Display Settings

👉 The Main Screen will show the menus for Lights, Stabilizers, Crane, Vehicle Functions, Diagnostics, Operator Settings, Vehicle Configuration, and Display Settings. When a menu item is highlighted it will show a preview of the context for that menu.

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Section - 3 **Lights**

Lights



Main Menu: Lights Preview

The Lighting Screen will be split into two areas:

- Light Group (left sidebar),
- Status and Individual Selection (right sidebar).

From the Main Menu: Press to highlight Lights Mode.



Press to enter Light Mode.

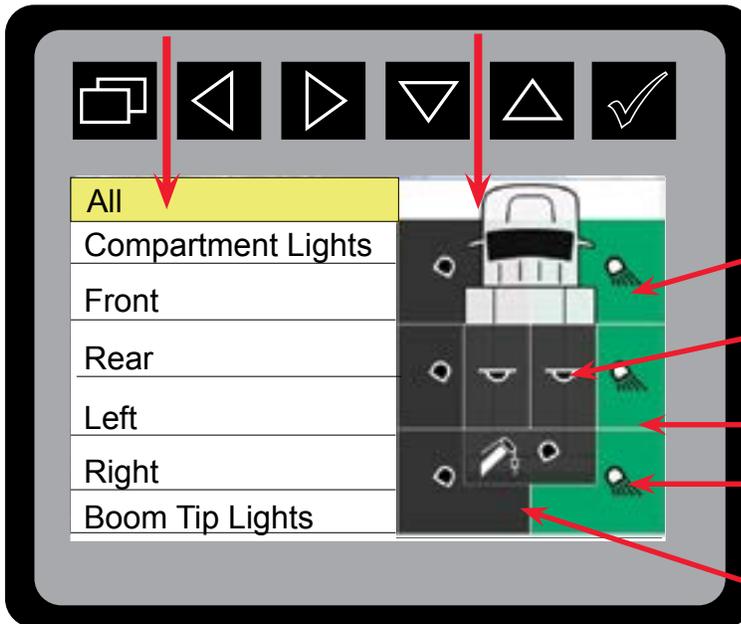
When choosing lights the illustration will turn yellow.

Press to select a light group.

Press to turn on/off a light group.

Left sidebar
Light Group

Right sidebar
Status and Individual Selection



Front Left / Right Flood Lights

Compartment Lights

Middle Left / Right Flood Lights

Rear Left / Right Flood Lights

Boom Tip Lights

Press to enter individual light selection

Press to select individual lights.

Press to return to **Main Screen**.

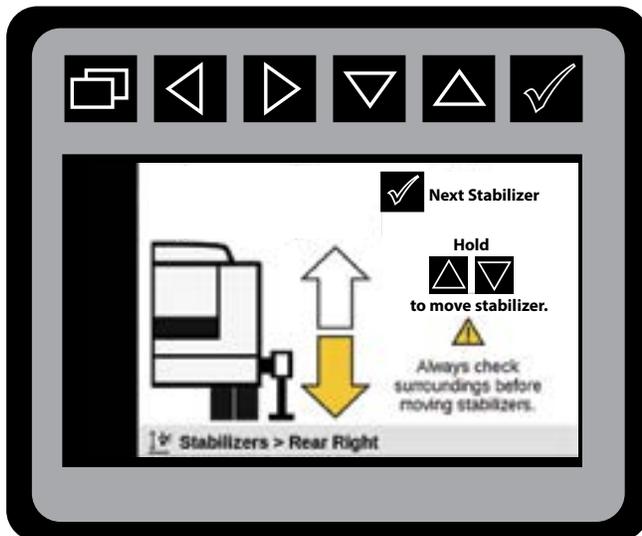
Your display screen will only show the lights that are configured for your vehicle.

Section - 4 **Stabilizers**

Stabilizers



Main Menu: Stabilizer Preview



Stabilizer: Selection Mode.

The Stabilizer menu allows the operator to maneuver selected stabilizers from the control screen in a two-step process.

1. Press to select Stabilizer Mode.

Press to initiate Stabilizer states.

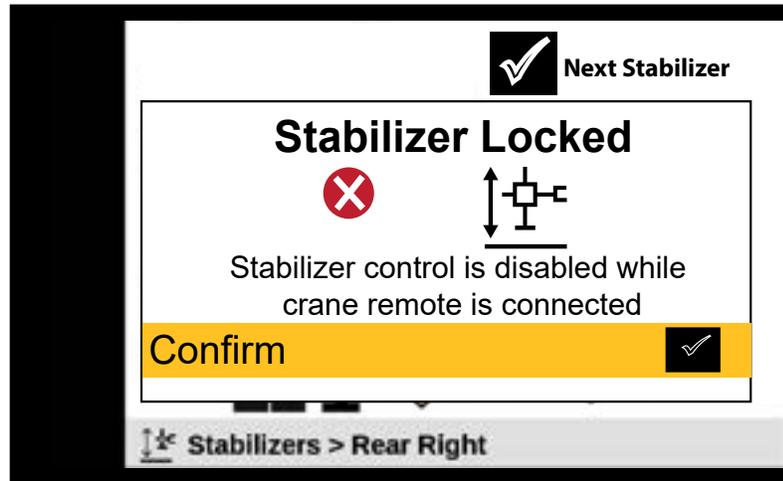
2. Press until desired stabilizer is displayed.

This illustration shows the highlighted stabilizer location in the Stabilizer Selection Mode.

3. Press to operate applicable stabilizer or function.

4. Press to select next stabilizer.

5. Press to return to **Main Menu**.



Stabilizer: Control Mode-Stabilizer Locked

 *Stabilizer control from the display is disabled when crane remote has the stabilizer screen selected.*

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Section - 5

Crane

Crane



The Crane menu allows the selection of Power On and Power Off options for Crane, PTO, Boom Tip Lights, and Crane Override.

Main Menu: Crane



Crane: PTO

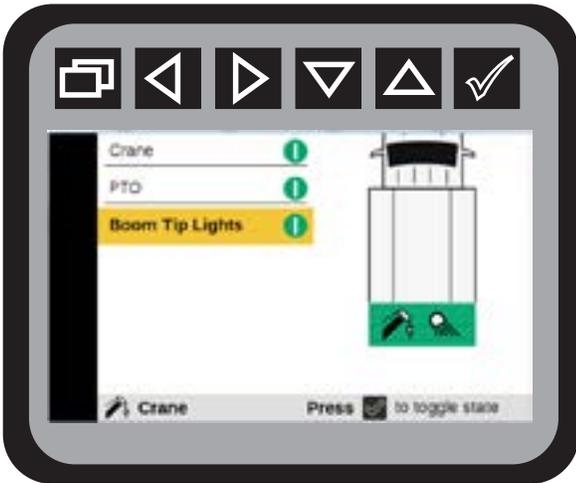


Crane: Stabilizer Acknowledgment

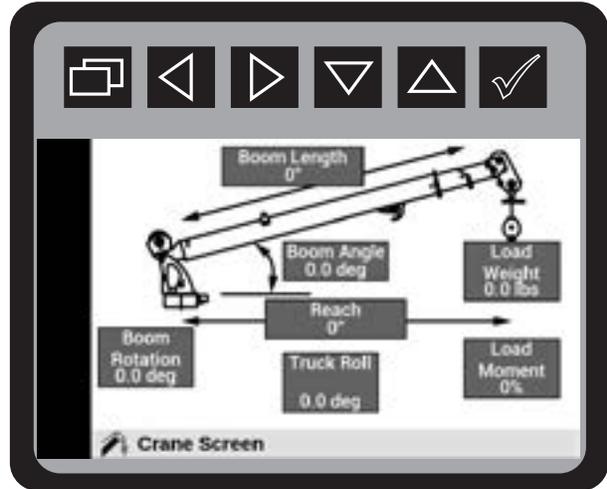
When Crane Enable is selected to turn on, a pop-up menu will be displayed asking the operator to confirm the stabilizers have been deployed. Once you confirm the stabilizers are deployed,  the display will verify the status of the PTO.

 If a menu option is not configured it will not be displayed on the screen. If none of the options are configured to your equipment, "No Options Configured", will be displayed.

Crane—Lights, Crane Screen, Override, Recovery



Crane: Boom Tip Lights



Crane Screen: 2nd Generation Crane Control Screen.



Crane: Crane Override

Press to operate crane functions.

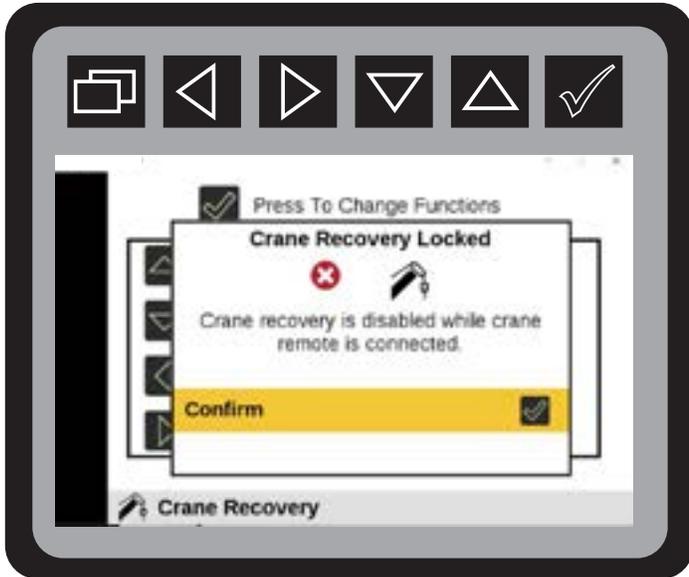
Press to change functions.

Press to return to **Crane Menu**.



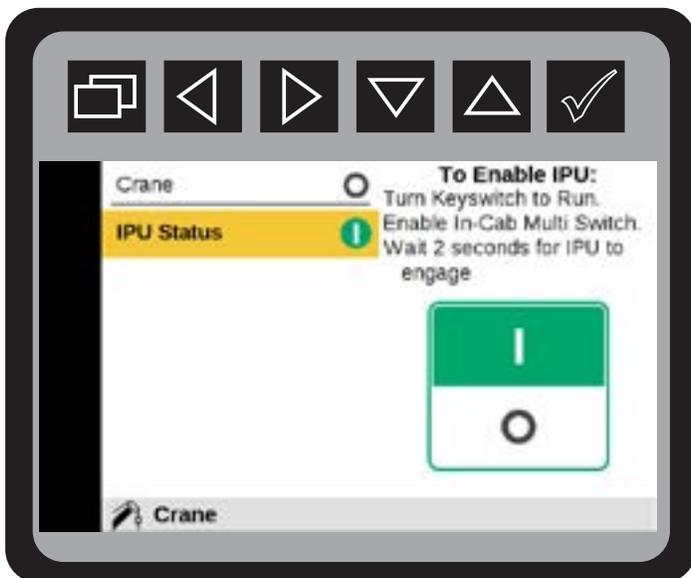
Crane: Crane Recovery

CRANE—LIGHTS, CRANE SCREEN, OVERRIDE, RECOVERY - CONTINUED



Crane: Crane Override Screen

! Crane remote must be powered down for crane recovery to be inabled.

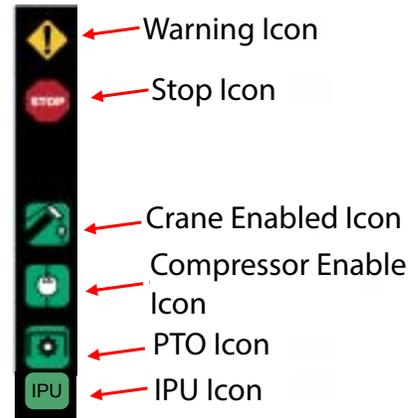


IPU Status Row

Section - 6

IPU

Integrated Power Unit (IPU) Activation



Status Icons, Left Sidebar

Status Icons Locations

When the IPU Chassis is selected, the IPU will be used to drive the hydraulic power for the crane and body functions, and will command hydraulic power when needed for the Crane, Stabilizers, and Compressor.

To start IPU:

1. Engage E-Brake.
2. Turn chassis ignition key to the “**RUN**” position.
3. Activate cab switch # 2.
4. Wait two seconds.
5. Chassis ignition can be turned from the “**RUN**” position, to the ‘**OFF**’ position. Ignition key can be removed.
6. IPU will be operational using the controls found in their stored compartment.

Section - 7

Vehicle Functions

Vehicle Functions Screen—PTO



Main Menu: Vehicle Functions Mode



Vehicle Functions: PTO

From the **Main Menu** Navigate to **Vehicle Functions**.

Press to initiate the **Vehicle Functions** mode.

Press to select desired function.

Press to activate used desired function.

Press to return to **Main Menu**.

Repeat the step 1-5 to initiate: Compressor, Aux 1, Aux 2, Engine Start / Stop in the Vehicle Functions menu if your equipment have these configurations.

The Vehicle Functions menu will have menu options to turn on and turn off the PTO, Compressor, AUX 1 & 2, Horn, Engine Start / Stop, and activate Transmission Inhibit Override. The status of the function will be displayed next to the menu object.

Vehicle Functions Screen—Engine Start / Stop



Engine Start Mode

From the **Main Menu** Navigate to **Vehicle Functions**

Press  Navigate to **Engine Start or Stop**

Press and hold  until you hear the engine **START** or **STOP**.

 Pressing and holding the  works the same as a key turning on and turning off the engine on a vehicle. Pressing and holding the  will shut-off the engine in the **Engine Stop** mode.

 For GM and IHCV vehicles, Press  for one second. After a delay (up to 10-seconds) the chassis engine will start.

Press  to return to the **Main Menu**.

For Engine Stop, repeat the same process for Engine Start.

Vehicle Functions Screen—Trans Inhibit Override



Vehicle Functions: Trans Inhibit Override

From the **Main Menu** Navigate to **Vehicle Functions**

Press  to initiate **Vehicle Functions** mode.

Press  to navigate to **Trans Inhibit Override**.

Press  to turn switch **ON** or **OFF**.

Press  to return to **Main Menu**.

 *Switch in the **ON** position will allow:*
1. Transmission to be shifted out of Park.

 ***Only turn the toggle switch to ON if there is an issue with the Active Controls system.***
Only your equipment's configurations will be displayed.

 *Trans Inhibit must be configured for this function to be available.*

Section - 8 **Diagnostic**

Diagnostics—Input States



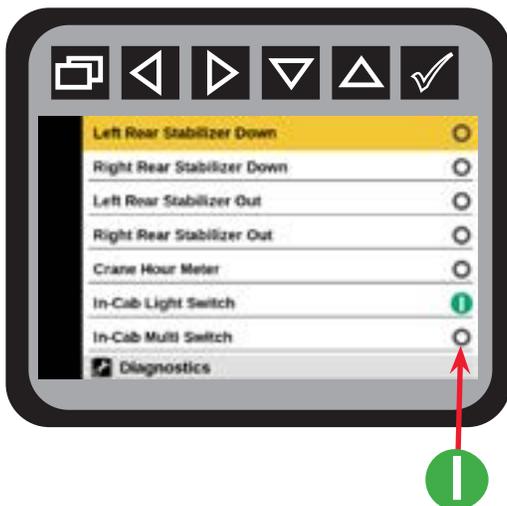
From the **Main Menu** navigate to **Diagnostic Menu**.

Press  to initiate **Diagnostics** mode.



Press  to initiate diagnostic state.

Use the   to navigate the following input states screens:

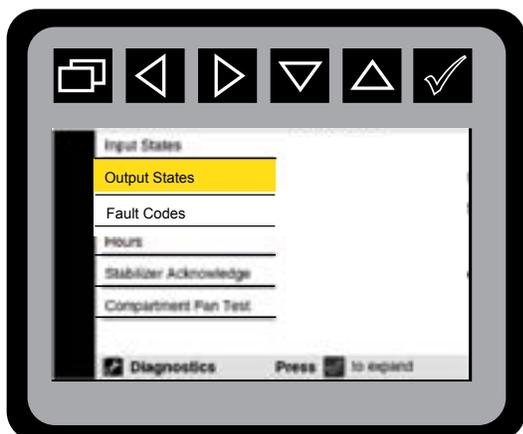


- Left Rear Stabilizer Down
- Right Rear Stabilizer Down
- Let Rear Stabilizer Out
- Right Rear Stabilizer Out
- Crane Hour Meter
- In-Cab Light Switch
- In-Cab Multi Switch

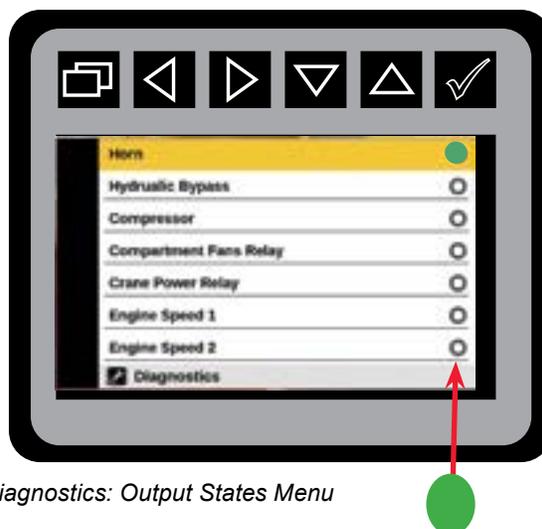
Press  to return to **Main Menu**.

 If the input is active it will show as a green circle The operator can use the   to scroll through the list of inputs. Your system may not have all inputs connected.

Diagnostics—Output States



Diagnostics: Output States Preview Menu



Diagnostics: Output States Menu

Output is active if the circle is green.

From the **Main Menu** Navigate to the **Diagnostics Menu**.

Press  to initiate the **Diagnostic Output State Preview Menu**.

Press  to choose the following **Output States**:

- Horn
- Hydraulic Bypass
- Compressor
- Compartment Fans Relay
- Crane Power Relay
- Engine Speed 1
- Engine Speed 2
- Transmission Inhibit
- Masterlock Open
- Masterlock Close
- Aux Out 1
- Aux Out 2

Press the  to return to the **Main Menu**.

 *The status of the Body Module outputs will be displayed on this menu. If the output is active it will show as a green circle. The operator can use the arrow   keys to scroll down the list of outputs.*

Diagnostics—Fault Codes

REFER TO CHAPTERS 19 & 20 TO SEE THE COMPLETE DIAGNOSTIC FAULTS CODE TABLE.



From the **Main Menu** Navigate to the **Diagnostic Menu**.

Press to navigate to **Fault Codes**, or **Crane Fault Codes**.

Press to initiate the **Diagnostic Fault Code Preview Menu**.

Press to initiate fault states. This state will display:

- 25 most recent codes in chronological order
- DTC Ø indicates a power cycle.
- Press and hold to clear fault log.

The Faults menu will show 25 of the most recent codes in chronological order and page to the next 7 faults when arrow is pressed. Hold the to clear the fault code. The text for the fault codes will scroll back and forth if the text is larger than the screen area.

REFER TO CHAPTERS 19 & 20 FOR THE COMPLETE DIAGNOSTIC FAULT CODE TABLES FOR BODY AND CRANES.

Diagnostics—Hours



Diagnostics Hour Meter Menu

From the **Main Menu** Navigate to **Hour Meter Menu**.

Press  to display **Hours** mode.

Press  to return to **Main Menu**.

 When the IPU chassis is configured, the “Crane” hour meter will be replaced by an “IPU” hour meter.

CHASSIS HOUR METER

The Chassis Hour Meter accumulates time whenever the Body Module is powered up for a minimum of two minutes. It will accumulate up to 33,000 maximum hours. At this point accumulation will stop and 33,000 hours will be displayed.

CRANE HOUR METER

The Crane Hour Meter shall accumulate time whenever the Crane Output is active for a minimum of one minute. It will accumulate up to 16,500 maximum hours. At this point accumulation will stop and 16,500 hours will be displayed. When the IPU Chassis is selected the Crane Hour Meter will be used as the IPU Enabled Hour Meter and the display will show IPU Hour Meter.

COMPRESSOR HOUR METER

If the IPU Chassis is not selected, the Compressor Hour Meter shall accumulate time whenever the Compressor Hour Meter input is active for a minimum of one minute. It will accumulate up to 16,500 maximum hours, at this point accumulation will stop and only display the 16,500 maximum hours.

Diagnostic—Stabilizer Acknowledgement



Diagnostics: Stabilizer Acknowledge

Diagnostic—Crane Overload Events



Diagnostics: Crane Overload Events



A Menu Item will be displayed to show the last 20 Overload Events with the Overload value and Crane Hour meter time.

Diagnostics—Compartment Fans



Compartment Fan Test

From the **Main Menu** Navigate to **Compartment Fan Test**.

Press  to **Activate Compartment Fans** for 20 seconds.

Press  to return to **Main Menu**.

 *The compartment fan test will only be visible if compartment fans are configured. The E-Brake must be engaged with the Compartment Fan Test .*

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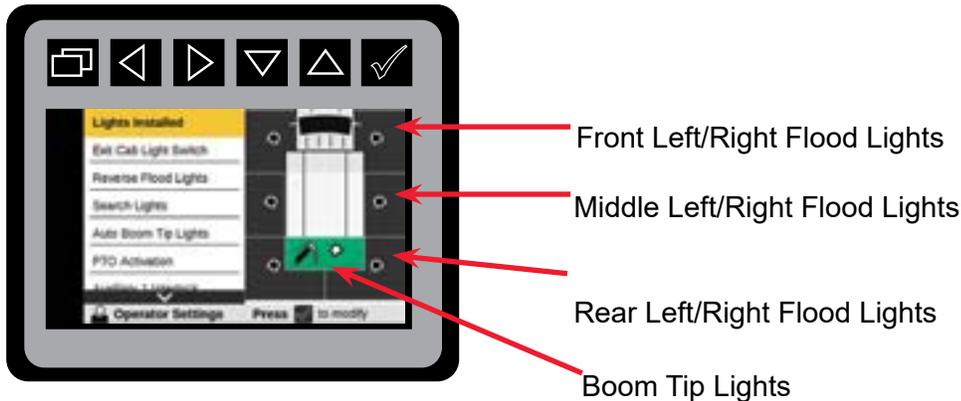
Section - 9

Operator Settings

Operator Settings—Lights

SOME OF THE OPERATOR SETTINGS MAY NOT BE AVAILABLE DUE TO PRESELECTED VEHICLE CONFIGURATIONS.

The Display will detect if any changes to the Operator Settings were made when the operator escapes out of the menu. If there were changes, a pop-up menu will display prompting the operator to save or cancel these changes.



From the **Main Menu** Navigate to **Operator Settings**

Select **Truck Settings**.

Press to display **Lights Installed**.

Press to navigate lights and to select.

Press to return to **Main Menu**.

The light graphic will turn **yellow** when the operator navigates to a specific configuration, and when selected with the will turn green indicating it is activated. If the light is not configured to your equipment, it will remain black.

The light configurations will change to this **yellow** when is selected.

Some changes require a power cycle to get activated.

Operator Settings—Exit Cab Lights



From the **Main Menu** Navigate to **Operator Settings**.

Press  to display.

From the **Main Menu** press the  to navigate to the **Exit Cab Light Switch** mode.

Press   to choose **Exit Cab Light Switch** states.

Press  to choose a specific configuration.

A. Floodlight Group

- All
- None
- Left
- Right
- Front
- Rear

B. Left Compartment

C. Right Compartment

D. Boom Tip Lights

Press  to return to **Main Menu**.

 *The operator can configure what lights turn on for the Exit Cab Light Switch mode using CAB multi-switch. The operator can select the Left and Right Compartment lights and Boom Tip Lights if preconfigured in Vehicle Configuration.*

Operator Settings—Reverse Flood Lights



The availability of these functions are based on configured set-up found in **Vehicle Configurations**. The **Reverse Flood Lights** menu will not be shown if the **Reverse Lights Enabled** is set to NO.

From the **Main Menu** Navigate to **Operator Settings**

Navigate to **Reverse Flood Lights**

Press  to initiate **Reverse Flood Lights** states:

No: If the operator **DOES NOT** want to use reverse flood lights.

Auto: Reverse flood lights will turn-on automatically when the transmission is shifted into reverse gear.

In-Cab Light Switch: Turns on rear lights from the toggle switch on the dash located inside the cab when reverse gear is selected.

Press  to return to **Main Menu**.

 **DOT backup lights will always engage when vehicle is shifted into reverse gear.**

Operator Settings—Search Lights



The availability of this function is based on configured set-up found in **Vehicle Configurations**. The **Search Lights** menu will not be shown if the **Search Lights Enabled** is set to NO.

From the **Main Menu** Navigate to **Operator Settings**

Navigate to **Search Lights**

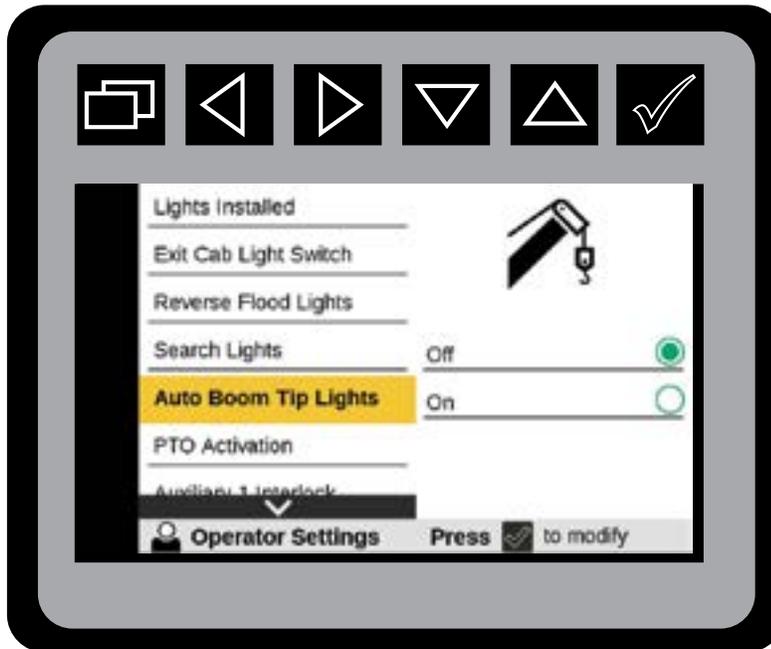
Press  to initiate **Search Lights** states:

- All
- None
- Left
- Right
- Front
- Rear

Press  to return to **Main Menu**.

 *This function needs to be **OFF** while traveling to the work site on a public road. The Search Lights menu will not be shown if the Search Lights Enabled is set to NO.*

Operator Settings—Auto Boom Tip Lights



From the **Main Menu** Navigate to **Auto Boom Tip Lights** in **Operator Settings**.

Press  to initiate **Auto Boom Tip Lights** state:

Off

On

Press  to return to **Main Menu**.

 *In order for Auto Boom Tip Lights to display on the navigation screen, Hydraulic Cranes must be configured.*

Operator Settings—PTO



Navigate to **PTO Activation** in **Operator Settings**.

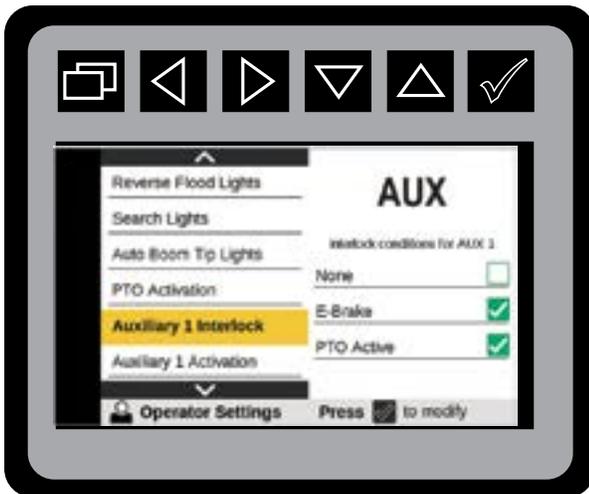
Press  to initiate **PTO Activation** states:

- **None:** Operator **DOES NOT** want the PTO to come on automatically. PTO power must be done manually through the switch on the dash, or through one of the other menus.
- **Auto:** Functionality is set to come on automatically when requiring PTO power.
- **In Cab Multi-Switch:** The PTO power is engaged from the switch on the dash or through one of the other menus.

Press  to return to **Main Menu**.

 *When the chassis type is selected as IPU, or the chassis option is selected as “Paccar Engine”, the PTO Activation Menu will not be shown. The Auto option will not be shown unless the Vehicle Configuration option, “Auto PTO Enabled”, is set to “Yes”.*

Operator Settings—Aux Activation Menu



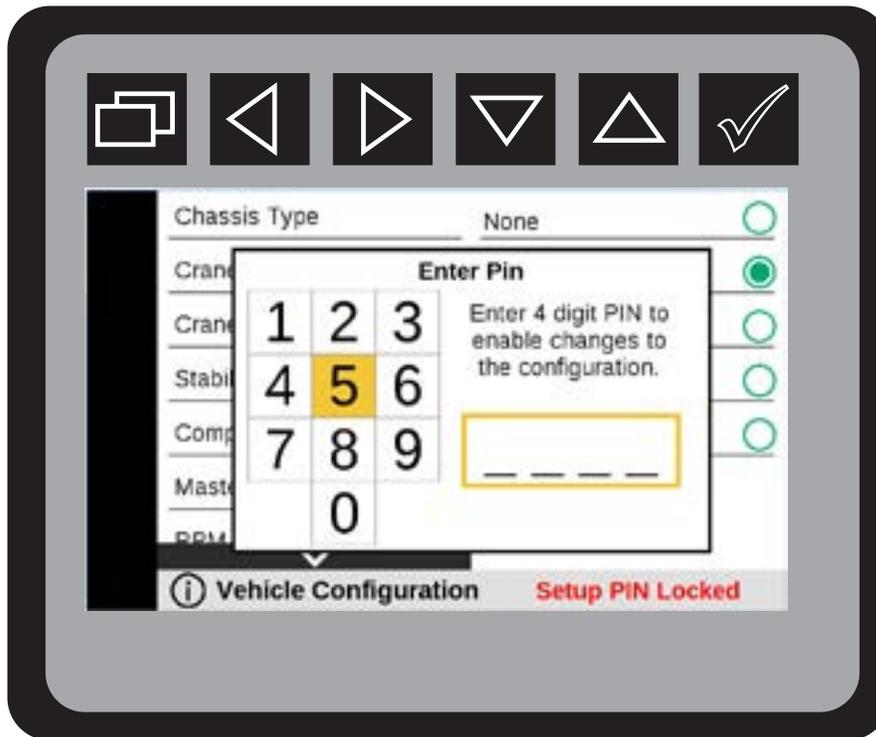
-  The display will detect if any changes to the Operator Settings were made when the operator presses to return to Main Menu. If there were changes, a pop-up menu will be displayed prompting the operator to save or cancel these changes.



Section - 10

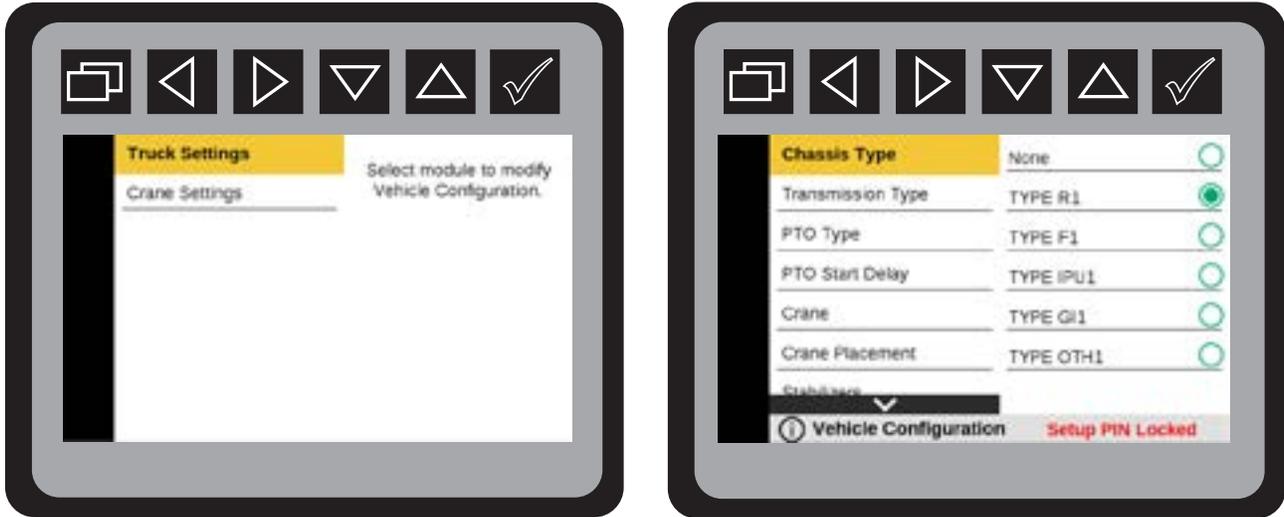
Vehicle Configurations

Vehicle Configuration—PIN Setup



-  *The Vehicle Configuration can be viewed but if a Vehicle Configuration item is selected to be modified, and the 4 digit PIN has not been entered during the system power cycle, the display will pop up “Enter Pin” menu allowing the operator to enter the 4-digit PIN to allow modifications of the Vehicle Configuration.*
-  *PIN is available by contacting: IMT Technical Support at 800-554-4421. You will need to provide your assigned Body Module Serial Number, found in Display Settings > About System menu.*
-  *Some changes require a power cycle to get activated.*

Vehicle Configuration—Chassis



From the **Main Menu** Navigate to **Vehicle Configuration**.

Press  to display **Vehicle Configuration** mode.

Press  to select **Truck Settings**.

Press   to select configuration.

Press  to activate **Chassis Type**.

Press   to navigate to the Chassis Type.

Press  to select chassis type.

Press  to return to **Main Menu**.

Vehicle Configuration—Chassis Type Table

TYPE	CHASSIS	DESCRIPTION
R1	RAM CHASSIS WITH ENGINE DRIVEN PTO	RAM CHASSIS USES A SINGLE SIGNAL WIRE FOR ENGINE REMOTE START AND REMOTE STOP. TO SEPARATE BETWEEN ENGINE START AND ENGINE STOP REQUESTS FROM THE USER, RAM ENGINE ON WILL BE MONITORED BY THE CONTROLLER. ENGINE SPEED 2 CIRCUIT IS USED TO ACTIVATE SECOND ENGINE SPEED WHERE APPLICABLE.
F1	FORD, PETERBILT, KENWORTH, OR CHASSIS WITH ENGINE DRIVEN PTO.	THIS CHASSIS TYPE USES SEPARATE SIGNALS FOR ENGINE START AND ENGINE STOP. SPEED CONTROL HAS TWO SEPARATE SIGNALS FOR SETUPS WITH TWO ENGINE SPEEDS. ENGINE SPEED 1 CIRCUIT IS USED TO ACTIVATE CHASSIS PTO MODE, OR TO ENGAGE THE PTO, DEPENDING ON THE ACTUAL CHASSIS.
IPU1	ANY CHASSIS WHEN HYDRAULIC POWER IS NOT GENERATED BY THE CHASSIS ENGINE.	IN THIS MODE, THE BODY POWER CAN BE LATCHED ON WITHOUT HAVING TO LEAVE THE KEY IN THE IGNITION. DO NOT CONNECT THE ENGINE CONTROLS (START, STOP, SPEED) TO THE CHASSIS. THE BODY CONTROLS WILL BE CONTROLLING THE IPU ENGINE WHERE APPLICABLE.
GI1	CHEVY, INTERNATIONAL CV, WITH ENGINE DRIVEN PTO.	<p>THE CHASSIS CONTROLS ON THE CHEVY AND IH CV CHASSIS HAVE UNIQUE REQUIREMENTS:</p> <ul style="list-style-type: none"> • ENGINE REMOTE START • ENGINE REMOTE STOP • CMD.CTRL SIGNALS • RAM ENGINE ON <p>THE CONTROLLER PTO ENGAGEMENT WILL BE CONTROLLED BY ENGINE SPEED 1 SIGNAL. UPFITS REQUIRING 2 ENGINE SPEEDS WILL USE ENGINE SPEED 2 CIRCUIT TO REQUEST SPEED 2.</p>
OTH1	RESERVED FOR FUTURE OPTIONS	NOT CURRENTLY USED
	CHASSIS NOT LISTED	FOR CHASSIS WITH ENGINE DRIVEN PTO, DEFAULT TO TYPE F1

Vehicle Configuration—Transmission



From the **Main Menu** Navigate to **Vehicle Configuration**.

Press  to display **Vehicle Configuration** mode.

Press   to select configuration.

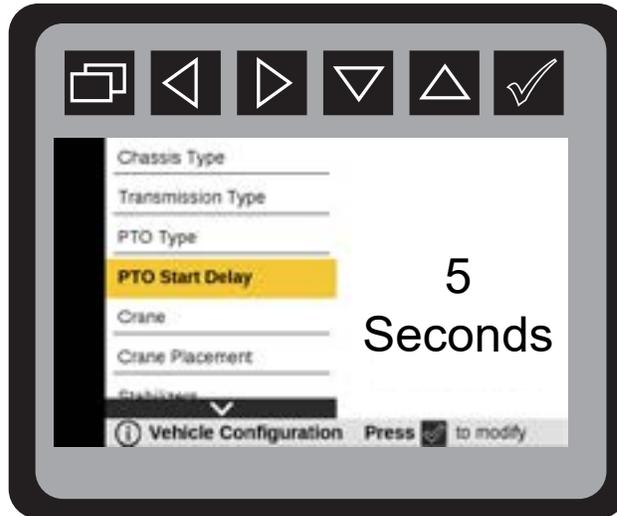
Press  to activate **Transmission**.

Press  to select:

- Automatic
- Manual

Press  to return to **Main Menu**.

Vehicle Configuration—PTO Start Delay



From the **Main Menu** navigate to **Vehicle Configuration**.

Press  to display **Vehicle Configuration** mode.

Press   to select configuration.

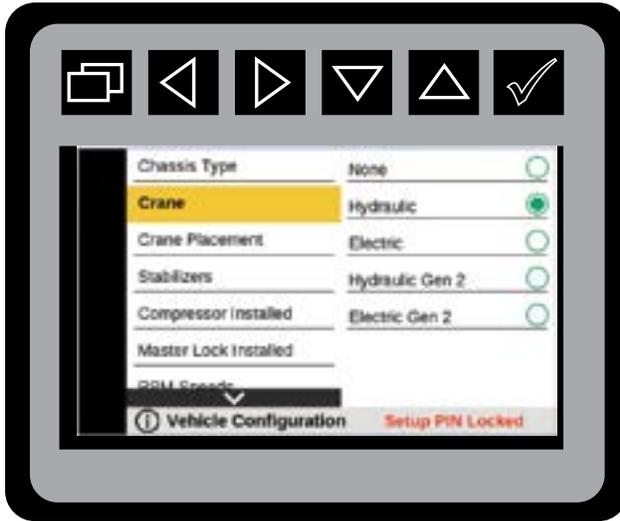
Press  to activate PTO Start Delay.

Press  to select:

Press  to return to **Main Menu**.

 *Setting PTO Start Delay to 5 seconds is recommended to allow the engine to stabilize after remote start and prior to engaging the PTO.*

Vehicle Configuration—Crane



From the **Main Menu** Navigate to **Vehicle Configuration**.

Press  to navigate to **Crane**.

Press  to initiate **Crane** selection

- None
- Hydraulic
- Electric
- Hydraulic Gen 2 (CMD.CTRL™equipped)
- Electric Gen 2

Press  to return to **Main Menu**.

Vehicle Configuration—Crane Placement



From the Main Menu navigate to Vehicle Configuration.

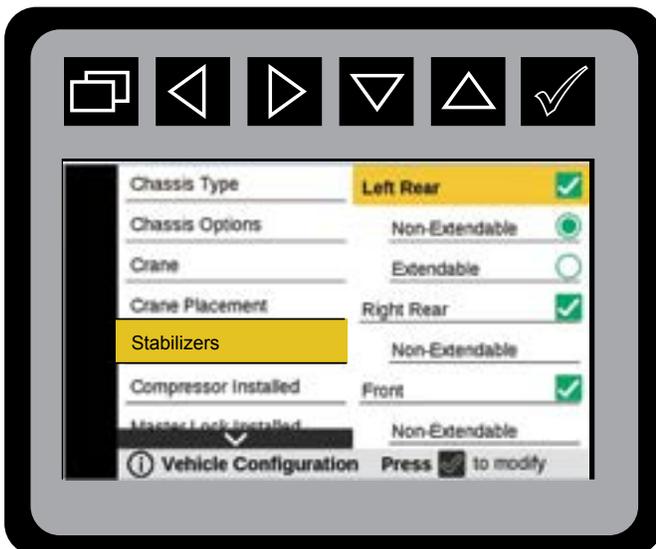
Press to navigate to **Crane Placement**.

Press to initiate **Crane Placement** states:

- Left
- Right

Press to return to **Main Menu**.

Vehicle Configuration—Stabilizers



From the **Main Menu** press navigate to **Vehicle Configuration**.

Press to navigate to **Stabilizers**.

Press to initiate **Stabilizers** states. Press to initiate stabilizers:

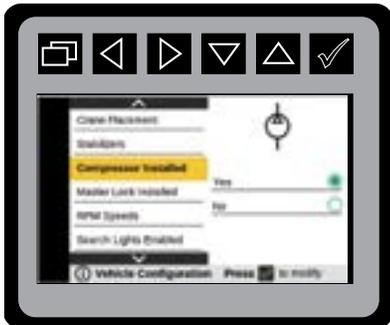
- Left Rear:
 - Non-Extendable
 - Extendable
- Right Rear:
 - Non-Extendable
 - Extendable
- Front:
 - Non-Extendable

3. Press to return to **Main Menu**.

The Stabilizer configuration menu will allow the selection of what Stabilizers are installed, Left Rear, Right Rear, and Front Stabilizer. The selection of Extendable and Non-Extendable will be a sub-item under the Stabilizer selection.

Vehicle Configurations—Compressor; Master Locks; Searchlights; Reverse Lights; Aux 1 E-Brake; Aux 2 E-Brake; Trans Inhibit Alarm

 Repeat instructions 1-5 for each of the following settings in the illustrations. If your equipment has not been configured with these options, it will not be displayed.



Compressor Installed



Master Lock Installed



Searchlights Enabled



Reverse Lights Enabled



Auxiliary 1 & 2 E-Brake



Trans. Inhibit

From the **Main Menu** navigate to **Vehicle Configuration**.

Press   to navigate to **one** of the applications shown in the illustrations above.

Press  to initiate specific states.

Press  to choose:

•Yes

•No

Press  to return to Main Menu.

Vehicle Configuration—RPM Speed



RPM Speeds

From the **Main Menu** to navigate to **Vehicle Configuration**.

Press to navigate to **RPM Speed**.

Press to initiate specific states.

Press to choose:

- Single
- Dual

Press to return to Main Menu.

Vehicle Configuration—Search Lights / Reverse Lights



From the **Main Menu** navigate to **Vehicle Configuration**.

Press to navigate to **Search Lights** or **Reverse Lights**.

Press to initiate specific states.

Press to choose:

- Yes
- No

Press to return to Main Menu.

Vehicle Configuration—Compartment Fans



From the **Main Menu** navigate to **Vehicle Configuration**.

Press   to navigate to **Compartment Fans**.

Press  to initiate specific states.

Press to choose:

Installed

Not Installed

Press  to return to Main Menu.

Vehicle Configuration—Auxiliary E-Brake



From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Auxiliary 1 E-Brake**.

Press  to initiate specific states.

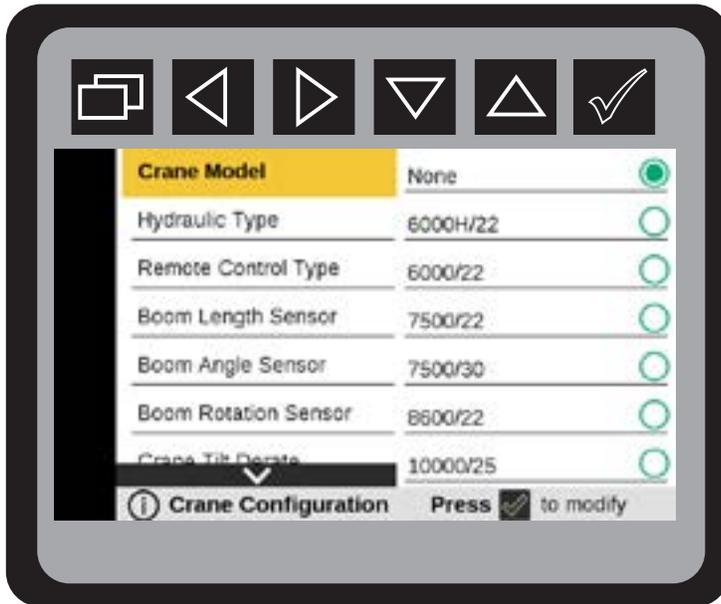
Press  choose:
:

Yes

No

Press  to return to Main Menu.

Crane Configuration—Crane Model



From the **Main Menu** navigate to **Vehicle Configuration**.

Press to navigate to **Crane Model**

Press to initiate specific state.

Press to choose:

- | | | | |
|----------|----------------------------------|-----------|-----------------------|
| None | <input checked="" type="radio"/> | 10000 25' | <input type="radio"/> |
| 6000 22' | <input type="radio"/> | 10000 30' | <input type="radio"/> |
| 7500 22' | <input type="radio"/> | 12000 25' | <input type="radio"/> |
| 7500 30' | <input type="radio"/> | 12000 30' | <input type="radio"/> |
| 8600 22' | <input type="radio"/> | 14000 25' | <input type="radio"/> |
| | | 14000 30' | <input type="radio"/> |

Press to return to Main Menu.

Crane Configuration—Hydraulic Mode

From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Hydraulic Type**

Press to initiate specific state.

Press to choose:

Fully Proportional

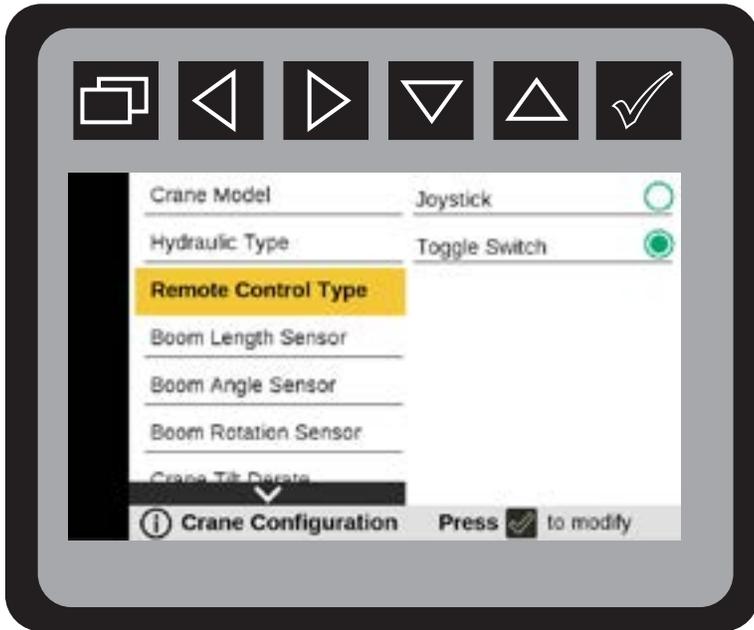
Single Proportional

Press to return to Main Menu.

Only Single-Proportional is available.



Crane Configuration—Remote Control Type



From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate  to **Remote Control Type**.

Press  to initiate specific state.

Press to choose:

Joystick

Toggle Switch

Press  to return to Main Menu.

Crane Configuration—Boom Length Sensor

From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Boom Length Sensor**.

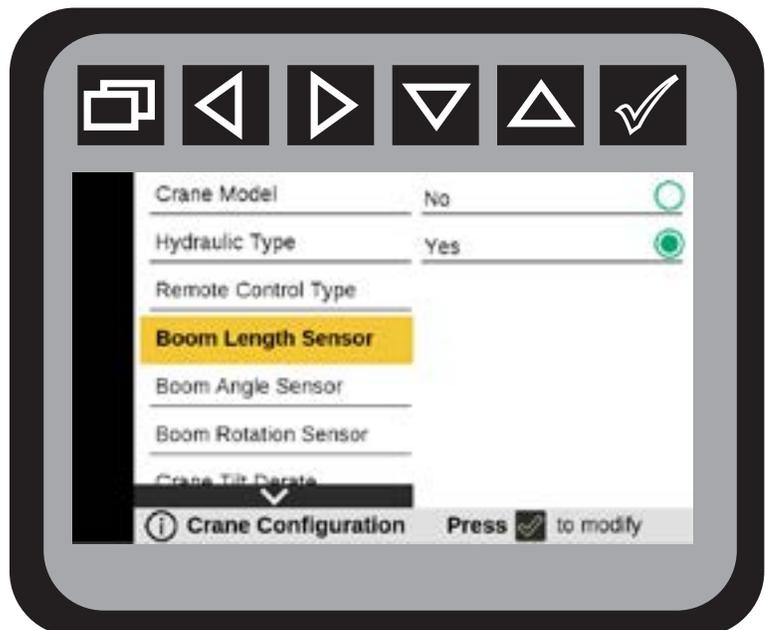
Press  to initiate specific states.

Press to choose:

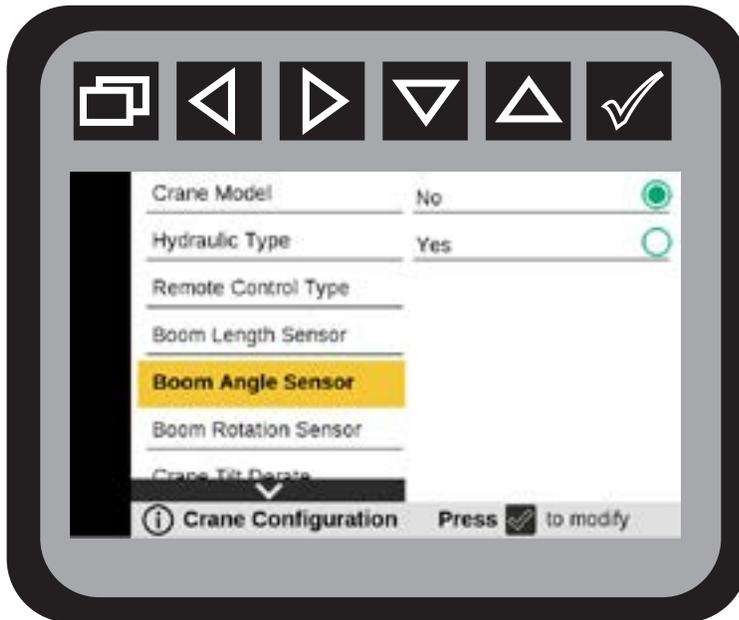
No

Yes

Press  to return to Main Menu.



Crane Configuration—Boom Angle Sensor



From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Boom Angle Sensor**.

Press to initiate specific state.

Press to choose:

No

Yes

Press to return to Main Menu.

Crane Configuration—Crane Tilt Derate



From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Crane Tilt Derate**

Press  to modify.

Press  to choose:

No

Yes

Press  to return to Main Menu.

 Always set the Crane Tilt Derate to NO.

Crane Configuration—Boom Lift Max

From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Boom Lift Max**

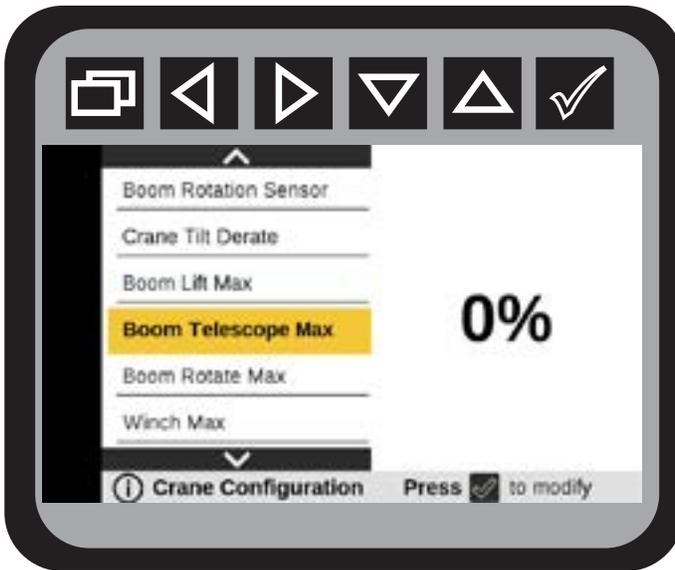
Press  to modify.

Press  to return to Main Menu.

 *Exceeding the limits presented on the capacity placard will create severe safety hazards and will shorten the life of the crane. The operator and other concerned personnel must know the load capacity of the crane and the weight of the load being lifted. The capacity chart for each model is located in the specific crane technical specifications manual, and on placards on the crane and body. Boom Lift Max should not be set higher than the percent of lifting capacity found on the Load Capacity Chart. The values on the factory-installed Load Capacity Chart are based on 85% of the tipping point for a specific truck and crane combination.*



Crane Configuration—Boom Telescope Max



From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Boom Telescope Max**

Press  to modify.

Press  to return to Main Menu.

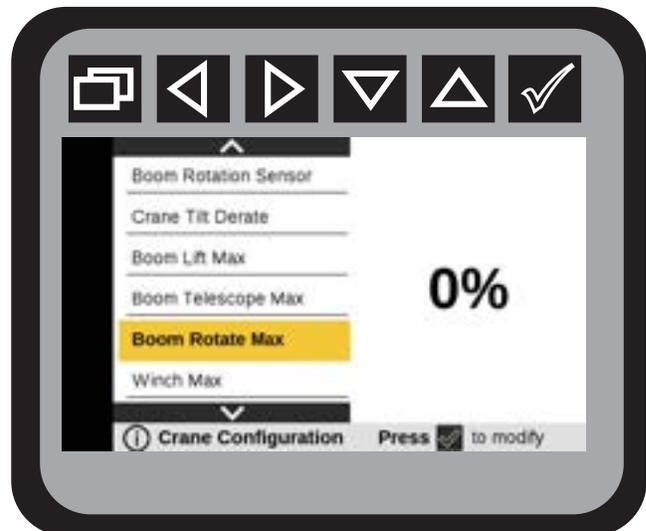
Crane Configuration—Boom Rotate Max

From the **Main Menu** navigate to **Vehicle Configuration**.

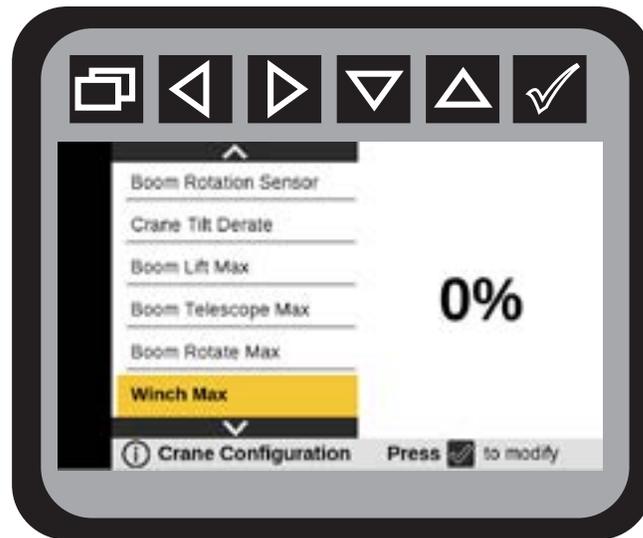
Navigate to **Boom Rotate Max**

Press  to modify.

Press  to return to Main Menu.



Crane Configuration—Winch Max



From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Winch Max**

Press  to modify.

Press  to return to **Main Menu**.

Section - 11

Display Settings

Display Settings—Language

The Language Menu will allow selecting English, Spanish, and French. The default Language will be English.



From the **Main Menu** navigate to **Vehicle Configuration**.

Navigate to **Language**

Press   to choose desired language setting

Press  to change.

Press  to return to **Main Menu**.

Display Settings—Brightness



From the **Main Menu** navigate to **Display Settings**.

Navigate to **Brightness**.

Press  to initiate **Brightness** states.

Press  to adjust brightness.

Press  at the desired brightness.

Press  to return to **Main Menu**.

 *The Display Brightness value can be adjusted from 25% to 100%. memory.*

Display Settings—Working Sleep Time



From the **Main Menu** navigate to **Display Settings**.

Navigate to **Working Sleep Timer**.

Press  to initiate **Working Sleep Timer** state.

Press  to set the display sleep time when E-Brake is engaged.

Press  at the desired time.

Press  to return to **Main Menu**.

 *The Working Sleep Timer value can be adjusted from one minute to 30 minutes.*

Display Settings—Standby Sleep Time



From the **Main Menu** navigate to **Display Settings**.

Navigate to **Standby Sleep Timer**.

Press  to initiate **Standby Sleep Timer** state.

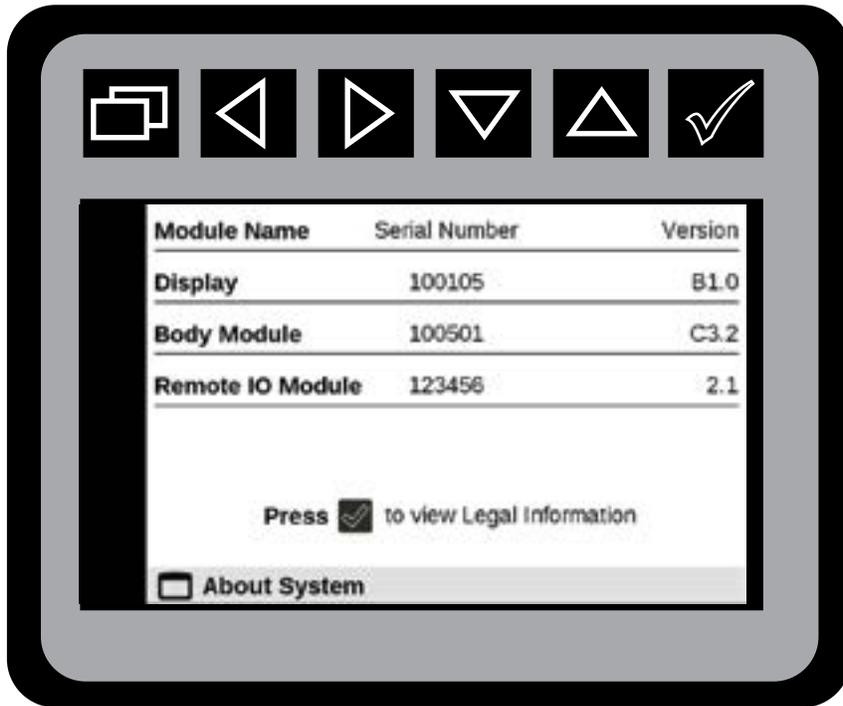
Press  to set the display sleep time.

Press  at the desired time.

Press  to return to **Main Menu**.

 *The Standby Sleep Timer value can be adjusted from one minute to 30 minutes.*

Display Settings—System Version Menu



From the **Main Menu** navigate to **Display Settings**.

Navigate to **About System**.

Press to initiate **About System** state.

Press to return to **Main Menu**.

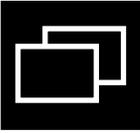
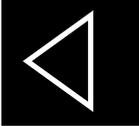
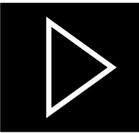
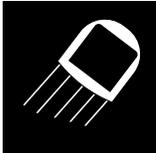
👉 *The About System menu will contain the Software Version and Serial number information for the Display, Body Module, Crane Module, and Remote IO Module. If the check mark button is pressed the Third Party Software Licenses and Notices Menu will appear.*

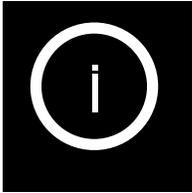
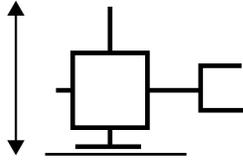
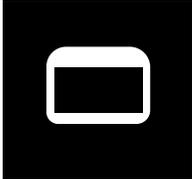


👉 *To receive your PIN, call IMT Technical Support, 800-554-4421 and provide the Body Module number. and Crane Module serial number.*

Section - 12**Glossary of Icons**

**NOTE: The Glossary of Icons listed in this chapter are for the Body Display only.
The Glossary of Icons for the Radio Remote Crane Control are located in Chapter 14**

ICONS	DESCRIPTION
	<p>Backspace Icon: Exit back to the previous screen, or back to the Main Menu</p>
	<p>Arrow Left: Move directionally to the left Arrow Right: Move directionally to the right. NOTE: Used for navigating the menus.</p>
	<p>NOTE: In crane recovery mode, the arrow buttons are used for operating the crane.</p>
	<p>Arrow Down & Arrow Up: Used to navigate to a currently highlighted item displayed on the Main Screen in both the left and right sidebars. Moves directionally up and down.</p>
	<p>NOTE: In stabilizer mode, the arrow buttons are used for operating the stabilizer.</p>
	<p>Select: Selects current highlighted configuration</p>
	<p>Light Icon NOTE: Used in Navigation Screens</p>

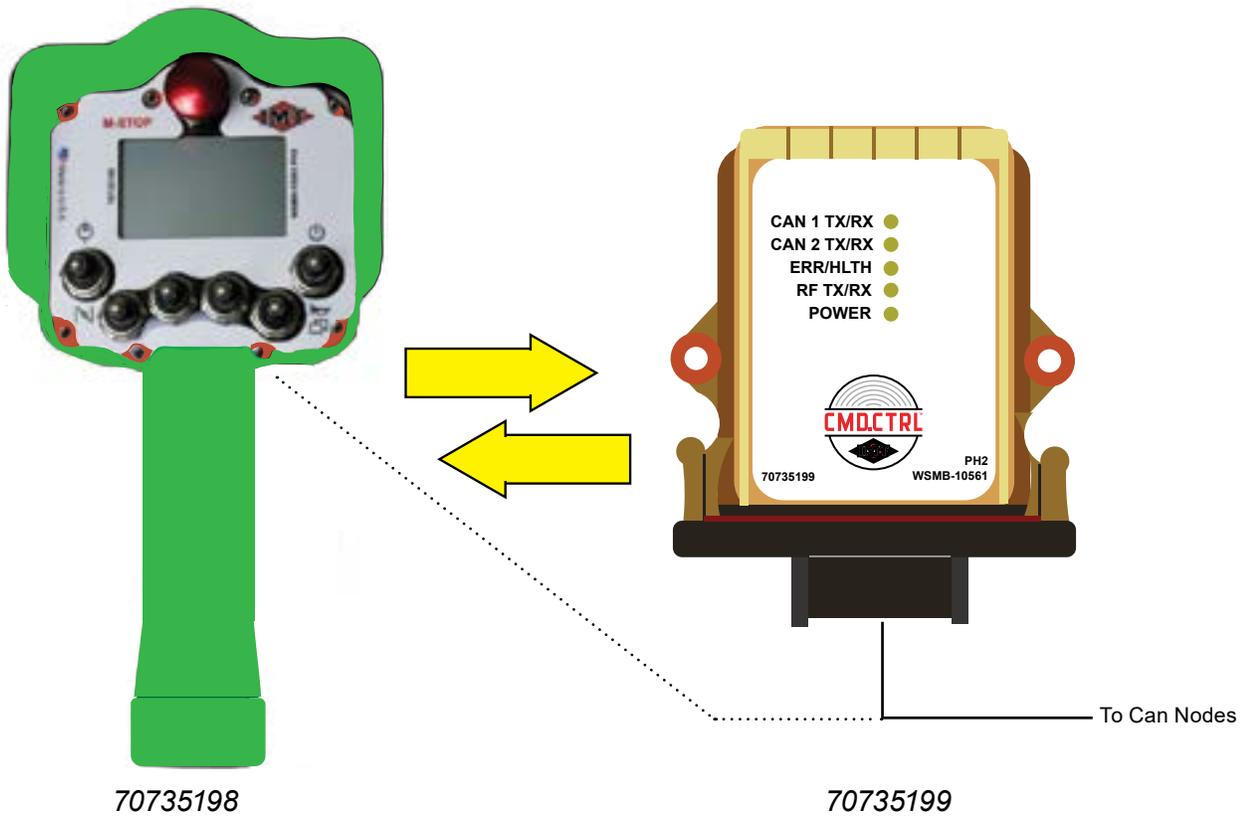
	Operator Setting's Icon
	Vehicle Configuration Icon
	Stabilizer Icon
	Display Setting's Icon
	Integrated Power Unit (IPU) Icon
	Crane Enabled Icon
	Compressor Enabled Icon
	PTO Icon
	Caution Icon

	Stop Icon
	NOTE Icon

Section - 13

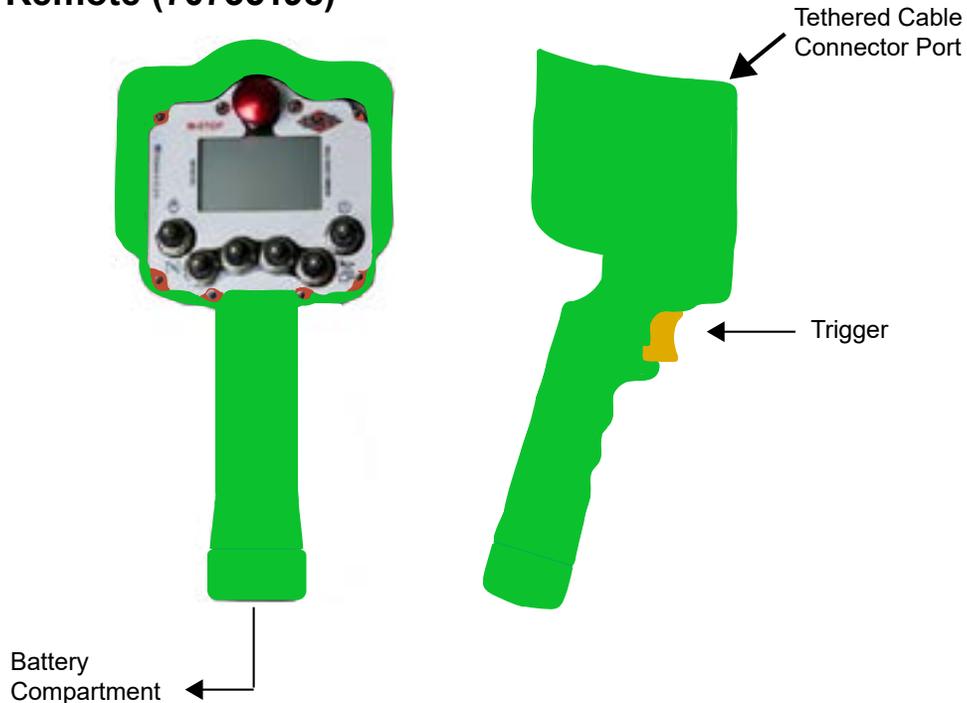
Radio Remote

List of Equipment (70735198 & 70735199)



PART NO.	DESCRIPTION
70735198	TRANSM-RAD ADV W/ LCD
70735199	RECEIVER-RAD ADV CAN BUS

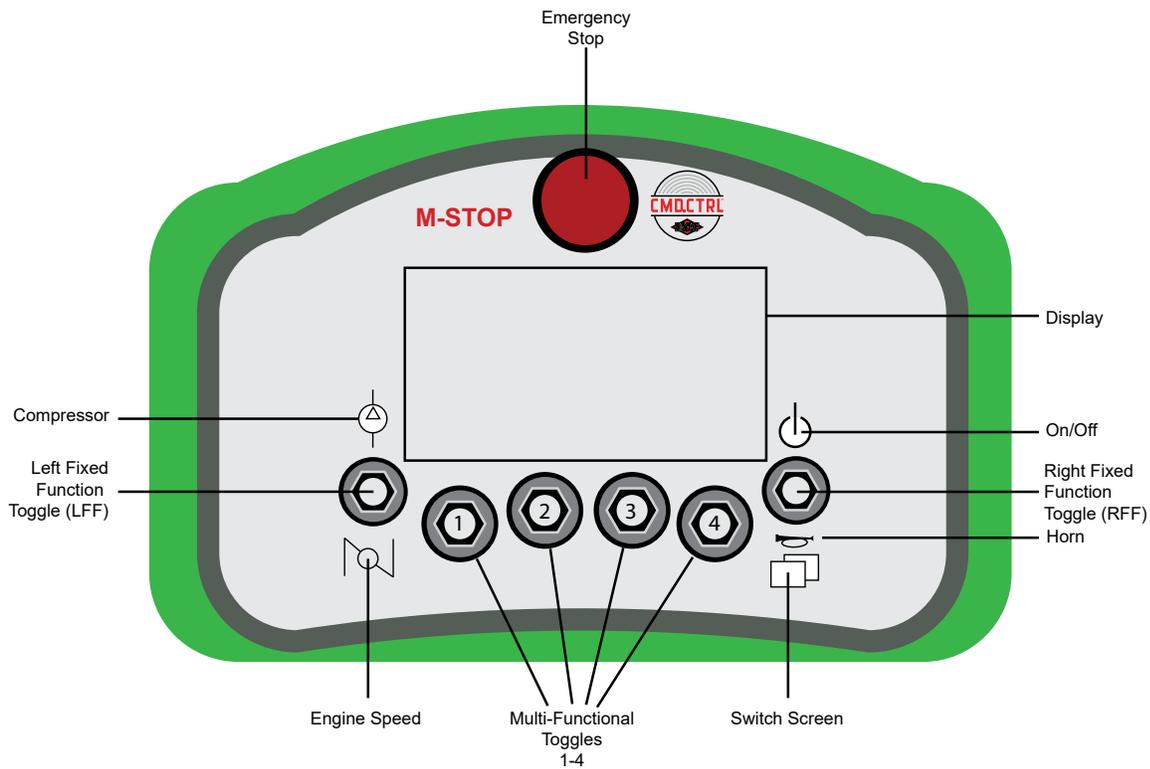
Handheld Remote (70735198)



ITEM	DESCRIPTION	SPECIFICATIONS
Power	Vin	+4.0 to +6.0 VDC
	Batteries	Four "AA" cell
	Battery Life	30 hours
	Low V Shutdown	4.0 VDC
	Auto-shutdown	10 min. of button inactivity
Environment	Operating Temp	-20° C to 55° C (-4° F to 131° F)
	Storage Temp	-40° C to 55° C (-40° F to 131° F)
	Humidity	0 to 100%
Radio	Frequency	2405-2480 MHz
	RF Power	100 mW (max.)
	License	None required
	Modulation	DSSS
	Antenna	Internal
Enclosure	Dimensions	mm: 230.6 x 133.9 x 146.9; inch: 9.1 x 5.3 x 5.8
	Total Weight	2.2 lbs
	Durability	High Impact Polymer case
	Faceplate	Aluminum or Polycarbonate
Control Switches	Toggle	Six 3-position spring return to center
	Trigger	Spring release
	Mushroom	Professional Stop
Display	LCD	536 x 336 pixel resolution

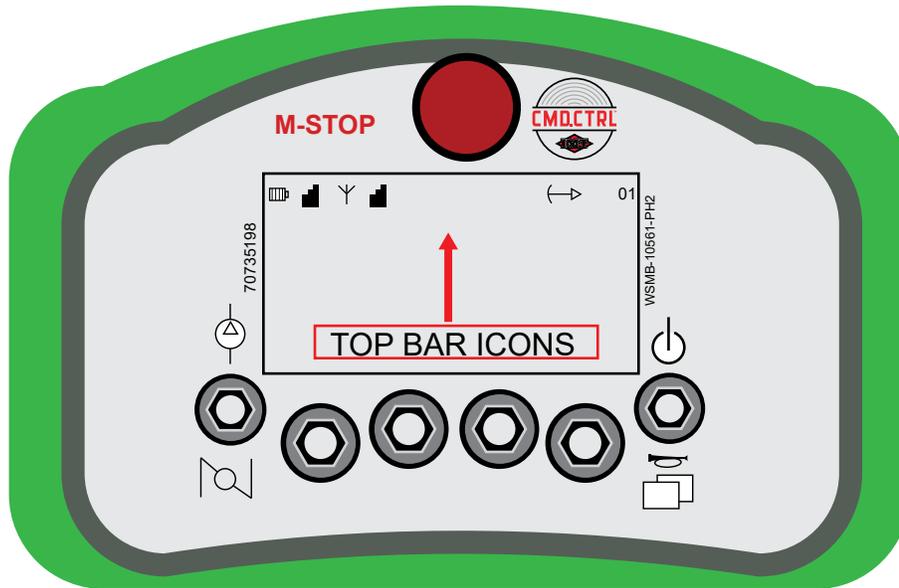
70735198 SPARE PARTS	
PART NO.	DESCRIPTION
71415460	MAGNET-TELE RAD REM TRANS W SCREW CERVIS
77040857	BUTTON E-STOP S4 REMOTE
77040858	HOLDER BATTERY S4 REMOTE
77040859	CAP BATTERY S4 REMOTE
77040860	SWITCH TOGGLE S4 REMOTE
77040861	CAP M12 TETHER S4 REMOTE

Handheld Remote, Toggles & Icons



TOGGLE NAME	DESCRIPTION	TOGGLE STYLE
Right Fixed Function (RFF) UP	<ul style="list-style-type: none"> • TX ON / OFF • Association 	Three-Position Momentary
Right Fixed Function (RFF) DOWN	<ul style="list-style-type: none"> • Horn • Menu 	Three-Position Momentary
Soft Toggles 1 – 4	Functions will change based on the icons that are being displayed on the screen	Three-Position Momentary
Left Fixed Function (LFF) UP	<ul style="list-style-type: none"> • Compressor 	Three-Position Momentary
Left Fixed Function (LFF) DOWN	<ul style="list-style-type: none"> • RPM HI / LO 	Three-Position Momentary
Emergency Stop	Machine Stop	Maintained

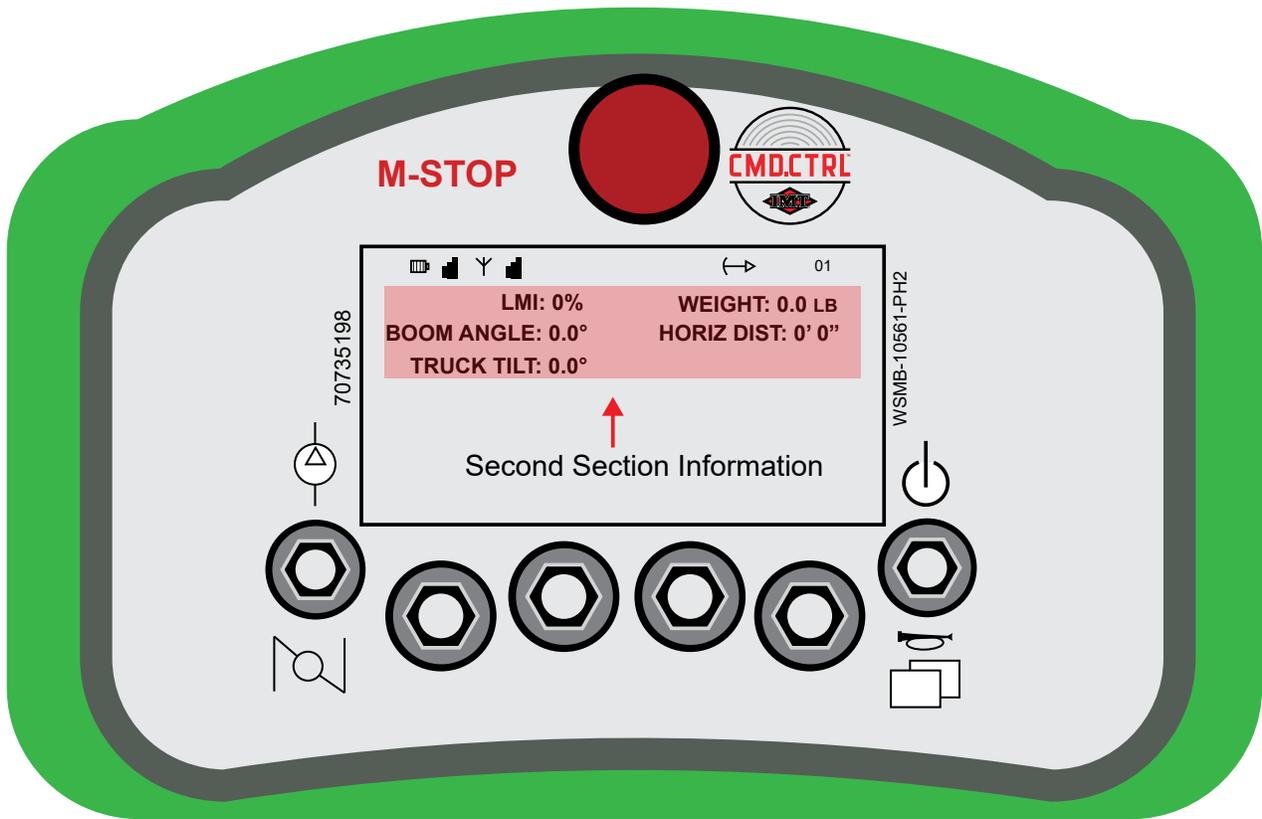
Faceplate - Top Bar Icons



ICON	DESCRIPTION
	A visual indication of the battery's state of charge.
	Received signal strength at the Remote.
	Wireless connection.
Cable	The tethered cable is connected. Radio transmitters are off. No picture available.
	Received signal strength at the Base.
	Crane is in Snubbing Mode.
	Crane is in Overload Mode (not shown).
01	Indicates the current screen number.
AUX1	Indicates Auxiliary output No. 1 status is ON (not shown).
AUX2	Indicates Auxiliary output No. 2 status is ON (not shown).
	Indicates Compressor is enabled (not shown).
	Indicates Engine Speed1 is enabled (not shown).
	Indicates Engine Speed2 is enabled (not shown).

The red highlighted area is for illustration purposes only. It will not appear on the faceplate display.

FACEPLATE - 2ND SECTION ICONS

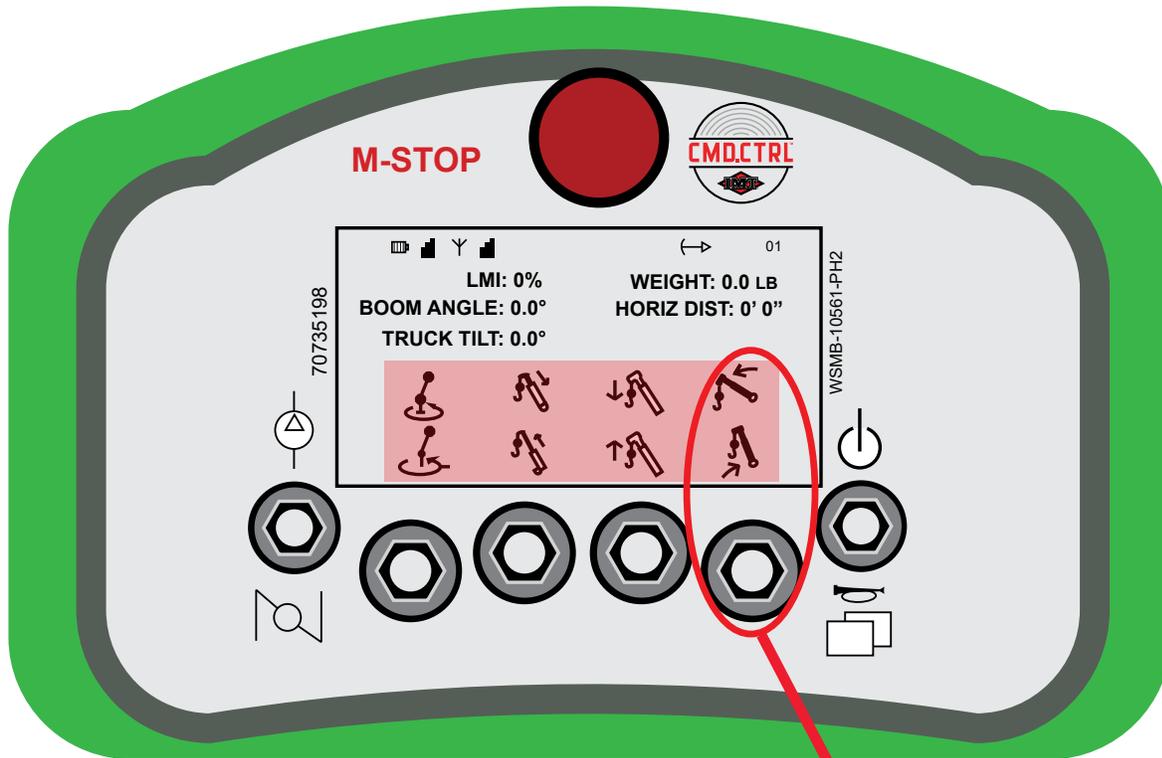


Example of Second Section

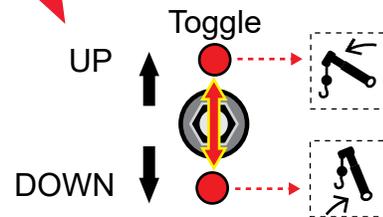
The 2nd Section on the display:

Indicates current system status, or displays current menu structure.

FACEPLATE - 3RD SECTION ICONS



Example of 3rd Section

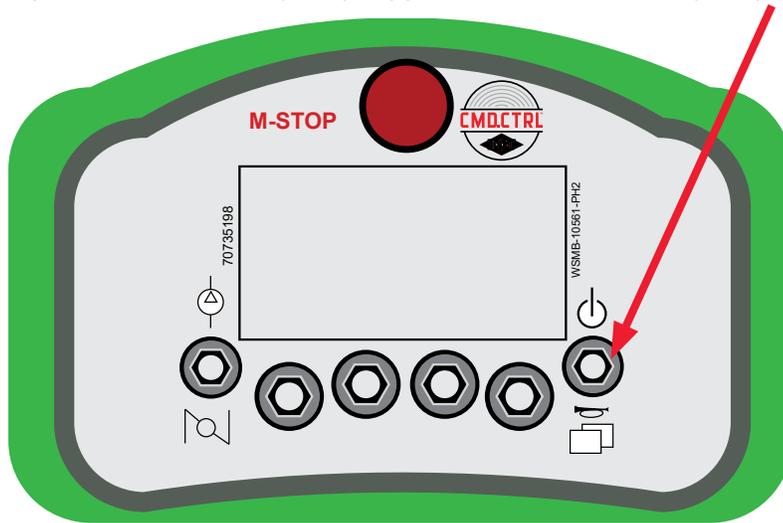


Soft Toggle icons indicate the current soft toggle function. The function is based on which screen is shown.

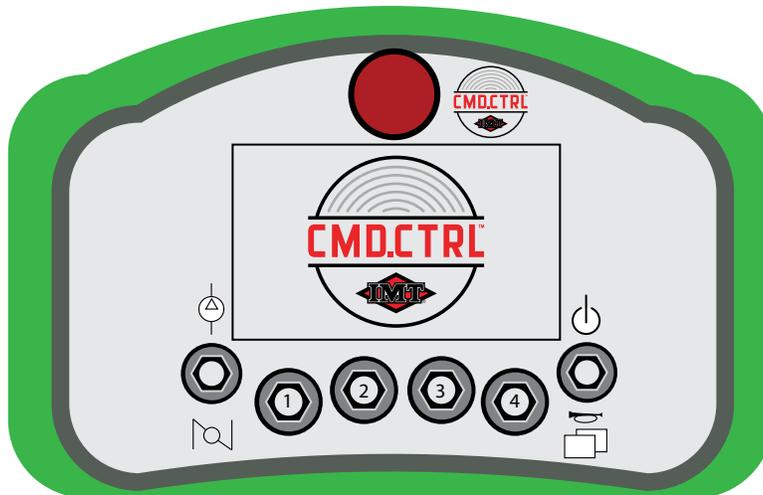
Top row functions in the highlighted area activate when the corresponding soft toggle is clicked **UP**. Bottom row functions in the highlighted area activate when the corresponding soft toggles is clicked **DOWN**.

Power Up the Handheld Remote

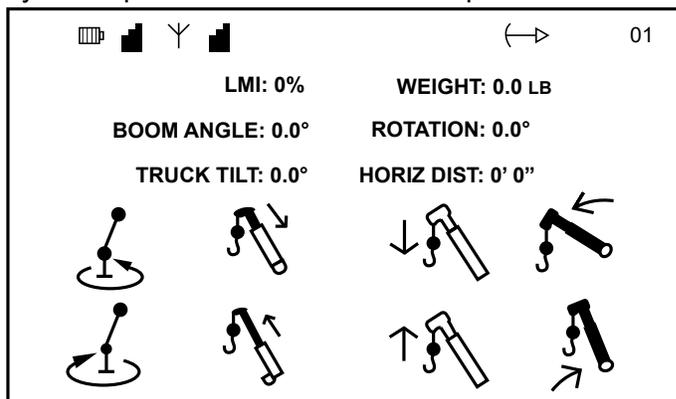
Toggle the Right Fixed Function (RFF) toggle **UP** for 1/2 second (RFF)



After a few seconds, the "IMT" splash screen appears:

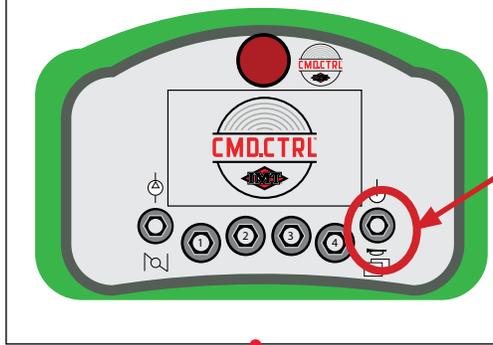


3. Warning Pop-Up on initial power up. Operator to read and acknowledge with soft toggle 2 up. Begin normal system operations when the main operations screen appears.



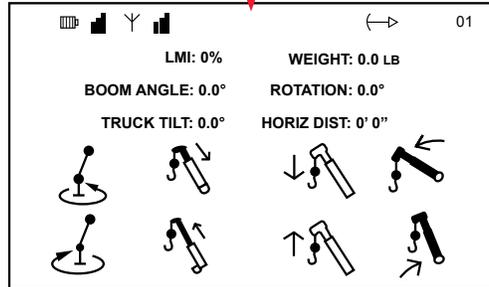
Screen Order

Splash Screen

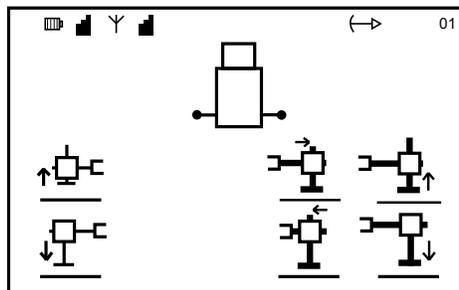


Toggle down to advance to next screen.

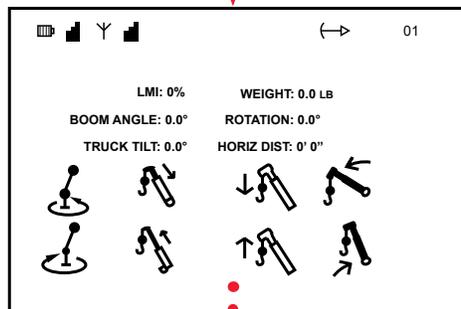
Crane Screen (1)



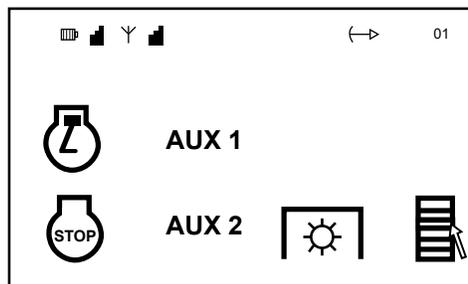
Stabilizer Screen (2)



Light Screen (3)



Operation's Screen (4)

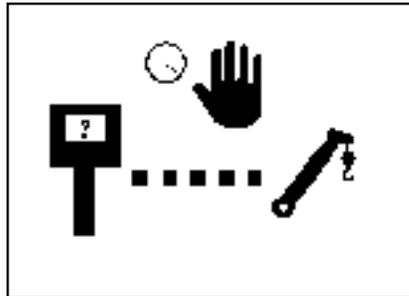


Association Screen

To associate, there must be a clear line of sight between the handheld remote and the base unit. Both units must be **OFF** (powered down). Association cannot occur while tethered. Power down the handheld remote by flipping RFF toggle **UP**. Power down the base unit either by unplugging the P1 connector from the unit.

Do not operate the trigger while Associating.

1. Power **DOWN** the Handheld Remote.
2. Power **DOWN** the Base.
3. Switch and continue holding the Power **ON** (RFF) toggle **UP** until the **Hold for Association** screen appears.



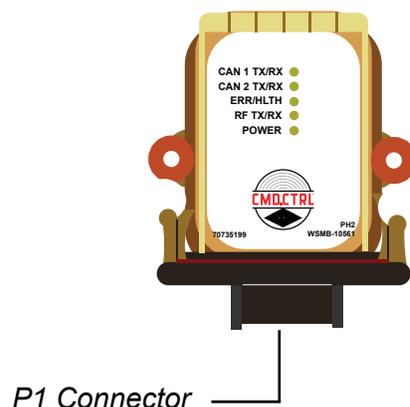
Hold for Association Screen

4. Continue holding the Power toggle **UP** until the Apply Power to Base Unit screen appears.



Apply power to Base Unit screen

5. Apply power to the Base Unit by plugging in P1 Connector.



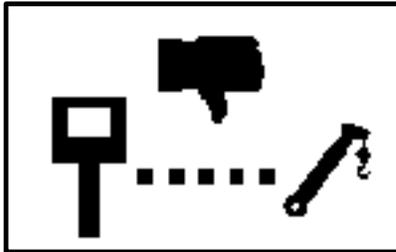
6. When the Association Successful screen appears, the Handheld Remote and the Base Unit have been successfully connected



Association Successful Screen



If the Association Unsuccessful screen appears the association has failed. Restart the process from Step 1.

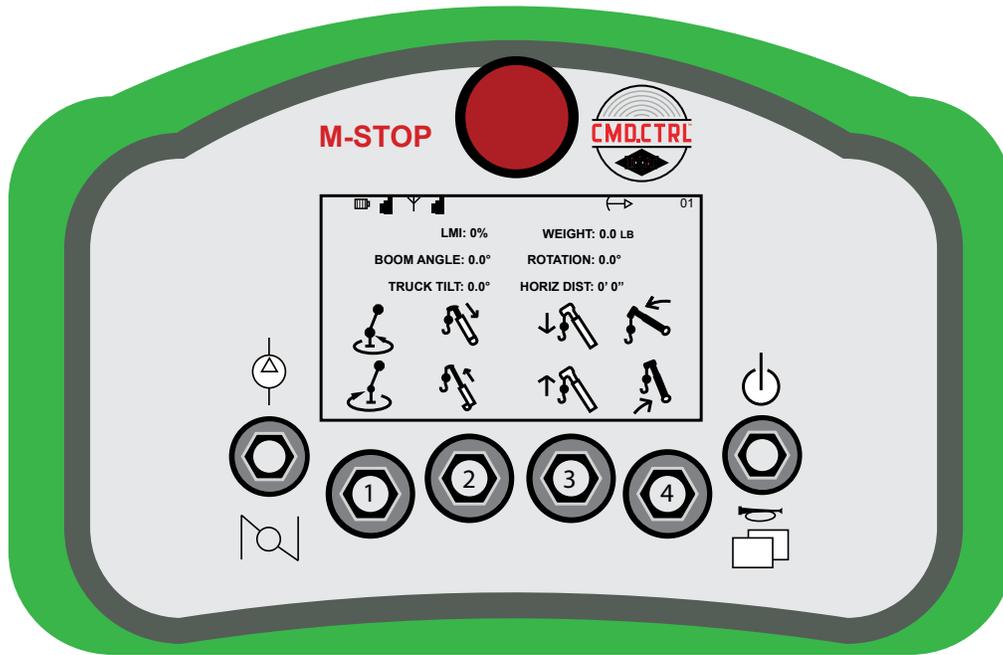


Association Unsuccessful Screen



Only one handheld remote can be associated to one Base Unit at a time.

Crane Screen



Crane Mode

When in Crane Mode:

Soft Toggle 1: Crane Rotation:

- Toggle **UP** - enables crane rotate **CCW** function.
- Toggle **DOWN** - enables crane rotate **CW** function.

Soft Toggle 2: Boom Extension:

- Toggle **UP** - enables **Boom Retract** function.
- Toggle **DOWN** - enables **Boom Extend** function.

Soft Toggle 3: Boom Winch:

- Toggle **UP** - enables winch **DOWN** function.
- Toggle **DOWN** - enables winch **UP** function.

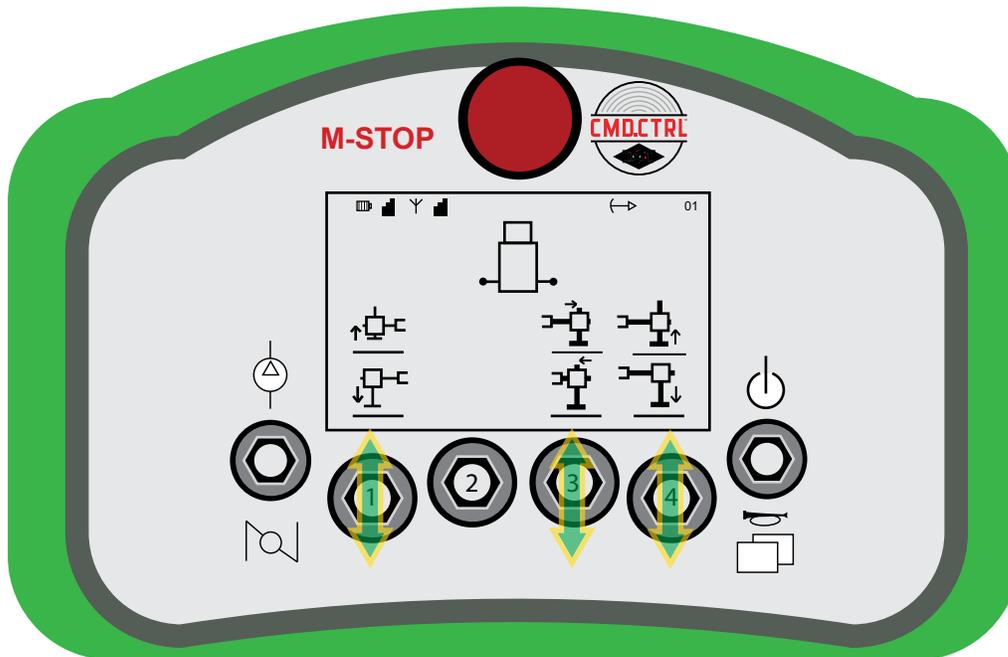
Soft Toggle 4 Boom Lift:

- Toggle **UP** - enables Boom **DOWN** function.
- Toggle **DOWN** enables Boom **UP** function.

ITEM	DESCRIPTION
LMI (Load Moment Indicator)	Displays the Load Moment of the Crane in percentages (0-100%)
Boom Angle	Displays in degrees
Truck Tilt	Horizontal = 0° (above horizontal reads positive)
Weight	Combined tilt angle of the body
Horizontal Distance	Calculated weight on the hook
	Load distance from center of the mast measured horizontally

 For Crane movment, enable crane function first and then control function speed with the trigger.

Stabilizer Screen

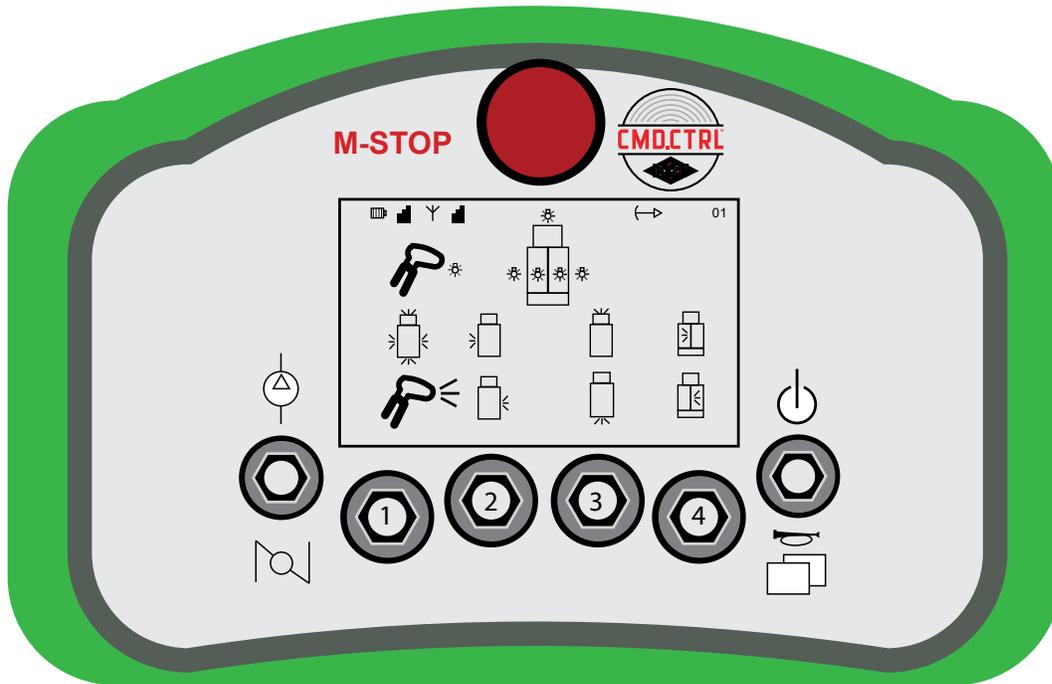


Right-Hand Crane without Auto Stabilizer Option

When in Stabilizer Screen:

- Soft Toggle 1 **UP**: Rear left stabilizer **UP**.
- Soft Toggle 1 **DOWN**: Rear left stabilizer **DOWN**.
- Soft Toggle 2 **UP**: NA
- Soft Toggle 2 **DOWN**: NA
- Soft Toggle 3 **UP**: Right Rear **EXTEND**.
- Soft Toggle 3 **DOWN**: Right Rear **RETRACT**
- Soft Toggle 4 **UP**: Right Rear.
- Soft Toggle 4 **DOWN**: Right Rear

Light Screen



Light Screen

When in the Light Screen

Soft Toggle 1

- Toggle **UP**: All Body Lights **ON / OFF**
- Toggle **DOWN**: Boom Tip Light **ON / OFF**

Soft Toggle 2

- Toggle **UP**: Left Side Floods **ON / OFF**
- Toggle **DOWN**: Right Side Floods **ON / OFF**

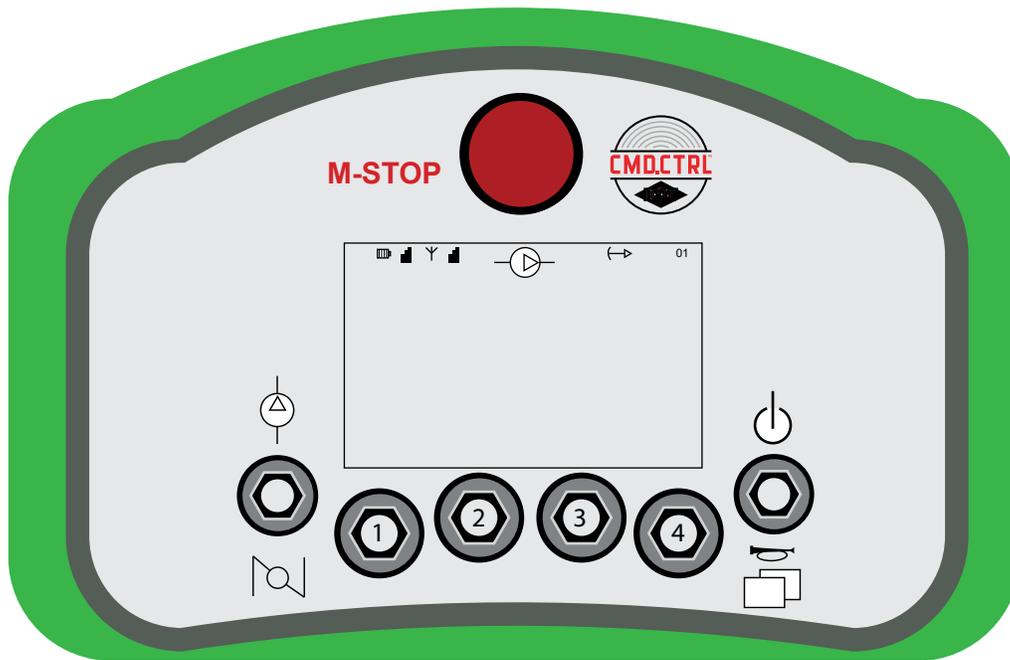
Soft Toggle 3

- Toggle **UP**: Front Floods **ON / OFF**
- Toggle **DOWN**: Rear Floods **ON / OFF**

Soft Toggle 4

- Toggle **UP**: Left Side Compartment Lights **ON / OFF**
- Toggle **DOWN**: Right Side Compartment Lights **ON / OFF**

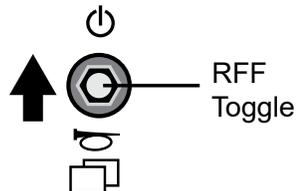
Compressor Activation



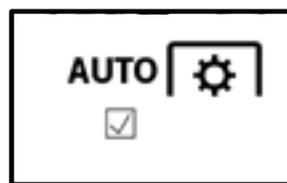
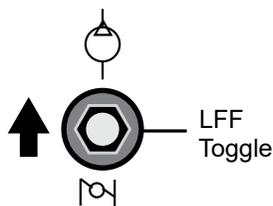
Compressor Screen

Compressor Steps:

- Engage E-Brake and start the engine.
- Engage PTO (Not required if Auto PTO is configured)
- Power **ON** Remote - RFF toggle **UP** and **Hold** for half of a second.



- Click the **LFF** toggle **UP** to turn the Compressor **ON** and **OFF**.



When Auto PTO is configured, the Pop Up can be acknowledged by clicking Soft Toggle 2 **UP**.

 This is an example. Actual compressor functionality will depend on the system configuration. Compressor will only run when the air tank pressure level is below set point.

Battery Installation / Replacement

Four “AA” alkaline cell batteries power the handheld remote unit. When installing batteries, be sure to observe proper polarity as illustrated in the images below to avoid damaging the unit. To replace or install batteries in the handheld:

1. Remove the battery cap from the handle.



O-Ring

 *Verify that the O-Ring at the end of the male thread is intact.*

2. Extract the removable battery caddy from the handle.



Battery Caddy



Single Contact End



Dual Contact End



3. Insert four fresh “AA” alkaline cell batteries into the battery caddy, observing the proper polarity in illustration on next page.

4. Reinsert the battery caddy into the handle with the dual contact end going into the handle first.



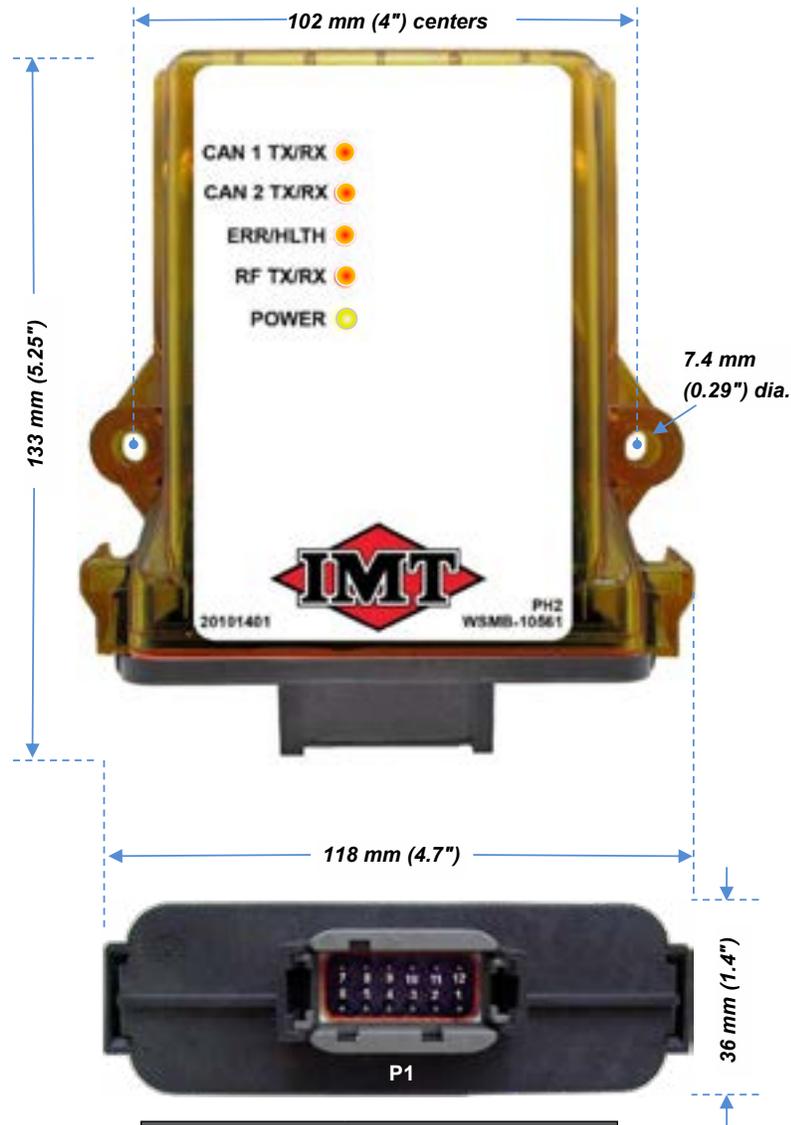
Verify correct polarity when inserting into the battery caddy.

5. Replace the battery cap and tighten it until it's hand tight.



👉 If you accidentally insert the single-contact end first, the remote will not power up.

Base Unit (70735199)



BASE UNIT WIRING TABLE	
PIN	SIGNAL NAME
P1:1	+VDC IN
P1:2	UNUSED
P1:3	UNUSED
P1:4	CAN H1
P1:5	CAN L1
P1:6	UNUSED
P1:7	CAN H2
P1:8	CAN L2
P1:9	UNUSED
P1:10	RS-232TX
P1:11	RS-232RX
P1:12	-VDC IN

Base Unit Specifications

ITEM	DESCRIPTION	SPECIFICATIONS
Power	Vin	+9 to +36 VDC
Radio	Frequency	2405–2480MHz @ 100mW
	License	None required
	Modulation	Channel-Hopping Direct Sequence Spread Spectrum (CH DSSS)
	Antenna	Internal
Environment	Operating Temp	–20° C to 70° C (–4° F to 158° F)
	Storage Temp	–40° C to 85° C (–40° F to 185° F)
	Humidity	0 to 100%
	Vibration/Shock	IEC60068-2-6 10 Hz to 150 Hz @ 1.0 g peak acceleration 10.0 g peak shock acceleration
Indicators (5)	CAN 1 TX/RX	TX=red, RX=green; Flashes upon event
	CAN 2 TX/RX	TX=red, RX=green; Flashes upon event
	ERR/HLTH	Error= red, Health=green; blinks 1x/sec
	RF TX/RX	TX=red, RX=green; Flashes upon event
	POWER	Amber; solid when normal; Flashes upon event
Enclosure	Dimensions	119 mm x 133 mm x 36 mm (5.24" x 4.69" x 1.42")
	Durability	High Impact Polymer
	Mounting Holes	7.4 mm (0.29") dia. 102 mm center-to-center (4" center-to-center)
Serial Parts	Two	CAN
	One	RS-232

Base Unit LED Diagnostic Troubleshooting

INDICATION	DIAGNOSIS / PRESCRIPTION
Power LED not active	Is +VDC input power present? Check input power polarity.
CAN TX/RX 1/2 not active RF TX/RX LED not active	Check for obstructions preventing line-of-sight transmission. Check that the handheld remote is active. Re-associate the handheld remote to the base unit.
Health LED flashing rapidly	Indicates an internal problem. Contact IMT Technical Support.
ERR LED active	Check the outputs for loose wiring, etc. Check to see if current output or voltage input is out of bounds

Base Unit Details

FIELDS	DESCRIPTION	NOTES
Control Power	9–36 VDC	Using 12 VDC
Radio Frequency (RF)	2400 MHZ	2405–2480 MHz @ 100 mW
Antenna Option	Internal	
Can Configuration	SAE J1939	
Can 1	EPG Connection	Includes internal termination (120 Ω)
Can 2	Crane Connection	Does not include termination
RS-232	Debug/Program Terminal	

Exposure to Radio Frequency Energy

The handheld remote control and base units contain radio transceivers. When active, handheld remotes and base units send out radio frequency (RF) energy through either internal (remote/base unit) or external (base unit only) antennae. The handheld remote and base units comply with limits set by the United States Federal Communications Commission (FCC) for operating distance from human tissue.

RF Exposure Considerations

The radio module may be used in a variety of host applications falling into two general categories:

1. **Mobile applications:** Any operating locations where the transmitting equipment is not on a human body. In mobile applications, the host application is typically fixed to mobile equipment, with either an internal or external antenna.
2. **Portable applications:** Any operating locations where the transmitting equipment is located on the hand, arm, or other part of the human body. In portable applications, the equipment is either held in the hands of an operator or affixed to either a belt or harness on the torso.

Equipment containing the radio module was evaluated for RF exposure hazards by two approaches:

1. Maximum Permissible Exposure (MPE) for mobile applications.
2. Specific Absorption Rate (SAR) for portable applications.

Required separation distances are measured from the actual location of the radiating part of the antenna. An antenna may be inside the host application, affixed to the host application enclosure, or at the end of an optional extension coaxial cable.

Mobile Applications

Equipment **must** be located at least 8" (20 cm) away from areas likely to be occupied by an unaware person.

Transmitter Applications

All operators of transmitter equipment with any type of antenna require proper equipment operation training, and such training must include RF exposure safety instructions. They are then considered to be "aware" persons once training is completed.

If the portable operating position is on the hand or arm, a 1" (5 mm) separation is required between the radiating part of the antenna and nearby human tissue.

Required Training

All installers and operators of host applications that include an SRF305 FT module must be trained to use proper RF safety precautions as presented in this Appendix.

Identification Label Locations



Model: BU-2CAN-2H
Contains:
FCC ID: LOBSRF305
IC: 7955A-SRF305

Input: 9-365
3A per channel
8A Max Total



Cervis Smart
2.4 GHz Wireless Handheld Module
Contains
FCC ID: LOBSRF305
IC: 7955A-SRF305

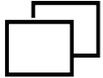
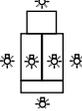
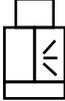
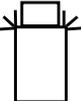
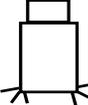
 *The base unit agency label position is identical for all internal antenna and external antenna base units*

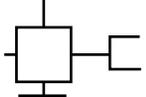
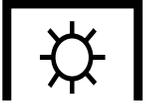
Section - 14

Crane Glossary Icons

Glossary of Icons - Radio Remote

ICONS	DESCRIPTION
	A visual indication of the battery's state of charge
	Received signal strength at the remote
	Indicates wireless connection
	Received signal strength at the Base
	Indicates Crane is in Snubbing Mode
	Indicates Crane is in Overload Mode.
	Indicates compressor is enabled
Aux 1	Indicates Auxiliary output No. 1 status is ON
Aux 2	Indicates Auxiliary output No. 2 status is ON
01	Indicates what screen your currently using
	Tethered to the Remote, connection is disabled
	Indicates Engine Stop
	Indicates Engine Start
	Indicates Engine Speed1 is enabled
	Indicates Engine Speed2 is enabled
	Indicates Power ON / OFF

ICONS	DESCRIPTION
	Indicates Switch Screens
	Indicates Horn
	Indicates Engine Speed
	Indicates Boom Tip Light
	Indicates Boom Tip Light ON / OFF
	Indicates all Body Lights
	Indicates Left Compartment Lights
	Indicates Right Compartment Lights
	Indicates Right-Side Flood Lights
	Indicates Left-Side Flood Lights
	Indicates Front Flood Lights
	Indicates Rear Flood Lights
	Boom Rotate CW / CCW
	Boom Extend / Retract

	Winch In / Out
	Boom Up / Down
	Stabilizer In / Out
	Indicates Compressor ON / OFF
	Indicates PTO ON / OFF
	Indicates Emergency Stop

Section - 15

Body Quick Guides

Navigation



The operator will use the buttons on top of the hand-held body module to navigate to the different menu options. If there are special requirements for the use of a button in a menu, there will be instructions on the screen indicating the operation of the button. Always follow instructions on the screen for button functionality.



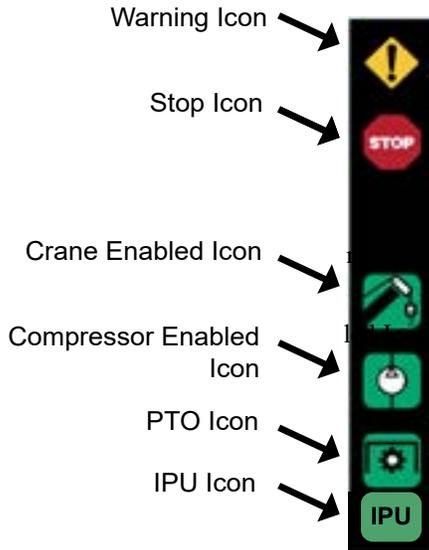
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This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Navigation

2

NAVIGATION



Status Icons Locations

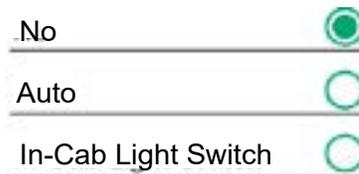


Status Icons, Left Sidebar

Check Mark Indicates the selected item will be used.



Radio Buttons indicate only one option.



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Lights

LIGHTS

3



Main Menu: Lights Preview

Left sidebar
Light Group

Right sidebar
Status and
Individual Selection

The Lighting Screen will be split into two areas:

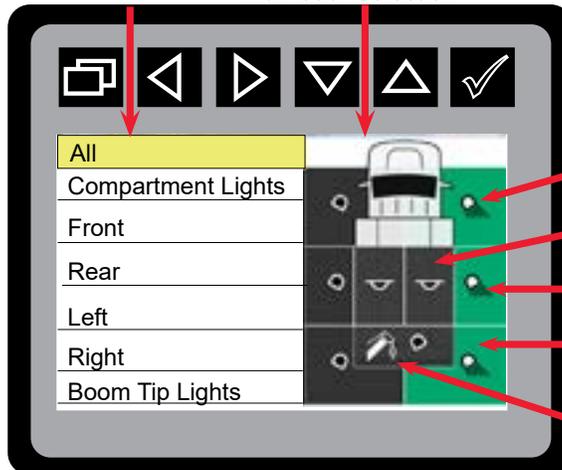
- Light Group (left sidebar),
- Status and Individual Selection (right sidebar).

From the Main Menu:

1. Press to select Lights Mode.
2. Press to select individual light group.

Press to choose light(s).

When choosing a specific light, the illustration will turn yellow



Light Menu

Front Left / Right Flood Lights

Compartment Lights

Middle Left / Right Flood Lights

Rear Left / Right Flood Lights

Boom Tip Lights

3. Press to turn power **ON** or power **OFF** selected light groups or individual lights.
4. Press to return to **Main Screen**.

Your display screen will only show the lights that are configured for your vehicle.



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Operating Settings

4

OPERATING SETTINGS - PTO

VEHICLE FUNCTIONS - AUTO PTO



1. From the **Main Menu** press the [checkmark icon] to navigate to **Operator Settings**.
2. Press [down arrow icon] [up arrow icon] to navigate to **PTO Activation**.
3. Press [checkmark icon] to initiate **PTO Activation** states.

None: Operator DOES NOT want the PTO to come on automatically.

Auto: Functionality is set to come on automatically when requiring PTO power.

In Cab Multi-Switch: The PTO power is engaged from the switch on the dash, or through one of the other menus.

4. Press [home icon] to return to **Main Menu**

👉 If the operator chooses **None**, PTO power must be activated manually through the switch on the dash, or through one of the other menus.

1. From the **Main Menu** press the [checkmark icon] to navigate to **Vehicle Functions**.
2. Press [down arrow icon] [up arrow icon] to navigate to **PTO**.
3. Press [checkmark icon] to power **ON** or power **OFF** PTO switch.
4. Press [home icon] to return to **Main Menu**

👉 If the chassis type is set to "IPU" or "Paccar Engine", the Crane Power and PTO will not be shown. Auto PTO has no user interaction, and most will be configured for Auto PTO before it leaves the factory.



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Engine Start / Stop

5

ENGINE START / STOP



1. Press   to initiate **Vehicle Functions mode**
2. Use   to navigate to **Start or Stop Engine mode**.
3. Press  to initiate **Engine Start / Stop mode**.
4. Press and hold  until you hear the engine **START** or **STOP**.
5. Press  to return to the **Main Menu**.

 Press and holding the  works the same as a key turning on or turning off the engine on a vehicle. Press and holding the  will shut-off the engine in the Engine Stop mode.

The illustration above shows the Engine Start mode.
The instructions are for both Engine Start and Engine Stop.



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This chart is to be used as a “quick reference” guide only.
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Compressors


6

COMPRESSORS




1. From the **Main Menu** press the  to navigate to **Vehicle Functions**.
2. Press   to navigate to Compressor Activation.
3. Press the  to activate **Compressor** mode.
4. Press   to power **ON** or power **OFF** Compressors.
5. Press the  to toggle **Compressor** state.
6. Press  to return to **Main Menu**.



**This chart is to be used as a “quick reference” guide only.
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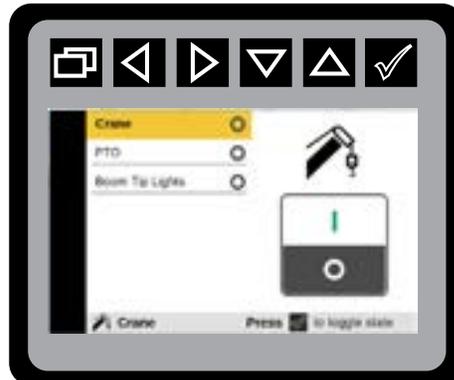
Crane

CRANE

7



Main Menu: Crane

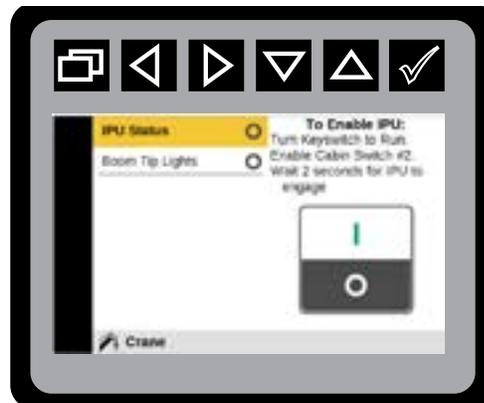


Crane: Enable Mode

The Crane menu allows the selection of Power On and Power Off options for Crane, PTO, and Boom Tip Lights.

👉 If the chassis type is set to "IPU" the Crane Power and PTO will not be shown. Instead, the IPU Status option will be shown with instructions on how to enable the IPU. If the Chassis Option is selected as "Paccar Engine", the PTO object also will not be shown.

👉 After the IPU activation, the operator can remove the key from the ignition.



IPU Status Row



Crane: Stabilizer Acknowledgment

When Crane is selected to turn on, a pop-up menu will be displayed asking the operator to confirm the stabilizers have been deployed. Once you confirm the stabilizers are deployed, the display will verify the status of the PTO.

👉 If a menu option is not configured it will not be displayed on the screen. If none of the options are configured to your equipment, "No Options Configured", will be displayed.



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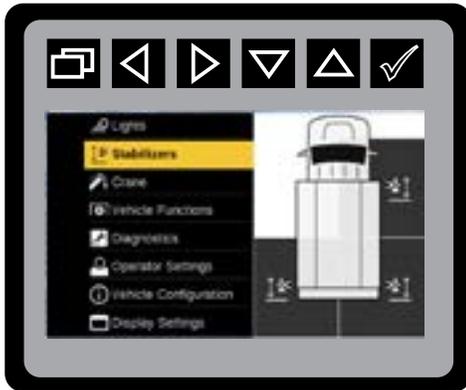
This chart is to be used as a "quick reference" guide only. It should not be substituted for a thorough review of the manual.

Stabilizers

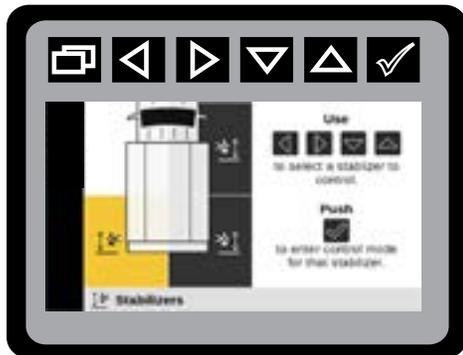


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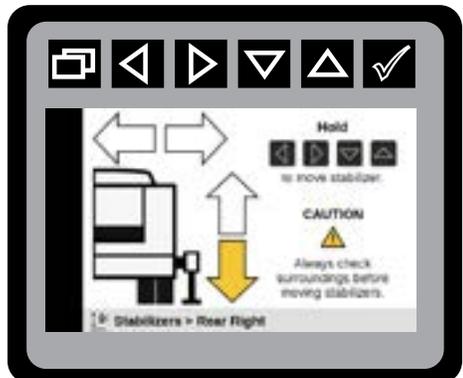
STABILIZERS



Main Menu: Stabilizer Preview



Stabilizer Selection Mode



Stabilizer: Control Mode

The Stabilizer menu allows the operator to maneuver selected stabilizers from the control screen in a two-step process.

1. Press to select Stabilizer Mode.

Press to initiate Stabilizer states.

2. Press to initiate Stabilizer.

3. Press to operate the Stabilizer selected.

This illustration shows the highlighted stabilizer location in the Stabilizer Selection Mode.

4. Once the requested stabilizer is highlighted, press to enter the stabilizer control mode to move the stabilizer up and down or extend the stabilizers back and forth. The requested stabilizer's active movement is highlighted.

Only the directional arrows for the installed stabilizer options will be displayed. If the stabilizers are not extendable, only the up / down status arrows will be displayed. Only one stabilizer will operate / function at a time. Verify correct stabilizer placement.

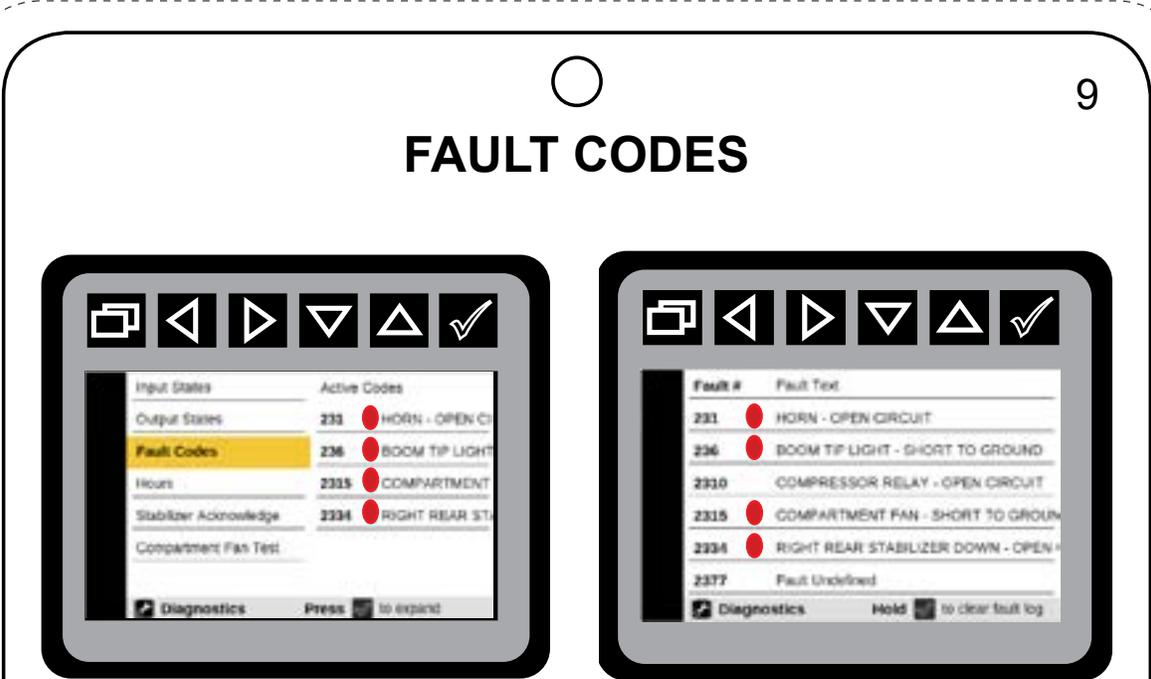
5. Press to return to **Stabilizer or Main Menu**.



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Fault Codes



1. Press navigate to the **Diagnostic Menu**. Press
2. Press to navigate to **Fault Codes**.
3. Press to initiate the **Diagnostic Fault Code** preview menu.
4. Press to initiate fault states. This state will display:
 - 25 most recent codes in chronological order
 - DTCØ indicates a power cycle.
 - Press and hold to clear fault log.



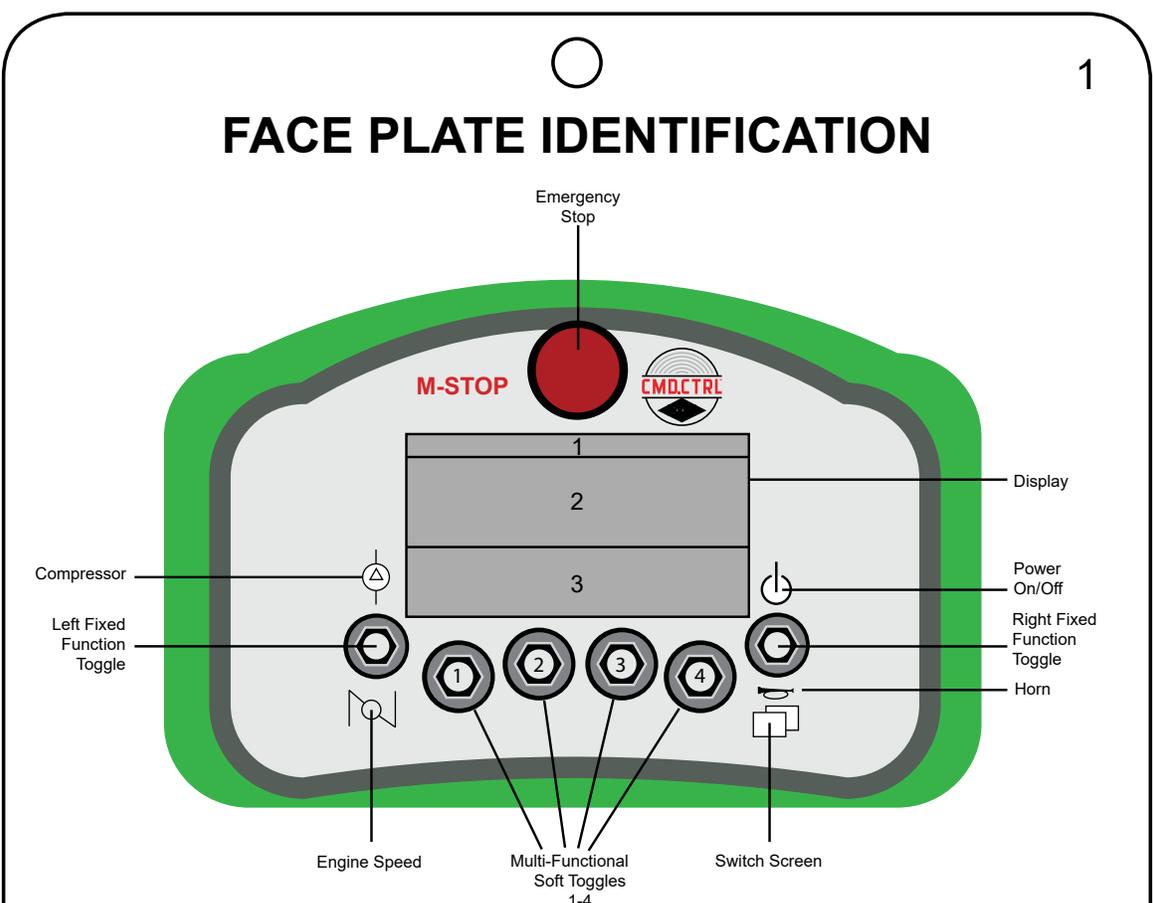
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This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Section - 16

Crane Quick Guides

Faceplate Identification



DISPLAY		
ITEM NO.	NAME	DESCRIPTION
1.	Top Bar Area	Displays: Battery Status, Operation Mode, Received Signal strengths
2.	Indicator Area	System Feedback
3.	Soft Toggle Area	Displays: Soft Toggle Icons
<p>NOTE: The lines separating the different segments on the display are for visual reference only, and will not be visible during the operation of the remote.</p>		



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This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

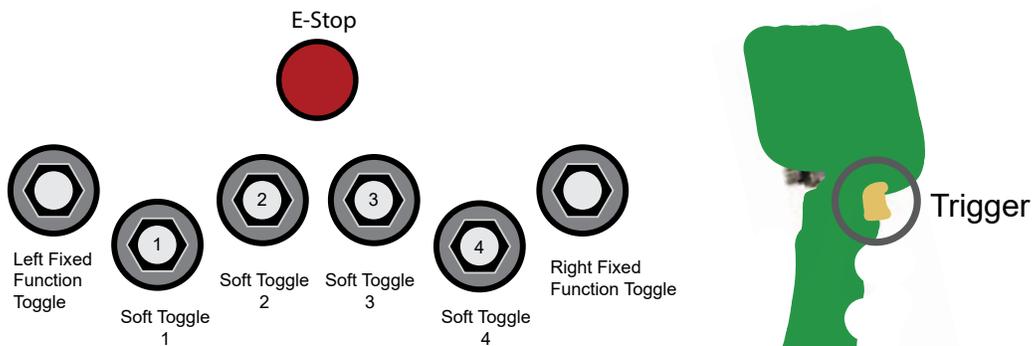
Toggle Identification



2

TOGGLE IDENTIFICATION

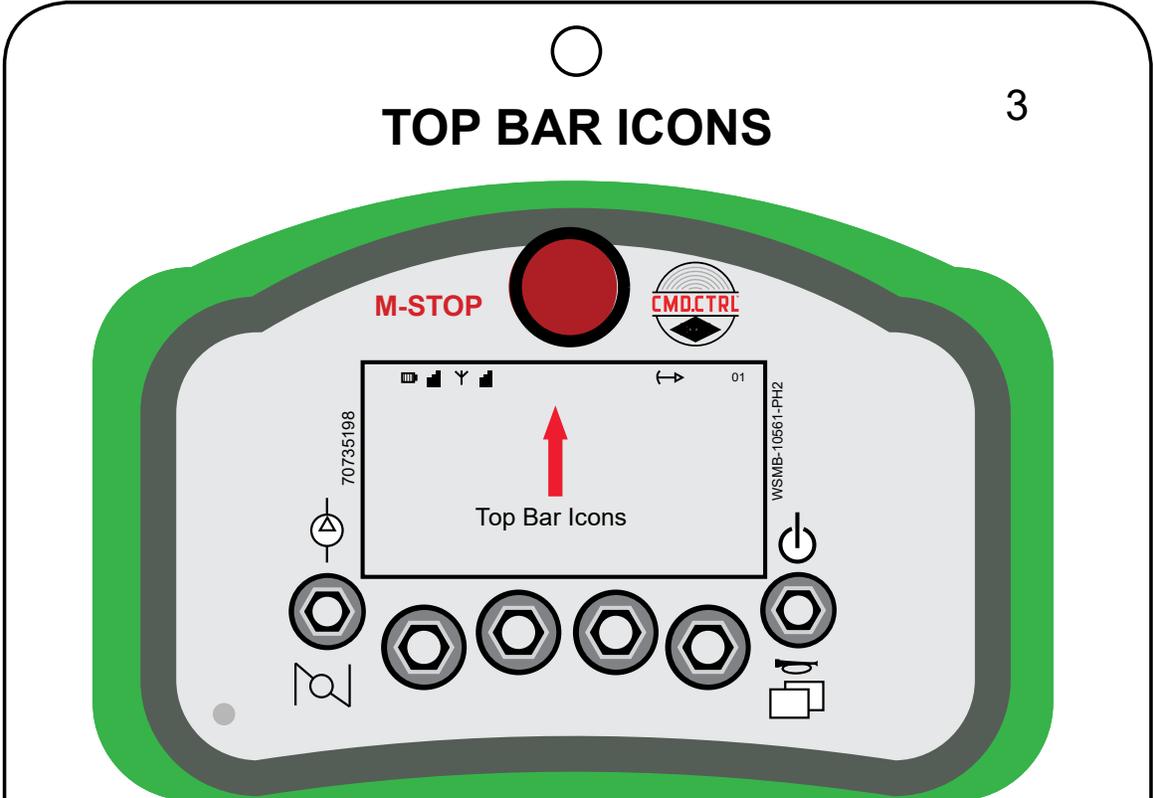
TOGGLE NAME	DESCRIPTION
Right Fixed Function Up	A hard function toggle, meaning its operation never changes. <ul style="list-style-type: none"> Turning the remote ON/OFF - toggle upward and HOLD for 1/2 second.
Right Fixed Function Down	A hard function toggle, meaning its operation never changes. <ul style="list-style-type: none"> Horn - toggle DOWN and HOLD until you hear the horn Switching Operation Screens - short clicks downward will display next screen in sequence: <ul style="list-style-type: none"> Crane Lights Stabilizers Operations
Soft Toggles 1 – 4	Functions will change based on the screens that are being displayed.
Left Fixed Function Up	A hard function toggle, meaning its operation never changes. <ul style="list-style-type: none"> Short click UP to enable / disable compressor.
Left Fixed Function Down	A hard function toggle, meaning its operation never changes. <ul style="list-style-type: none"> Short click DOWN to change speed
Emergency Stop	Pressing DOWN will shut down the chassis engine in an emergency, pull to release.
Trigger	Controls crane movement speed.



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Top Bar Icons



ICON	DESCRIPTION
	A visual indication of the battery's state of charge.
	Received signal strength at the Remote.
	Wireless connection.
	The tether cable is connected. Radio transmitters are off.
	Received signal strength at the Base.
	Crane is in Shubbing Mode.
	Crane is in Overload Mode.
01	Indicates the current screen number
AUX1	Indicates Auxiliary output No. 1 status is ON (not shown).
AUX2	Indicates Auxiliary output No. 2 status is ON (not shown).
	Indicates Compressor is enabled (not shown).
	Indicates Engine Speed1 is enabled (not shown).
	Indicates Engine Speed2 is enabled (not shown).



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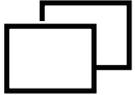
This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Fixed Function Icons



4

FIXED FUNCTION ICONS

ICON	DESCRIPTION
	Power ON / OFF
	Switch Screens
	Horn
	Engine Speed
	Compressor ON / OFF



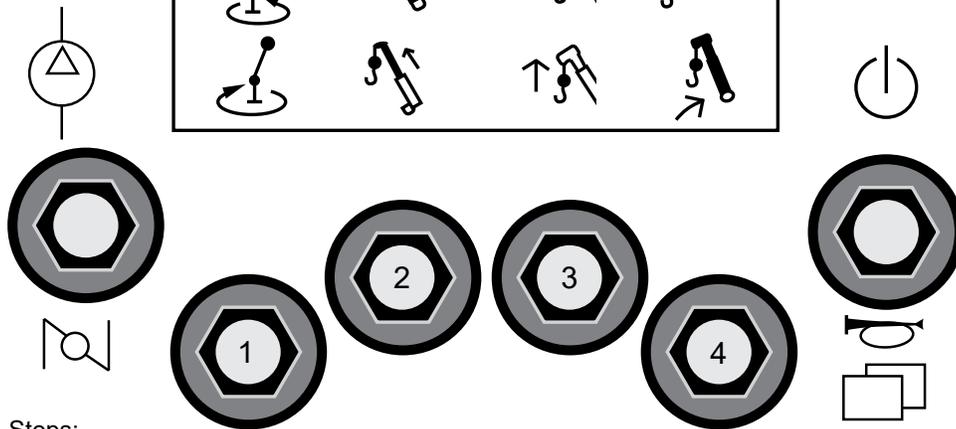
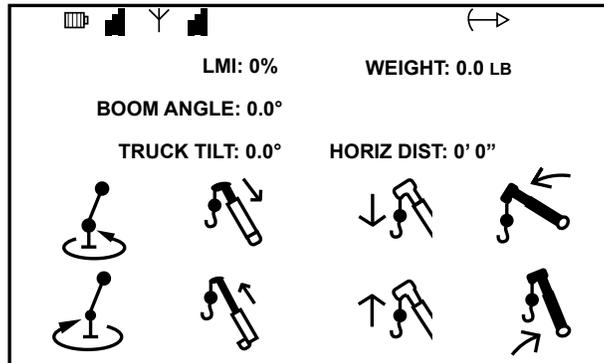
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This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Crane Operations

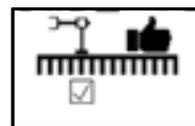
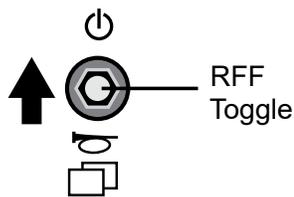
5

CRANE OPERATIONS



Crane Steps:

1. Engage E-Brake and start the engine.
2. Engage PTO.
3. Power **ON** Remote - RFF Toggle **UP** and **HOLD** for one half of a second.



Acknowledge Pop-Up Screen with Soft Toggle **2 UP**.

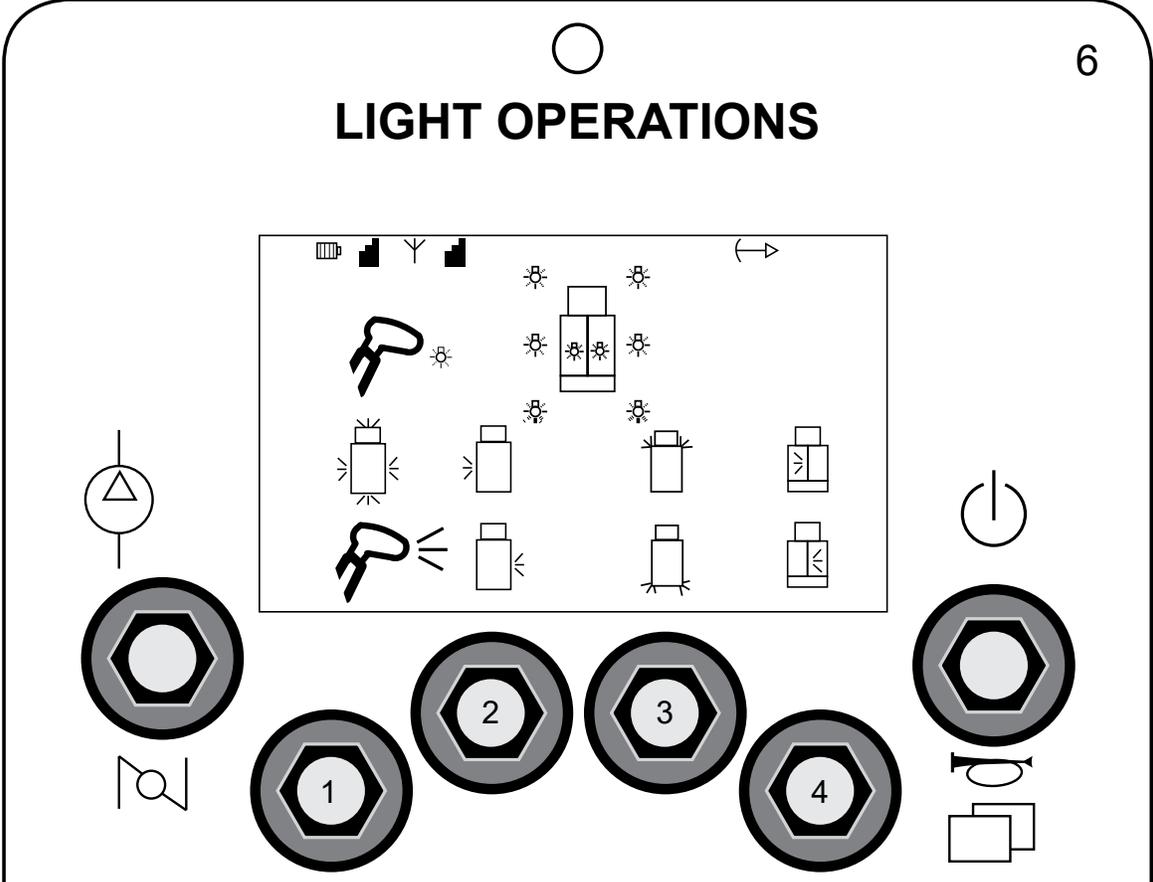
4. Deploy Stabilizers (See Stabilizer Operation's Quick Guide).
5. Click the RFF Toggle **DOWN** until Crane Screen appears.



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This chart is to be used as a "quick reference" guide only. It should not be substituted for a thorough review of the manual.

Light Operations



SOFT TOGGLE	TOGGLE DESCRIPTION
1 Up	All Body Lights
1 Down	Boom Tip Lights
2 Up	Left Side Flood Lights
2 Down	Right Side Flood Lights
3 Up	Front Flood Lights
3 Down	Rear Flood Lights
4 Up	Left Compartment Lights
4 Down	Right Compartment Lights



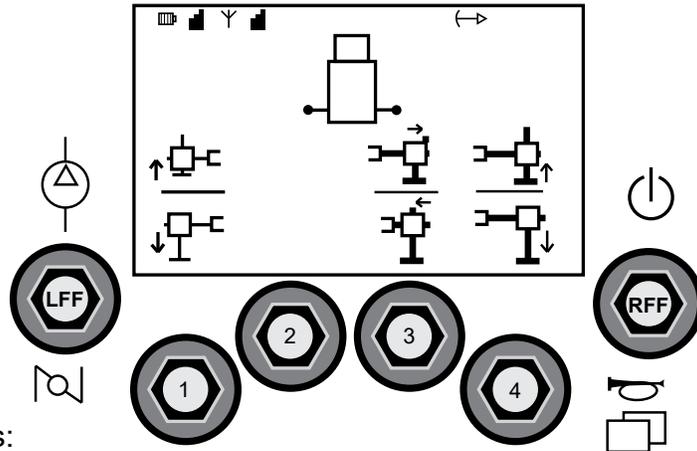
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This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Stabilizers Operations

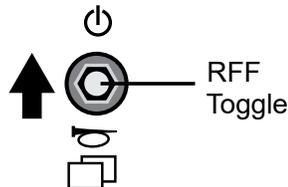
7

STABILIZER OPERATIONS

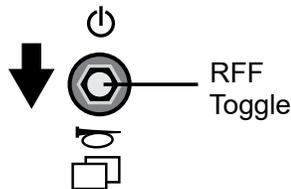


Stabilizer Steps:

1. Engage E-Brake and start the engine.
2. Engage PTO.
3. Power **ON** Remote - RFF Toggle **UP** and **HOLD** for one half of a second.



4. Click the RFF toggle **DOWN** until stabilizer screen appears.



When Auto PTO is configured, the Pop Up can be acknowledged with Soft Toggle 2 **UP**.

5. Select the desired stabilizer function using the Soft Toggles to operate the individual stabilizers.



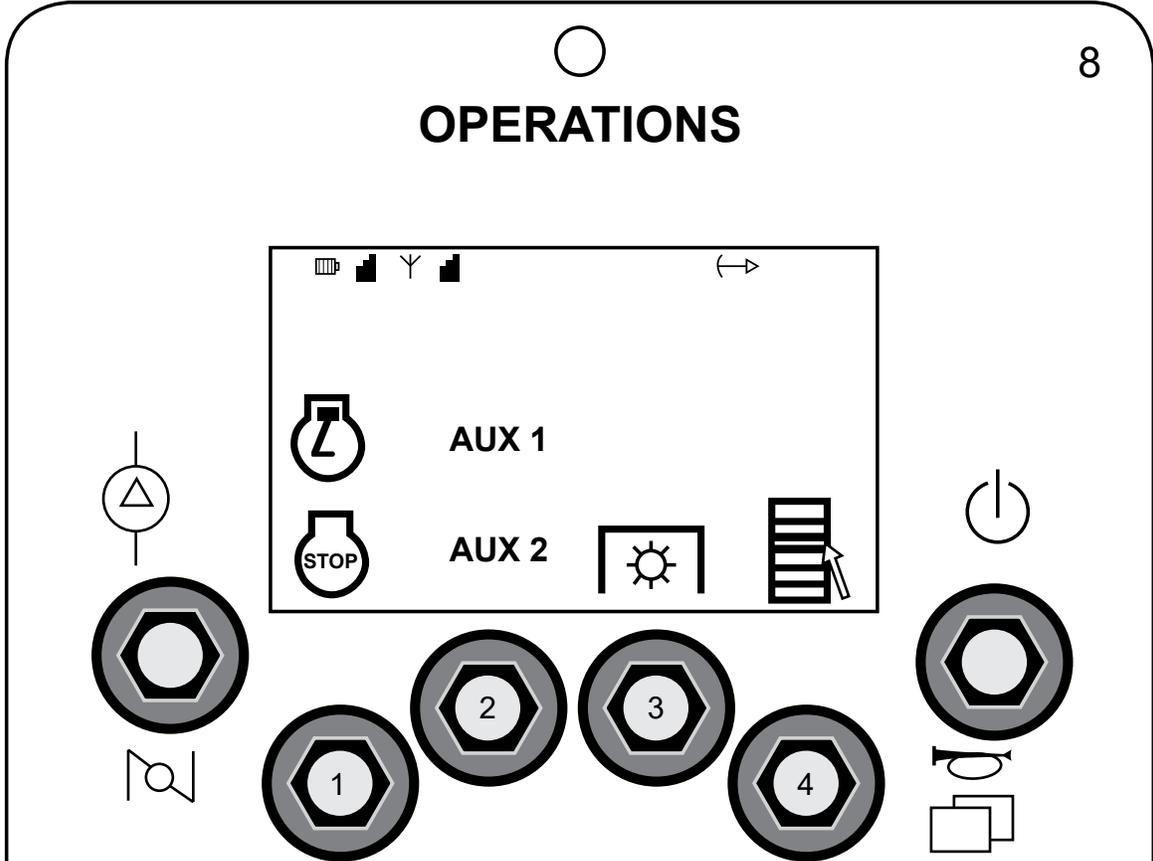
This is an example. Actual stabilizer screen and functions will depend on stabilizer configuration.



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This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Operations



ITEM	DESCRIPTION
Soft Toggle 1	Toggle UP : Engine START .
	Toggle DOWN : Engine STOP .
Soft Toggle 2	Toggle UP : Auxiliary 1 ON/OFF .
	Toggle DOWN : Auxiliary 2 ON/OFF .
Soft Toggle 3	Toggle DOWN : PTO - Engage / Disengage
Soft Toggle 4	Toggle UP
	Toggle DOWN : Accesses the Menu.



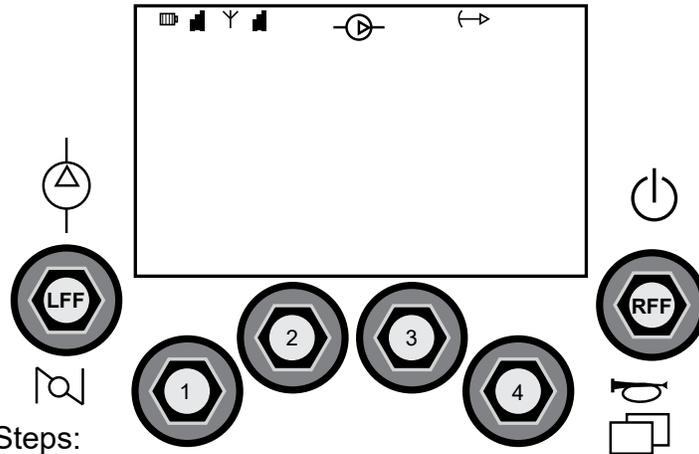
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This chart is to be used as a “quick reference” guide only.
It should not be substituted for a thorough review of the manual.

Compressor

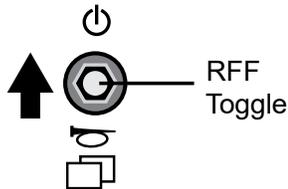
9

COMPRESSOR

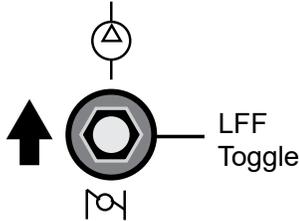


Compressor Steps:

1. Engage E-Brake and start the engine.
2. Engage PTO.
3. Power **ON** Remote - RFF Toggle **UP** and **HOLD** for one half of a second.



4. Click the LFF toggle **UP** to turn the Compressor **ON** and **OFF**.



When Auto PTO is configured, the Pop Up Screen can be acknowledge with Soft Toggle 2 **UP**.



This is an example. Actual compressor functionality will depend on the system configuration. Compressor will only run when the air tank pressure level is below set point.



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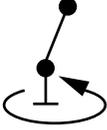
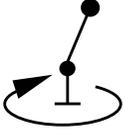
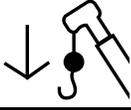
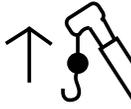
This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Crane Icons



10

CRANE ICONS

ICON	DESCRIPTION
	Boom Rotate CCW
	Boom Rotate CW
	Boom Retract
	Boom Extend
	Winch Out
	Winch In
	Boom Down
	Boom Up



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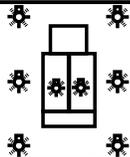
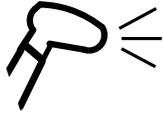
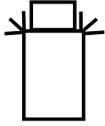
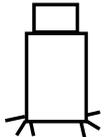
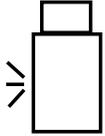
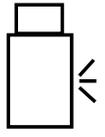
This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Light Icons



11

LIGHT ICONS

ICON	DESCRIPTION
	Body Light Indicator
	Boom Tip Light Indicator
	Boom Tip Lights
	Front Flood Lights
	Rear Flood Lights
	Left Flood Lights
	Right Flood Lights



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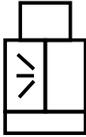
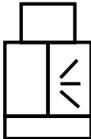
This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

LIGHT ICONS-CONTINUED



12

LIGHT ICONS - CONTINUED

ICON	DESCRIPTION
	Left Compartment Lights
	Right Compartment Lights



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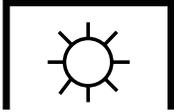
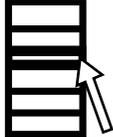
**This chart is to be used as a “quick reference” guide only.
It should not be substituted for a thorough review of the manual.**

Operation Icons



13

OPERATION ICONS

ICON	DESCRIPTION
	Engine Stop
	Engine Start
<p>AUX 1</p>	Auxiliary Power #1
<p>AUX 2</p>	Auxiliary Power #2
	PTO Control
	Advanced Menu



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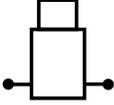
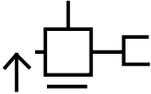
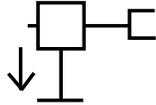
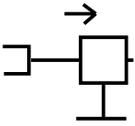
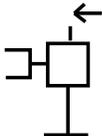
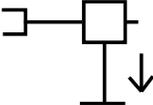
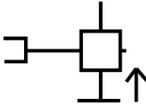
This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Stabilizer Icons



14

STABILIZER ICONS

ICON	DESCRIPTION
	Stabilizer Location Indicator
	Left Stabilizer Up
	Left Stabilizer Down
	Right Stabilizer Out
	Right Stabilizer In
	Right Stabilizer Down
	Right Stabilizer Up



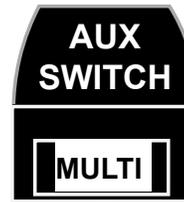
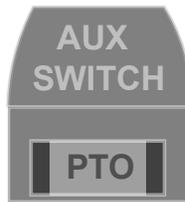
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This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Cab Controls

15

CAB CONTROLS



MODE	IGNITION	E-BRAKE	REVERSE GEAR	MULTI-FUNC SWITCH	FUNCTION
Exit Cab	ON	Engaged	N/A	Activated	Compartment and selected Floods ON
Reverse Flood Lights	ON	Not Engaged	Engaged	Activated	Rear Floods ON
Search Lights	ON	Not Engaged	N/A	Activated	Selected Floods ON



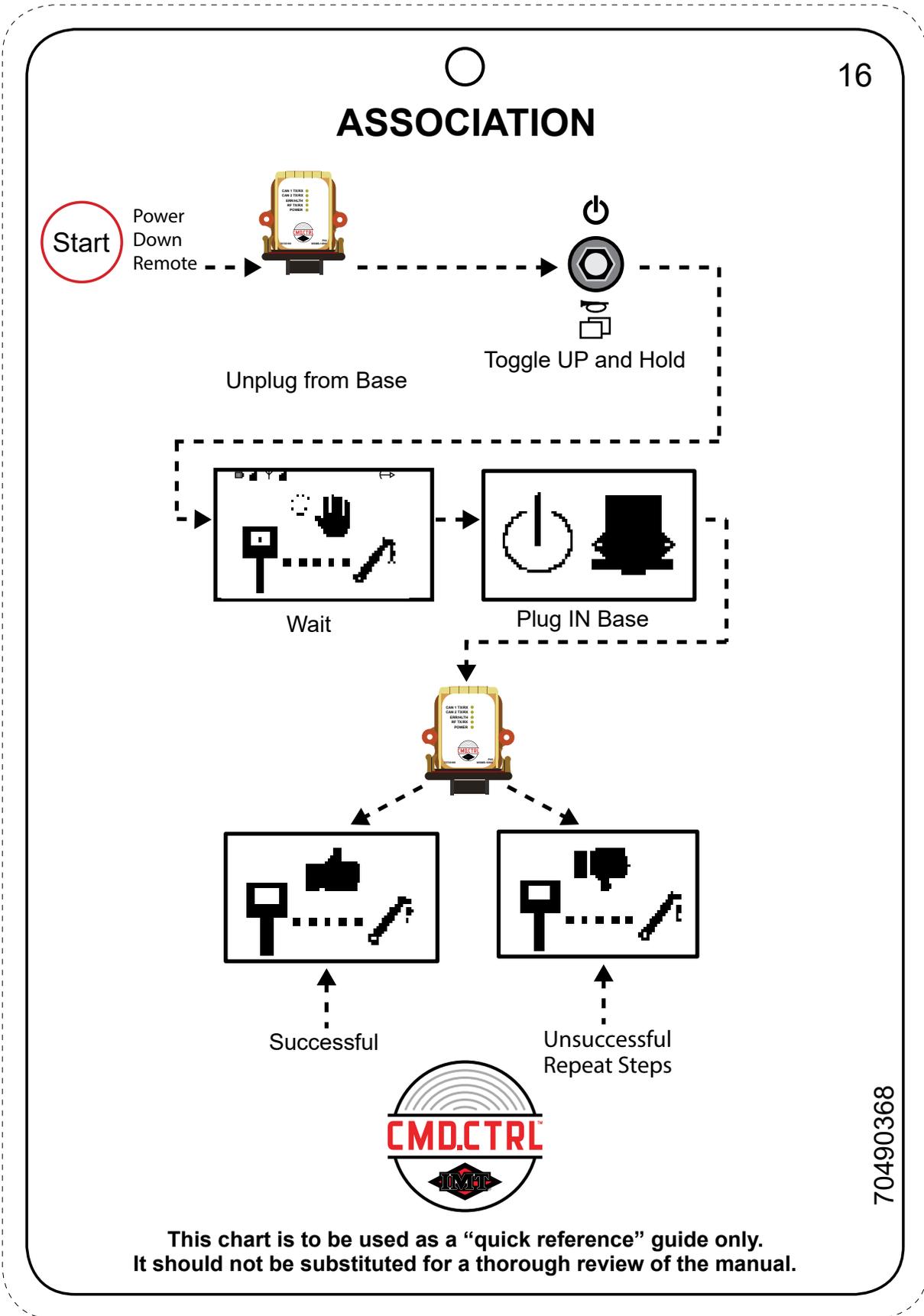
The multi-function Aux Switch capabilities will be based on the configuration.



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This chart is to be used as a “quick reference” guide only. It should not be substituted for a thorough review of the manual.

Association



GM/IH CV Chassis PTO Setup



17

GM / IH CV CHASSIS PTO SETUP

Upon arrival at the worksite and while the engine is running:

1. Engage the E-Brake.
2. Enable the cruise control from the steering wheel controls, then disable the cruise control while observing the indicator light on the dash. (Enable: light is on, Disable: light is off)
3. Engage the PTO by either using:
 - In-dash switch inside the cab.
 - CMD.CTRL™ body controls (Crane remote, or Auto PTO)

NOTE:

If the CMD.CTRL body controls were used for engine **STOP**, you must wait a minimum of 30 seconds before remote **START** can be activated. Attempting a remote **START** in less than 30 seconds from remote engine **STOP**, can result in chassis, or PTO not responding. If the PTO has been disengaged, the GM and IH CV chassis requires a minimum 30 seconds to reconfigure before PTO engage can be activated by either using:

- In-dash switch inside the cab
- CMD.CTRL™ body controls (Crane remote, or Auto PTO)

NOTE:

The horn will honk three (3) times indicating when the PTO is starting. If after 15 seconds the PTO has **NOT** started, repeat the PTO engage request. It is not uncommon for the PTO engage to **NOT** respond after multiple attempts with a GM and IH CV chassis. If the PTO will **NOT** engaged after multiple attempts, the chassis will need to be reset by:

- Turning engine off and removing the ignition key.
- Waiting until the chassis has completely powered down. (This can take up to one minute)



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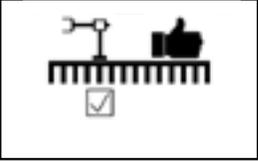
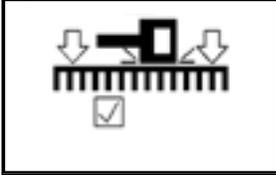
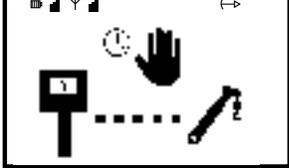
This chart is to be used as a “quick reference” guide only.
It should not be substituted for a thorough review of the manual.

Section - 17

Pop-Up Screens

Pop-Up Screens

A new Work Cycle is started when the E-Brake is engaged and ends when the E-Brake is released. The Pop-Up Screens are a one-time reminder during a Work Cycle.

ICON	DESCRIPTION
	<p>Stabilizers Deployed</p>
	<p>Auto PTO</p>
	<p>Emergency Stop</p>
	<p>Dropped Remote</p>
	<p>Hold for Association</p>
	<p>Apply Power to Base Unit</p>

Pop-Up Screens - Continued

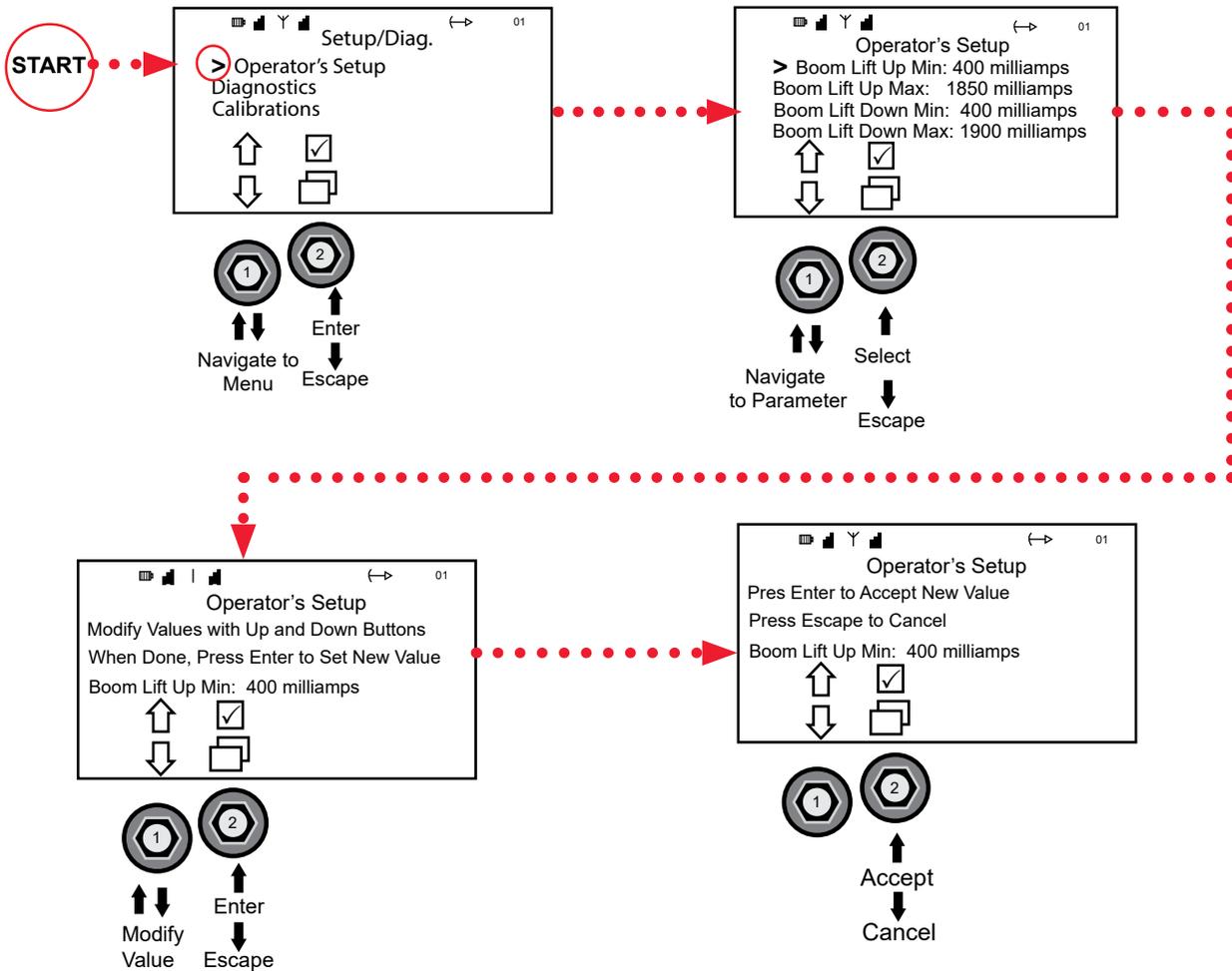
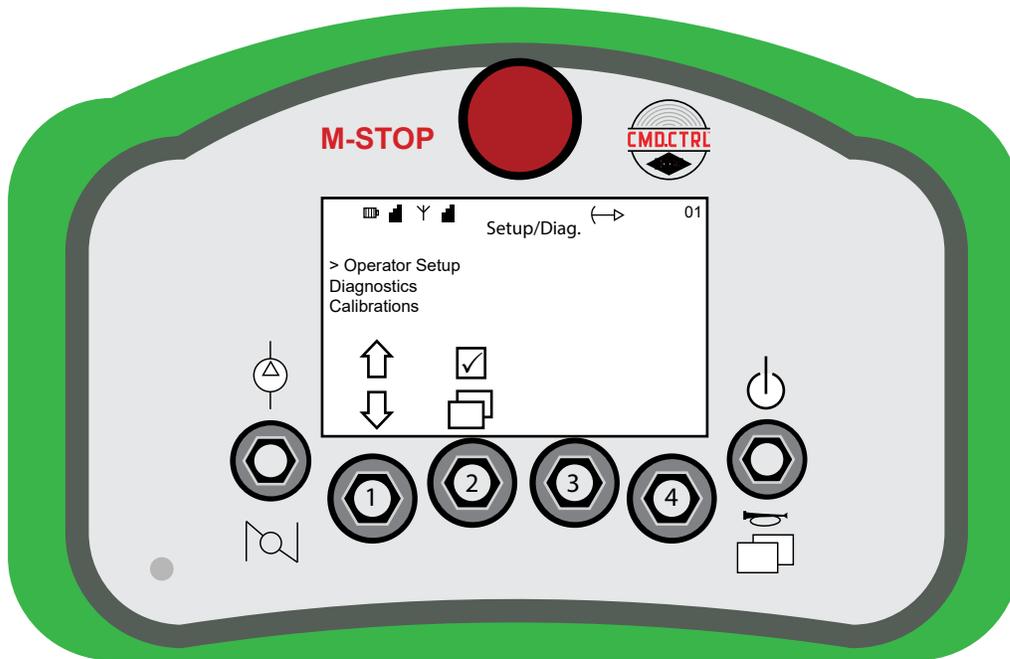
ICON	DESCRIPTION
	<p>Successful</p>
	<p>Unsuccessful</p>

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Section - 18

Setup / Diagnostics

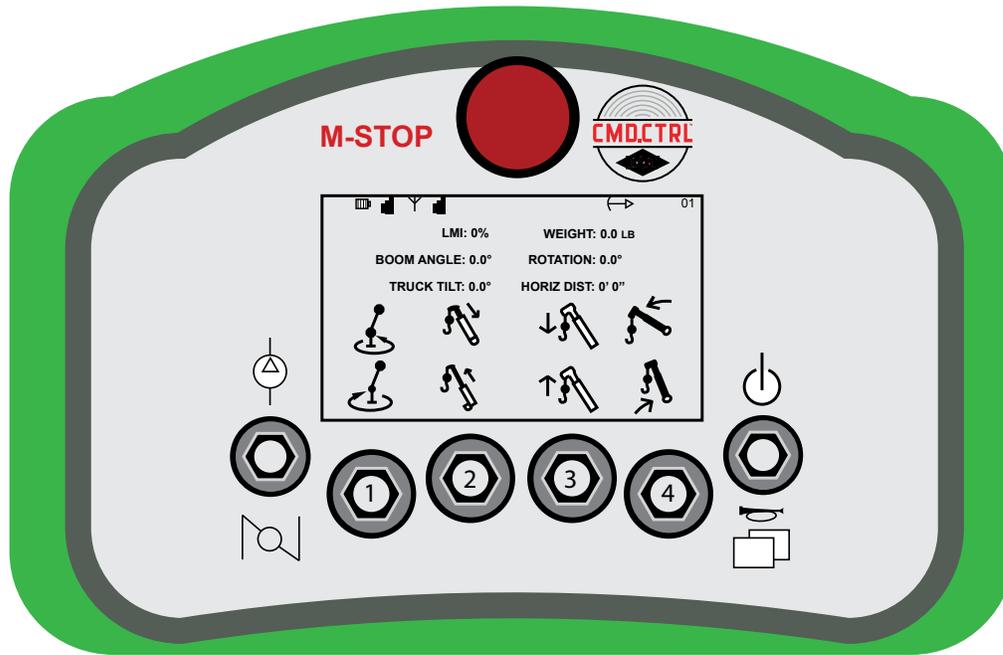
Setup / Diagnostic - Operator - Min / Max



Section - 19

Stand Alone Crane

Stand Alone Crane—Crane Screen



Crane Mode

When in Crane Mode:

Soft Toggle 1: Crane Rotation:

- Toggle **UP** - enables crane rotate **CCW** function.
- Toggle **DOWN** - enables crane rotate **CW** function.

Soft Toggle 2: Boom Extension:

- Toggle **UP** - enables **Boom Retract** function.
- Toggle **DOWN** - enables **Boom Extend** function.

Soft Toggle 3: Boom Winch:

- Toggle **UP** - enables winch **DOWN** function.
- Toggle **DOWN** - enables winch **UP** function.

Soft Toggle 4 Boom Lift:

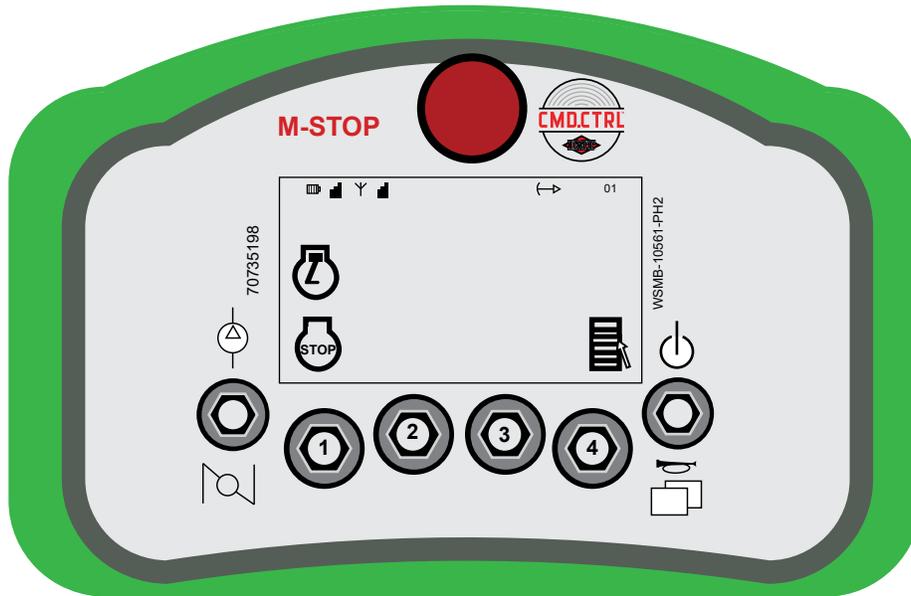
- Toggle **UP** - enables Boom **DOWN** function.
- Toggle **DOWN** enables Boom **UP** function.

ITEM	DESCRIPTION
LMI (Load Moment Indicator)	Displays the Load Moment of the Crane in percentages (0-100%)
Boom Angle	Displays in degrees Horizontal = 0° (above horizontal reads positive)
Truck Tilt	Combined tilt angle of the body
Weight	Calculated weight on the hook
Horizontal Distance	Load distance from center of the mast measured horizontally



For Crane movment, enable crane function first and then control function speed with the trigger.

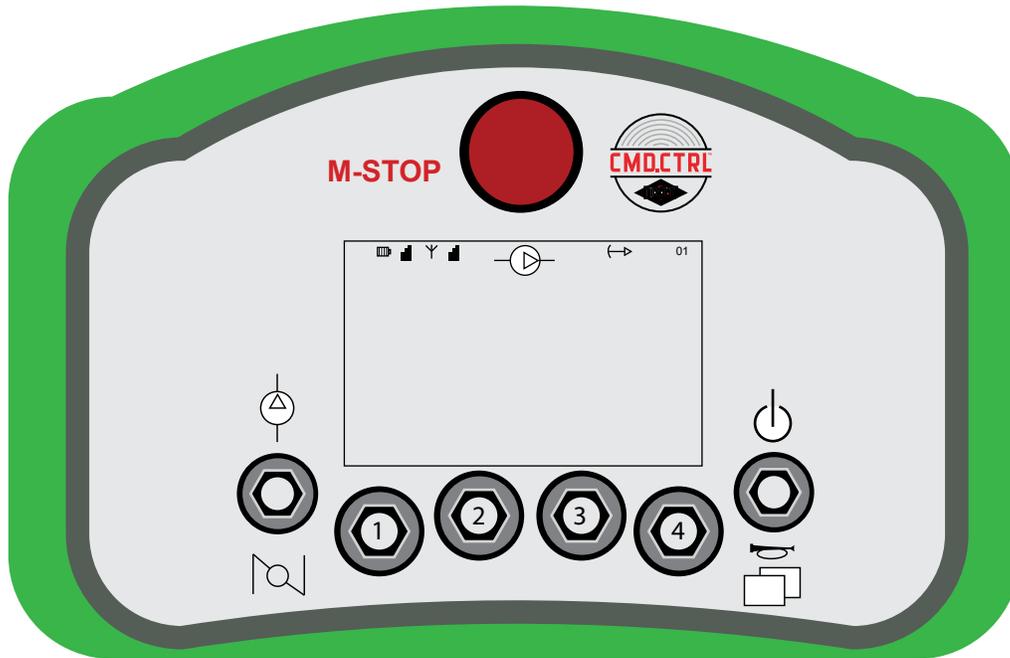
Stand Alone Crane—Operations



Operation's Screen

ITEM	DESCRIPTION
Soft Toggle 1	Toggle UP : Engine START Toggle DOWN : Engine STOP
Soft Toggle 2	Toggle UP : Auxiliary 1 ON / OFF Toggle DOWN : Auxiliary 2 ON / OFF
Soft Toggle 3	Toggle DOWN : NA
Soft Toggle 4	Toggle UP : NA Toggle DOWN : Accesses the Menu

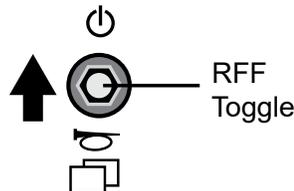
Stand Alone Crane—Compressor Activation



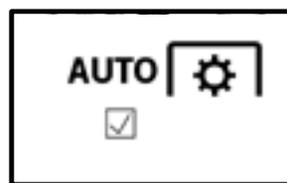
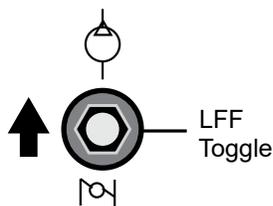
Compressor Screen

Compressor Steps:

- Engage E-Brake and start the engine.
- Engage PTO (Not required if Auto PTO is configured)
- Power **ON** Remote - RFF toggle **UP** and **Hold** for half of a second.



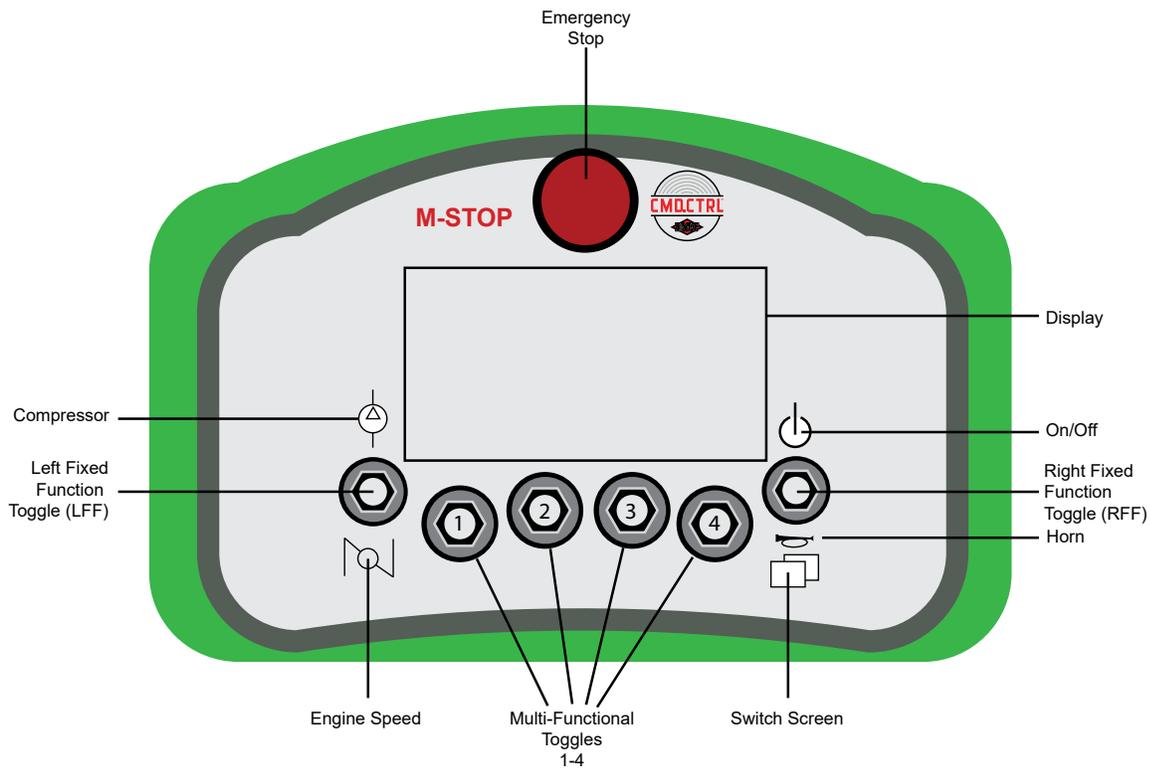
4. Click the **LFF** toggle **UP** to turn the Compressor **ON** and **OFF**.



When Auto PTO is configured, the Pop Up can be acknowledged by clicking Soft Toggle 2 **UP**.

 This is an example. Actual compressor functionality will depend on the system configuration. Compressor will only run when the air tank pressure level is below set point.

Stand Alone Crane—Engine Speed Control



TOGGLE NAME	DESCRIPTION	TOGGLE STYLE
Right Fixed Function (RFF) UP	<ul style="list-style-type: none"> • TX ON / OFF • Association 	Three-Position Momentary
Right Fixed Function (RFF) DOWN	<ul style="list-style-type: none"> • Horn • Menu 	Three-Position Momentary
Soft Toggles 1 – 4	Functions will change based on the icons that are being displayed on the screen	Three-Position Momentary
Left Fixed Function (LFF) UP	<ul style="list-style-type: none"> • Compressor 	Three-Position Momentary
Left Fixed Function (LFF) DOWN	<ul style="list-style-type: none"> • RPM HI / LO 	Three-Position Momentary
Emergency Stop	Machine Stop	Maintained

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Section - 20

Body Codes

Body—Fault Code Definitions

The table below describes the categories of DTC codes for faults.

Category	Description
0-0	May occur during Normal Operation and explain various interlocks. The warning icon should be off
2-1	Indicate that there is a voltage supply problem. The warning icon on.
2-2	Indicate difficulty with the inputs. The warning icon on.
2-3	Indicate that there is an output driver problem. The warning icon on. These faults shall be latched and normal operation prevented until power is cycled.
2-4	Indicate a system is not calibrated. The warning icon on.
2-5	Indicate that a function is prevented due to a cutout. The warning icon on.
6-6	Indicate that there are system communication (CANbus) problems. The warning icon on. These faults shall be latched and normal operation prevented until power is cycled.
9-9	Indicate that there is a controller problem. The warning icon on. These faults shall be latched and normal operation prevented until power is cycled.

Body—Fleet Configuration

TO MODIFY THE FLEET CONFIGURATION SETTINGS, THE SYSTEM PASSWORD WILL NEED TO BE ENTERED.

Note: * is the Default option

PARAMETER	OPTIONS	SUB OPTIONS	
Chassis Type	None *		
	Ram (TYPE R1)		
	Ford (TYPE F1)		
	IPU (TYPE IPU1)		
	Other (TYPE OTH1)		
	GM/IH (TYPE GI1)		
Chassis Options	Paccar Engine (Other)		(chassis type) indicates what chassis an option is visible for. Multiple of these options can potentially be configured.
Transmission Type	Automatic *		
	Manual		
PTO Type	Hot Shift *		
	Other		
PTO Start Delay	0-10 Seconds Default is 5 Seconds		
Crane Placement	Right *		
	Left		
Stabilizers Installed	Left Rear	No *	Note: Based on Crane Placement Front will be either Right or Left. The sub menu will be used individually setting up each Stabilizer.
	Right Rear	Yes	
	Front	Extendable	
Crane Installed	None *		Note: The configuration to a Hydraulic 2nd Gen crane will happen automatically when the Body controller detects the Crane controller on the CAN bus by receiving the Configuration Status message from the Crane controller.
	Hydraulic		
	Hydraulic 2nd Gen		
	Electric		
	Electric 2nd Gen		
Compressor Installed	No *		
	Yes		
Master Lock Installed	No *		
	Yes		
RPM Speeds	Single *		
	Dual		
Auto PTO Feature Enabled	No *		Note: This option will not be available when IPU Chassis or Paccar Engine option are selected or PTO Type is set to Other
	Yes		
Search Lights Enabled	No *		
	Yes		

PARAMETER	OPTIONS	SUB OPTIONS	
Reverse Lights Enabled	No *		
	Yes		
Compartment Fans	No *		
	Yes		
Auxiliary E-Brake Interlock Required	No *		
	Yes		
Transmission Inhibit	None *		
	Remote Cradle		
	Boom Stow		
	Both		
Transmission Inhibit Alarm	No*		Note: This option is only available if the Transmission Inhibit option is enabled
	Yes		
Crane Stow Sensor	None*		Note: This option is only available if the Transmission Inhibit option is enabled
	Body		
	Crane		
Chassis Tilt Sensor	No*		
	Yes		
Auto Level Feature Enabled	No*		Note: This Option will not be visible or selectable for first Production release.
	Yes		
Note: * is the Default option			

Body—User Configuration

Parameters	Options	Sub Option	
Language	English * French Spanish		
Lights Installed	Front Right Front Left Middle Right Middle Left Rear Right Rear Left Boom Tip	No * Yes	
Exit Cab Light Switch #1	All * None Left Right Rear Front	Left compartment lights Right compartment lights Boom tip	Note: can select one of the flood light options and all of the sub options
Reverse Flood Lights	No * Auto Cabin Switch #1		
Search Lights	All * None Right Left Rear Front		Note: option is only visible if enabled in fleet configurations
Boom Tip Lights Auto On	No * Yes		
PTO Activation	None * Auto Cabin Switch #2 Both		Note: auto or both options are only available if enabled in fleet configurations. This option will not be visible if IPU chassis or Paccar engine are configured
Auxiliary 1 Interlock	None E-Brake PTO Active		Note: If E-Brake is required by the Fleet Configurations it will not be allowed to be deselected, the user can select both of the interlock options or none

Parameters	Options	Sub Option	
Auxiliary 1 Activation	None * Automatic Cabin Switch #2		
Auxiliary 2 Interlock	None E-Brake PTO Active		Note: If E-Brake is required by the Fleet Configurations it will not be allowed to be deselected, the user can select both of the interlock options or none
Auxiliary 2 Activation	None * Automatic Cabin Switch #2		
Note: * is the Default option			

Body—Fault Tables

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Power Cycle	0	OFF	OFF	· No restrictions	This Help Message is issued at each power-up. This serves to indicate which messages have been recorded in the failure log since the last power-up event.	Unlatched
Everything Ok	1	OFF	OFF	· No restrictions	No Faults are active.	Unlatched
Battery Voltage Too Low	210	ON	ON	<ul style="list-style-type: none"> • Stabilizer = PREVENTED • Crane Enable = PREVENTED • Compressor = PREVENTED • PTO = PREVENTED • Compartment Fans = PREVENTED • Horn = PREVENTED • Lights = PREVENTED 	System voltage is < 9.0 volts for 5000 mS.	Unlatched
Battery Voltage Too High	211	ON	ON with Pop UP	<ul style="list-style-type: none"> • Stabilizer = PREVENTED • Crane Enable = PREVENTED • Compressor = PREVENTED • PTO = PREVENTED • Engine Start/Stop = PREVENTED • Compartment Fans = PREVENTED • Horn = PREVENTED • Lights = PREVENTED 	System voltage > 18 volts for 5000 mS.	Unlatched
PTO - Active At Power Up	220	OFF	ON	· No restrictions	PTO on input (J3E2) is active at power up.	Latched
Horn – Open Circuit	231	OFF	ON	· No restrictions	Open Circuit detected on Horn output and Crane Power Enable is Off.	Unlatched
Horn – Short To Battery	232	OFF	ON	· No restrictions	Short to Battery was detected on Horn Output	Unlatched
Horn – Short To Ground	233	OFF	ON	· Disable Output	Short to Ground was detected on Horn Output	Latched
Boom Tip Light – Open Circuit	234	OFF	ON	· No restrictions	Open Circuit detected on Boom Tip Light Output Vehicle must be configured to have Boom Tip Lights installed and not configured as a Hydraulic 2nd Gen Crane.	Unlatched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Boom Tip Light – Short To Battery	235	OFF	ON	• No restrictions	Short to Battery detected on Boom Tip Light Output Vehicle must be configured to have Boom Tip Lights installed.	Unlatched
Boom Tip Light – Short To Ground	236	OFF	ON	• Disable Output	Short to Ground was detected on Boom Tip Light Output Vehicle must be configured to have Boom Tip Lights installed.	Latched
Hydraulic Bypass Valve – Open Circuit	237	OFF	ON	• No restrictions	Open Circuit detected on Hydraulic Bypass Valve Vehicle must have at least one Stabilizer installed to detect this fault.	Unlatched
Hydraulic Bypass Valve – Short To Battery	238	OFF	ON	• Stabilizer = PREVENTED	Short to Battery detected on Hydraulic Bypass Valve	Unlatched
Hydraulic Bypass Valve – Short To Ground	239	OFF	ON	• Disable Output	Short to Ground was detected on Hydraulic Bypass Valve Output	Latched
Compressor Relay – Open Circuit	2310	OFF	ON	• No restrictions	Open Circuit detected on Compressor Output. Vehicle must be configured to have the compressor installed and Crane Power Enable is Off.	Unlatched
Compressor Relay – Short To Battery	2311	OFF	ON	• No restrictions	Short to Battery detected on Compressor Output. Vehicle must be configured to have the compressor installed.	Unlatched
Compressor Relay – Short To Ground	2312	OFF	ON	• Disable Output	Short to Ground was detected on Compressor Output. Vehicle must be configured to have the compressor installed.	Latched
Compartment Fan – Open Circuit	2313	OFF	ON	• No restrictions	Open Circuit detected on Compartment Fan Output. Vehicle must be configured to have the compartment fans installed.	Unlatched
Compartment Fan – Short To Battery	2314	OFF	ON	• No restrictions	Short to Battery detected on Compartment Fan Output. Vehicle must be configured to have the compartment fans installed.	Unlatched
Compartment Fan – Short To Ground	2315	OFF	ON	• Disable Output	Short to Ground was detected on Compartment Fan Output. Vehicle must be configured to have the compartment fans installed.	Latched
Crane Compartment Light – Open Circuit	2316	OFF	ON	• No restrictions	Open Circuit detected on Crane Compartment Light Output	Unlatched
Crane Compartment Light – Short To Battery	2317	OFF	ON	• No restrictions	Short to Battery detected on Crane Compartment Light Output	Unlatched
Crane Compartment Light – Short To Ground	2318	OFF	ON	• Disable Output	Short to Ground was detected on Crane Compartment Light Output	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Crane Enable Relay – Open Circuit	2319	OFF	ON	• No restrictions	Open Circuit detected on Crane Enable Relay Output	Unlatched
Crane Enable Relay – Short To Battery	2320	OFF	ON	• No restrictions	Short to Battery detected on Crane Enable Relay Output	Unlatched
Crane Enable Relay – Short To Ground	2321	OFF	ON	• Disable Output	Short to Ground was detected on Crane Enable Relay Output	Latched
Left Rear Stabilizer Down – Open Circuit	2322	OFF	ON	• No restrictions	Open Circuit detected on Left Rear Stabilizer Down Output. Vehicle must be configured to have the left rear stabilizer installed.	Unlatched
Left Rear Stabilizer Down – Short To Battery	2323	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Left Rear Stabilizer Down Output. Vehicle must be configured to have the left rear stabilizer installed.	Unlatched
Left Rear Stabilizer Down – Short To Ground	2324	OFF	ON	• Disable Output	Short to Ground was detected on Left Rear Stabilizer Down Output. Vehicle must be configured to have the left rear stabilizer installed.	Latched
Left Rear Stabilizer Up – Open Circuit	2325	OFF	ON	• No restrictions	Open Circuit detected on Left Rear Stabilizer Up Output. Vehicle must be configured to have the left rear stabilizer installed.	Unlatched
Left Rear Stabilizer Up – Short To Battery	2326	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Left Rear Stabilizer Up Output. Vehicle must be configured to have the left rear stabilizer installed.	Unlatched
Left Rear Stabilizer Up – Short To Ground	2327	OFF	ON	• Disable Output	Short to Ground was detected on Left Rear Stabilizer Up Output. Vehicle must be configured to have the left rear stabilizer installed.	Latched
Left Rear Stabilizer Extend – Open Circuit	2328	OFF	ON	• No restrictions	Open Circuit detected on Left Rear Stabilizer Extend Output. Vehicle must be configured to have an extendable left rear stabilizer installed.	Unlatched
Left Rear Stabilizer Extend – Short To Battery	2329	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Left Rear Stabilizer Extend Output. Vehicle must be configured to have an extendable left rear stabilizer installed.	Unlatched
Left Rear Stabilizer Extend – Short To Ground	2330	OFF	ON	• Disable Output	Short to Ground was detected on Left Rear Stabilizer Extend Output. Vehicle must be configured to have an extendable left rear stabilizer installed.	Latched
Left Rear Stabilizer Retract – Open Circuit	2331	OFF	ON	• No restrictions	Open Circuit detected on Left Rear Stabilizer Retract Output. Vehicle must be configured to have an extendable left rear stabilizer installed.	Unlatched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Left Rear Stabilizer Retract – Short To Battery	2332	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Left Rear Stabilizer Retract Output. Vehicle must be configured to have an extendable left rear stabilizer installed.	Unlatched
Left Rear Stabilizer Retract – Short To Ground	2333	OFF	ON	• Disable Output	Short to Ground was detected on Left Rear Stabilizer Retract Output. Vehicle must be configured to have an extendable left rear stabilizer installed.	Latched
Right Rear Stabilizer Down – Open Circuit	2334	OFF	ON	• No restrictions	Open Circuit detected on Right Rear Stabilizer Down Output. Vehicle must be configured to have the right rear stabilizer installed.	Unlatched
Right Rear Stabilizer Down – Short To Battery	2335	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Right Rear Stabilizer Down Output. Vehicle must be configured to have the right rear stabilizer installed.	Unlatched
Right Rear Stabilizer Down – Short To Ground	2336	OFF	ON	• Disable Output	Short to Ground was detected on Right Rear Stabilizer Down Output. Vehicle must be configured to have the right rear stabilizer installed.	Latched
Right Rear Stabilizer Up – Open Circuit	2337	OFF	ON	• No restrictions	Open Circuit detected on Right Rear Stabilizer Up Output. Vehicle must be configured to have the right rear stabilizer installed.	Unlatched
Right Rear Stabilizer Up – Short To Battery	2338	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Right Rear Stabilizer Up Output. Vehicle must be configured to have the right rear stabilizer installed.	Unlatched
Right Rear Stabilizer Up – Short To Ground	2339	OFF	ON	• Disable Output	Short to Ground was detected on Right Rear Stabilizer Up Output. Vehicle must be configured to have the right rear stabilizer installed.	Latched
Right Rear Stabilizer Extend – Open Circuit	2340	OFF	ON	• No restrictions	Open Circuit detected on Right Rear Stabilizer Extend Output. Vehicle must be configured to have an extendable right rear stabilizer installed.	Unlatched
Right Rear Stabilizer Extend – Short To Battery	2341	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Right Rear Stabilizer Extend Output. Vehicle must be configured to have an extendable right rear stabilizer installed.	Unlatched
Right Rear Stabilizer Extend – Short To Ground	2342	OFF	ON	• Disable Output	Short to Ground was detected on Right Rear Stabilizer Extend Output. Vehicle must be configured to have an extendable right rear stabilizer installed.	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Right Rear Stabilizer Retract – Open Circuit	2343	OFF	ON	• No restrictions	Open Circuit detected on Right Rear Stabilizer Retract Output.	Unlatched
					Vehicle must be configured to have an extendable right rear stabilizer installed.	
Right Rear Stabilizer Retract – Short To Battery	2344	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Right Rear Stabilizer Retract Output.	Unlatched
					Vehicle must be configured to have an extendable right rear stabilizer installed.	
Right Rear Stabilizer Retract – Short To Ground	2345	OFF	ON	• Disable Output	Short to Ground was detected on Right Rear Stabilizer Retract Output.	Latched
					Vehicle must be configured to have an extendable right rear stabilizer installed.	
Front Stabilizer Down – Open Circuit	2346	OFF	ON	• No restrictions	Open Circuit detected on Front Stabilizer Down Output.	Unlatched
					Vehicle must be configured to have a front stabilizer installed.	
Front Stabilizer Down – Short To Battery	2347	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Front Stabilizer Down Output.	Unlatched
					Vehicle must be configured to have a front stabilizer installed.	
Front Stabilizer Down – Short To Ground	2348	OFF	ON	• Disable Output	Short to Ground was detected on Front Stabilizer Down Output.	Latched
					Vehicle must be configured to have a front stabilizer installed.	
Front Stabilizer Up – Open Circuit	2349	OFF	ON	• No restrictions	Open Circuit detected on Front Stabilizer Up Output.	Unlatched
					Vehicle must be configured to have a front stabilizer installed.	
Front Stabilizer Up – Short To Battery	2350	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Front Stabilizer Up Output.	Unlatched
					Vehicle must be configured to have a front stabilizer installed.	
Front Stabilizer Up – Short To Ground	2351	OFF	ON	• Disable Output	Short to Ground was detected on Front Stabilizer Up Output.	Latched
					Vehicle must be configured to have a front stabilizer installed.	
Front Stabilizer Extend – Open Circuit	2352	OFF	ON	• No restrictions	Open Circuit detected on Front Stabilizer Extend Output.	Unlatched
					Vehicle must be configured to have an extendable front stabilizer installed.	
Front Stabilizer Extend – Short To Battery	2353	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Front Stabilizer Extend Output.	Unlatched
					Vehicle must be configured to have an extendable front stabilizer installed.	
Front Stabilizer Extend – Short To Ground	2354	OFF	ON	• Disable Output	Short to Ground was detected on Front Stabilizer Extend Output.	Latched
					Vehicle must be configured to have an extendable front stabilizer installed.	
Front Stabilizer Retract – Open Circuit	2355	OFF	ON	• No restrictions	Open Circuit detected on Front Stabilizer Retract Output.	Unlatched
					Vehicle must be configured to have an extendable front stabilizer installed.	

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Front Stabilizer Retract – Short To Battery	2356	OFF	ON	• Disable Bypass Valve	Short to Battery detected on Front Stabilizer Retract Output. Vehicle must be configured to have an extendable front stabilizer installed.	Unlatched
Front Stabilizer Retract – Short To Ground	2357	OFF	ON	• Disable Output	Short to Ground was detected on Front Stabilizer Retract Output. Vehicle must be configured to have an extendable front stabilizer installed.	Latched
Engine Start – Short To Battery	2359	OFF	ON	• Engine Start/Stop = PREVENTED	Short to Battery detected on Engine Start Output	Unlatched
Engine Start – Short To Ground	2360	OFF	ON	• Disable Output	Short to Ground was detected on Engine Start Output	Latched
Engine Stop – Open Circuit	2361	OFF	ON	• No restrictions	Open Circuit detected on Engine Stop Output Note: This Fault will not be detected Pull Up resistor removed.	Latched
Engine Stop – Short To Battery	2362	OFF	ON	• Engine Start/Stop = PREVENTED • IPU Power latch = PREVENTED	Short to Battery detected on Engine Stop Output Vehicle must be configured to not be the RAM Chassis	Unlatched
Engine Stop – Short To Ground	2363	OFF	ON	• Disable Output	Short to Ground was detected on Engine Stop Output Vehicle must be configured to not be the RAM Chassis	Latched
Engine Speed 1 – Short To Battery	2365	OFF	ON	• No restrictions	Short to Battery detected on Engine Speed 1 Output	Unlatched
Engine Speed 1– Short To Ground	2366	OFF	ON	• Disable Output	Short to Ground was detected on Engine Speed 1 Output	Latched
Engine Speed 2 – Short To Battery	2368	OFF	ON	• No restrictions	Short to Battery detected on Engine Speed 2 Output. Vehicle must be configured to have dual engine RPM speeds.	Unlatched
Engine Speed 2– Short To Ground	2369	OFF	ON	• Disable Output	Short to Ground was detected on Engine Speed 2 Output. Vehicle must be configured to have dual engine RPM speeds.	Latched
Transmission Inhibit – Open Circuit	2370	OFF	ON	• No restrictions	Open Circuit detected on Transmission Inhibit Output Vehicle must be configured to have Transmission Inhibit	Unlatched
Transmission Inhibit – Short To Battery	2371	OFF	ON	• No restrictions	Short to Battery detected on Transmission Inhibit Output Vehicle must be configured to have Transmission Inhibit	Unlatched
Transmission Inhibit– Short To Ground	2372	OFF	ON	• Disable Output	Short to Ground was detected on Transmission Inhibit Output Vehicle must be configured to have Transmission Inhibit	Latched
Master Lock Open – Open Circuit	2373	OFF	ON	• No restrictions	Open Circuit detected on Master lock Open Output. Vehicle must be configured to have Master lock installed.	Unlatched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Master Lock Open – Short To Battery	2374	OFF	ON	• No restrictions	Short to Battery detected on Master lock Open Output. Vehicle must be configured to have Master lock installed.	Unlatched
Master Lock Open – Short To Ground	2375	OFF	ON	• Disable Output	Short to Ground was detected on Master lock Open Output. Vehicle must be configured to have Master lock installed.	Latched
Master Lock Close – Open Circuit	2376	OFF	ON	• No restrictions	Open Circuit detected on Master lock Close Output. Vehicle must be configured to have Master lock installed.	Unlatched
Master Lock Close – Short To Battery	2377	OFF	ON	• No restrictions	Short to Battery detected on Master lock Close Output. Vehicle must be configured to have Master lock installed.	Unlatched
Master Lock Close – Short To Ground	2378	OFF	ON	• Disable Output	Short to Ground was detected on Master lock Close Output. Vehicle must be configured to have Master lock installed.	Latched
Left Compartment Light – Open Circuit	2379	OFF	ON	• No restrictions	Open Circuit detected on Left Compartment Light Output	Unlatched
Left Compartment Light – Short To Battery	2380	OFF	ON	• No restrictions	Short to Battery detected on Left Compartment Light Output	Unlatched
Left Compartment Light – Short To Ground	2381	OFF	ON	• Disable Output	Short to Ground was detected on Left Compartment Light Output	Latched
Right Compartment Light – Open Circuit	2382	OFF	ON	• No restrictions	Open Circuit detected on Right Compartment Light Output	Unlatched
Right Compartment Light – Short To Battery	2383	OFF	ON	• No restrictions	Short to Battery detected on Right Compartment Light Output	Unlatched
Right Compartment Light – Short To Ground	2384	OFF	ON	• Disable Output	Short to Ground was detected on Right Compartment Light Output	Latched
Auxiliary 1 – Short To Ground	2385	OFF	ON	• Disable Output	Short to Ground was detected on Auxiliary 1 Output	Latched
Auxiliary 2 – Short To Ground	2386	OFF	ON	• Disable Output	Short to Ground was detected on Auxiliary 2 Output	Latched
Right Front Flood Light – Short To Ground	2387	OFF	ON	• Disable Output	Short to Ground was detected on Right Front Flood Light Output. Vehicle must be configured to have the right front flood light installed.	Latched
Right Middle Flood Light – Short To Ground	2388	OFF	ON	• Disable Output	Short to Ground was detected on Right Middle Flood Light Output. Vehicle must be configured to have the right middle flood light installed.	Latched
Right Rear Flood Light – Short To Ground	2389	OFF	ON	• Disable Output	Short to Ground was detected on Right Rear Flood Light Output. Vehicle must be configured to have the right rear flood light installed.	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Left Front Flood Light – Short To Ground	2390	OFF	ON	• Disable Output	Short to Ground was detected on Left Front Flood Light Output. Vehicle must be configured to have the left front flood light installed.	Latched
Left Middle Flood Light – Short To Ground	2391	OFF	ON	• Disable Output	Short to Ground was detected on Left Middle Flood Light Output. Vehicle must be configured to have the left middle flood light installed.	Latched
Left Rear Flood Light – Short To Ground	2392	OFF	ON	• Disable Output	Short to Ground was detected on Left Rear Flood Light Output. Vehicle must be configured to have the left rear flood light installed.	Latched
CAN Bus Failure – Display	662	OFF	ON	<ul style="list-style-type: none"> • Stabilizer = PREVENTED • Crane Enable = PREVENTED • Compressor = PREVENTED • PTO = PREVENTED • Engine Start/Stop = PREVENTED • Compartment Fans = PREVENTED • Horn = PREVENTED 	The Body Module failed to receive messages from the Display. Check wiring at the Display. • Functions Request Message – (0x0B) not received for 30000mS upon Startup and 250mS thereafter.	Latched
CAN Bus Failure – Remote Stabilizer Module	663	OFF	ON	• Front Stabilizer = PREVENTED	The Front Stabilizer is configured and the Body Module failed to receive messages from the Remote I/O Module. Check wiring at the Remote I/O Module. •Remote I/O Status Message – (0x47) not received for 300mS. Vehicle must be configured to have a front stabilizer installed.	Latched
CAN Bus Failure – Chassis Tilt Sensor	669	OFF	ON	<ul style="list-style-type: none"> • AUTO LEVEL = PREVENTED • Chassis tilt sensor = UNHEALTHY 	When the Chassis Tilt sensor is configured and the Crane Module failed to receive messages from the Parker tilt Sensor for 250 msec.	Latched
CAN Bus Failure – Crane Module	6610	OFF	ON	• Stabilizer and Auto Level Control from Remote/Crane = PREVENTED	The Body Module failed to receive messages from the Crane Module. Check wiring at the Crane. • Functions Request Message – (0x23) not received for 250mS. Crane needs to be configured as a Hydraulic Gen 2 system	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Functions Locked Out – Software Version Improper	991	ON	ON with Pop UP	<ul style="list-style-type: none"> • Stabilizer = PREVENTED • Crane Enable = PREVENTED • Compressor = PREVENTED • PTO = PREVENTED • Engine Start/Stop = PREVENTED • Compartment Fans = PREVENTED • Horn = PREVENTED • Lights = PREVENTED 	<ul style="list-style-type: none"> • The Display reported Software Major Versions that were not equal to the Body Module Software Major Version when the Software type of the Body Module is set to "P". The control system may resume operation once the system is programmed. 	Latched
Functions Locked Out - Constant Data Version Improper	992	OFF	ON with Pop UP	<ul style="list-style-type: none"> • Stabilizer = PREVENTED • Crane Enable = PREVENTED • Compressor = PREVENTED • PTO = PREVENTED • Engine Start/Stop = PREVENTED • Compartment Fans = PREVENTED • Horn = PREVENTED • Lights = PREVENTED 	<ul style="list-style-type: none"> • The Body Module's Application and ConstantData Versions do not match 	Latched
Functions Locked Out – Machine Not Configured	993	OFF	ON	<ul style="list-style-type: none"> • Stabilizer = PREVENTED • Crane Enable = PREVENTED • Compressor = PREVENTED • PTO = PREVENTED • Engine Start/Stop = PREVENTED • Compartment Fans = PREVENTED • Horn = PREVENTED • Lights = PREVENTED 	<ul style="list-style-type: none"> Body Module detects one of these issues: • Chassis Type is set to None 	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
EEPROM Failure – Check All Settings	994	OFF	ON	• Stabilizer = PREVENTED	• The Body Module's EEPROM checksum indicates corruption. Retained until EEPROM settings are corrected and power is re-cycled.	Latched
				• Crane Enable = PREVENTED		
				• Compressor = PREVENTED		
				• PTO = PREVENTED		
				• Engine Start/Stop = PREVENTED		
				• Compartment Fans = PREVENTED		
				• Horn = PREVENTED		
				• Lights = PREVENTED		
BCM Internal Error	995	ON	ON	• Stabilizer = PREVENTED	• The Body Module failed integrity tests at power-up or run-time. Refer to Functional Safety	
				• Crane Enable = PREVENTED		
				• Compressor = PREVENTED		
				• PTO = PREVENTED		
				• Engine Start/Stop = PREVENTED		
				• Compartment Fans = PREVENTED		
				• Horn = PREVENTED		
				• Lights = PREVENTED		

Section - 21

Crane Fault Codes

Crane—Fault Code Definition

CATEGORY	DESCRIPTION
0-0	MAY OCCUR DURING NORMAL OPERATION AND EXPLAIN VARIOUS INTERLOCKS. THE WARNING ICON SHOULD BE OFF
2-1	INDICATE THAT THERE IS A VOLTAGE SUPPLY PROBLEM. THE WARNING ICON ON.
2-2	INDICATE DIFFICULTY WITH THE INPUTS. THE WARNING ICON ON.
2-3	INDICATE THAT THERE IS AN OUTPUT DRIVER PROBLEM. THE WARNING ICON ON. THESE FAULTS SHALL BE LATCHED AND NORMAL OPERATION PREVENTED UNTIL POWER IS CYCLED.
2-4	INDICATE A SYSTEM IS NOT CALIBRATED. THE WARNING ICON ON.
2-5	INDICATE THAT A FUNCTION IS PREVENTED DUE TO A CUTOUT. THE WARNING ICON ON.
6-6	INDICATE THAT THERE IS SYSTEM COMMUNICATION (CANBUS) PROBLEMS. THE WARNING ICON ON. THESE FAULTS SHALL BE LATCHED AND NORMAL OPERATION PREVENTED UNTIL POWER IS CYCLED.
9-9	INDICATE THAT THERE IS A CONTROLLER PROBLEM. THE WARNING ICON ON. THESE FAULTS SHALL BE LATCHED AND NORMAL OPERATION PREVENTED UNTIL POWER IS CYCLED

Crane—Fleet Configuration

PARAMETER	OPTIONS	SUB OPTIONS	
Crane Type	Hydraulic 1st Gen*		2nd
	Hydraulic 2nd Gen		
Crane Model	None *		
	6000H/22		
	6000/22		
	7500/22		
	7500/30		
	8600/22		
	10000/25		
	10000/30		
	12000/25		
	12000/30		
	14000/25		
	14000/30		
Hydraulic Type	Fully Proportional *		
	Single Proportional		
Remote Control Type	Joystick *		
	Toggle		
Boom Length Sensor	No*		
	Yes		
Boom Angle Sensor	No*		
	Yes		
Boom Rotation Sensor	No*		
	Yes		
Crane Tilt Derate	No*		
	Yes		
Auto Crane Stow	No*		Note: This Option will not be visible or selectable for first Production release.
	Yes		
Boom Lift Max	100%		
Boom Telescope Max	100%		
Boom Rotate Max	100%		
Winch	100%		

Note: * is the Default option

Crane—Fault Table

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Power Cycle	0	OFF	OFF	· No restrictions	This Help Message is issued at each power-up. This serves to indicate which messages have been recorded in the failure log since the last power-up event.	Unlatched
Everything Ok	1	OFF	OFF	· No restrictions	No Faults are active.	Unlatched
Crane Battery Voltage Too Low	212	ON	ON	· Crane Functions = PREVENTED	System voltage is < 9.0 volts for 5000 mS.	Unlatched
				· Horn = PREVENTED		
				· Boom Tip Lights = PREVENTED		
Crane Battery Voltage Too High	213	ON	ON with Pop UP	· Crane Functions = PREVENTED	System voltage > 18 volts for 5000 mS.	Unlatched
				· Horn = PREVENTED		
				· Boom Tip Lights = PREVENTED		
Load Pressure Sensor Piston Out of Range High	220	OFF	ON	· Boom Lift Down = PREVENTED	Sensor Current > 22.0mA for 500mS	latched
				· Boom Telescope Out = PREVENTED		
				· Winch Up = PREVENTED		
Load Pressure Sensor Piston Out of Range Low	221	OFF	ON	· Boom Lift Down = PREVENTED	Sensor Current < 3.5mA for 500mS	latched
				· Boom Telescope Out = PREVENTED		
				· Winch Up = PREVENTED		
Load Pressure Sensor Rod Out of Range High	222	OFF	ON	· Boom Lift Down = PREVENTED	Sensor Current > 22.0mA for 500mS	latched
				· Boom Telescope Out = PREVENTED		
				· Winch Up = PREVENTED		
Load Pressure Sensor Rod Out of Range Low	223	OFF	ON	· Boom Lift Down = PREVENTED	Sensor Current < 3.5mA for 500mS	latched
				· Boom Telescope Out = PREVENTED		
				· Winch Up = PREVENTED		

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Crane Horn – Open Circuit	23101	OFF	OFF	• No restrictions	Open Circuit detected on Horn output and Crane Power Enable is Off.	Unlatched
					Note: This Fault will not be detected due to not knowing when a Horn is installed on the Crane.	
Crane Horn – Short To Battery	23102	OFF	ON	• No restrictions	Short to Battery was detected on Horn Output	Unlatched
Crane Horn – Short To Ground	23103	OFF	ON	• Disable Output	Short to Ground was detected on Horn Output	Latched
Crane Boom Tip Light – Open Circuit	23104	OFF	ON	• No restrictions	Open Circuit detected on Boom Tip Light Output	Unlatched
					Vehicle must be configured to have Boom Tip Lights installed.	
Crane Boom Tip Light – Short To Battery	23105	OFF	ON	• No restrictions	Short to Battery detected on Boom Tip Light Output	Unlatched
					Vehicle must be configured to have Boom Tip Lights installed.	
Crane Boom Tip Light – Short To Ground	23106	OFF	ON	• Disable Output	Short to Ground was detected on Boom Tip Light Output	Latched
					Vehicle must be configured to have Boom Tip Lights installed.	
Boom Lift Up – Open Circuit	23107	OFF	ON	• No restrictions	Open Circuit detected on Boom Lift Up Output.	Unlatched
Boom Lift Up – Short To Battery	23108	OFF	ON	• Disable Lift UP/Down Output and turn off Low Side Drive	Short to Battery detected on Boom Lift Up Output	Latched
Boom Lift Up – Short To Ground	23109	OFF	ON	• Disable Output	Short to Ground was detected on Boom Lift Up Output	Latched
Boom Lift Down – Open Circuit	23110	OFF	ON	• No restrictions	Open Circuit detected on Boom Lift Down Output.	Unlatched
Boom Lift Down – Short To Battery	23111	OFF	ON	• Disable Lift UP/Down Output and turn off Low Side Drive	Short to Battery detected on Boom Lift Down Output	Latched
Boom Lift Down – Short To Ground	23112	OFF	ON	• Disable Output	Short to Ground was detected on Boom Lift Down Output	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Boom Telescope Out – Open Circuit	23113	OFF	ON	• No restrictions	Open Circuit detected on Boom Tele Out Output.	Unlatched
Boom Telescope Out – Short To Battery	23114	OFF	ON	• Disable Telescope In/Out Output and turn off Low Side Drive	Short to Battery detected on Boom Tele Out Output	Latched
Boom Telescope Out – Short To Ground	23115	OFF	ON	• Disable Output	Short to Ground was detected on Boom Tele Out Output	Latched
Boom Telescope In – Open Circuit	23116	OFF	ON	• No restrictions	Open Circuit detected on Boom Tele In Output.	Unlatched
Boom Telescope In – Short To Battery	23117	OFF	ON	• Disable Telescope In/Out Output and turn off Low Side Drive	Short to Battery detected on Boom Tele In Output	Latched
Boom Telescope In – Short To Ground	23118	OFF	ON	• Disable Output	Short to Ground was detected on Boom Tele In Output	Latched
Winch Out – Open Circuit	23119	OFF	ON	• No restrictions	Open Circuit detected on Winch Out Output.	Unlatched
Winch Out – Short To Battery	23120	OFF	ON	• Disable Winch In/Out Output and turn off Low Side Drive	Short to Battery detected on Winch Out Output	Latched
Winch Out – Short To Ground	23121	OFF	ON	• Disable Output	Short to Ground was detected on Winch Out Output	Latched
Winch In – Open Circuit	23122	OFF	ON	• No restrictions	Open Circuit detected on Winch In Output.	Unlatched
Winch In – Short To Battery	23123	OFF	ON	• Disable Winch In/Out Output and turn off Low Side Drive	Short to Battery detected on Winch In Output	Latched
Winch In – Short To Ground	23124	OFF	ON	• Disable Output	Short to Ground was detected on Winch In Output	Latched
Crane Rotate Clockwise – Open Circuit	23125	OFF	ON	• No restrictions	Open Circuit detected on Crane Rotate Clockwise Output.	Unlatched
Crane Rotate Clockwise – Short To Battery	23126	OFF	ON	• Disable Rotate CW/CCW Output and turn off Low Side Drive	Short to Battery detected on Crane Rotate Clockwise Output	Latched
Crane Rotate Clockwise – Short To Ground	23127	OFF	ON	• Disable Output	Short to Ground was detected on Crane Rotate Clockwise Output	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Crane Rotate Counter Clockwise – Open Circuit	23128	OFF	ON	• No restrictions	Open Circuit detected on Crane Rotate Counter Clockwise Output.	Unlatched
Crane Rotate Counter Clockwise – Short To Battery	23129	OFF	ON	• Disable Rotate CW/CCW Output and turn off Low Side Drive	Short to Battery detected on Crane Rotate Counter Clockwise Output	Latched
Crane Rotate Counter Clockwise – Short To Ground	23130	OFF	ON	• Disable Output	Short to Ground was detected on Crane Rotate Counter Clockwise Output	Latched
Crane Speed Control Valve – Open Circuit	23131	OFF	ON	• No restrictions	Open Circuit detected on Crane Speed Control Valve Output.	Unlatched
				• Crane Functions = PREVENTED	Crane must be configured as a Single Proportional hydraulic system.	
Crane Speed Control Valve – Short to Battery	23132	OFF	ON	• Disable Output and turn off Low Side Drive	Short to Battery detected on Crane Speed Control Valve Output	Latched
				• Crane Functions = PREVENTED	Crane must be configured as a Single Proportional hydraulic system.	
Crane Speed Control Valve – Short To Ground	23133	OFF	ON	• Disable Output	Short to Ground was detected on Crane Speed Control Valve Output	Latched
				• Crane Functions = PREVENTED	Crane must be configured as a Single Proportional hydraulic system.	
Crane Engine Start – Open Circuit	23134	OFF	ON	• No restrictions	Open Circuit detected on Engine Start Output	Latched
					Note: This Fault will not be detected Pull Up resistor removed.	
Crane Engine Start – Short To Battery	23135	OFF	ON	• Engine Start/Stop = PREVENTED	Short to Battery detected on Engine Start Output	Unlatched
Crane Engine Start – Short To Ground	23136	OFF	ON	• Disable Output	Short to Ground was detected on Engine Start Output	Latched
Crane Engine Stop – Open Circuit	23137	OFF	ON	• No restrictions	Open Circuit detected on Engine Stop Output	Latched
					Note: This Fault will not be detected Pull Up resistor removed.	

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Crane Engine Stop – Short To Battery	23138	OFF	ON	• Engine Start/Stop = PREVENTED	Short to Battery detected on Engine Stop Output	Unlatched
Crane Engine Stop – Short To Ground	23139	OFF	ON	• Disable Output	Short to Ground was detected on Engine Stop Output	Latched
Crane Engine Speed 1 – Open Circuit	23140	OFF	ON	• No restrictions	Open Circuit detected on Engine Speed 1 Output	Latched
					Note: This Fault will not be detected Pull Up resister removed.	
Crane Engine Speed 1 – Short To Battery	23141	OFF	ON	• No restrictions	Short to Battery detected on Engine Speed 1 Output	Unlatched
Crane Engine Speed 1– Short To Ground	23142	OFF	ON	• Disable Output	Short to Ground was detected on Engine Speed 1 Output	Latched
Crane Engine Speed 2 – Open Circuit	23143	OFF	ON	• No restrictions	Open Circuit detected on Engine Speed 2 Output.	Latched
					Vehicle must be configured to have dual engine RPM speeds.	
					Note: This Fault will not be detected Pull Up resister removed.	
Crane Engine Speed 2 – Short To Battery	23144	OFF	ON	• No restrictions	Short to Battery detected on Engine Speed 2 Output.	Unlatched
Crane Engine Speed 2– Short To Ground	23145	OFF	ON	• Disable Output	Short to Ground was detected on Engine Speed 2 Output.	Latched
Crane Dump Valve – Short To Battery	23146	OFF	ON	• No restrictions	Short to Battery detected on Dump Valve Output.	Unlatched
Crane Dump Valve – Short To Ground	23147	OFF	ON	• Disable Output	Short to Ground was detected on Dump Valve Output.	Unlatched
Crane Hour meter – Short To Battery	23149	OFF	ON	• No restrictions	Short to Battery detected on Crane Hour Meter Output.	Unlatched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Crane Hour meter – Short To Ground	23150	OFF	ON	• Disable Output	Short to Ground was detected on Crane Hour Meter Output.	Latched
Winch Brake – Open Circuit	23151	OFF	ON	• Winch Function Disabled	Open Circuit detected on Winch Brake Output.	Unlatched
Winch Brake – Short To Battery	23152	OFF	ON	• Winch Function Disabled	Short to Battery detected on Winch Brake Output	Unlatched
Winch Brake – Short To Ground	23153	OFF	ON	• Winch Function Disabled • Disable Output	Short to Ground was detected on Winch Brake Output	Latched
Crane Air Compressor – Short To Battery	23154	OFF	ON	• No restrictions	Short to Battery detected on Air Compressor Output	Unlatched
Crane Air Compressor – Short To Ground	23155	OFF	ON	• Disable Output	Short to Ground was detected on Air Compressor Output	Latched
Crane Function Selector – Short To Battery	23156	OFF	ON	• No restrictions	Short to Battery detected on Function Selector Output	Unlatched
Crane Function Selector – Short To Ground	23157	OFF	ON	• Disable Output	Short to Ground was detected on Function Selector Output	Latched
Snubbing Indicator – Short To Battery	23158	OFF	ON	• No restrictions	Short to Battery detected on Snubbing Indicator Output	Unlatched
Snubbing Indicator – Short To Ground	23159	OFF	ON	• Disable Output	Short to Ground was detected on Snubbing Indicator Output	Latched
Overload Indicator – Short To Battery	23160	OFF	ON	• No restrictions	Short to Battery detected on Overload Indicator Output	Unlatched
Overload Indicator – Short To Ground	23161	OFF	ON	• Disable Output	Short to Ground was detected on Overload Indicator Output	Latched
LMI Green Indicator – Short To Battery	23162	OFF	ON	• No restrictions	Short to Battery detected on LMI Green Indicator Output	Unlatched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
LMI Green Indicator – Short To Ground	23163	OFF	ON	• Disable Output	Short to Ground was detected on LMI Green Indicator Output	Latched
Remote Base Power Enable – Short To Battery	23164	OFF	ON	• No restrictions	Short to Battery detected on Remote Base Power Enable Output	Unlatched
Remote Base Power Enable – Short To Ground	23165	OFF	ON	• Disable Output	Short to Ground was detected on Remote Base Power Enable Output	Latched
Length Sensor – Not Calibrated	241	OFF	ON	• Length sensor = UNHEALTHY	When the Length sensors is configured and Calibration values are invalid.	Unlatched
Boom Angle Sensor – Not Calibrated	242	OFF	ON	• Angle sensor = UNHEALTHY	When the Angle sensors is configured and Calibration values are invalid.	Unlatched
Rotation Sensor – Not Calibrated	243	OFF	ON	• Rotation sensor = UNHEALTHY	When the Rotation sensors is configured and Calibration values are invalid.	Unlatched
CAN Bus Failure – Display	662	OFF	ON	• Crane Recovery = PREVENTED	The Crane Module failed to receive messages from the Display. Check wiring at the Display.	Latched
					• Functions Request Message – (0x0B) not received for 30000mS upon Startup and 250mS thereafter.	
					Crane needs to be configured as a Hydraulic Gen 2 system	
CAN Bus Failure – Crane Remote Control Receiver Module	664	OFF	ON	• Crane Functions = PREVENTED can still use Crane Recovery if equipped	The Remote Base Power Enable has been on for 2500 msec and The Crane Module failed to receive messages from the Crane Remote Control Receiver Module for 250 msec. Check wiring at the Remote I/O Module.	Latched
CAN Bus Failure – Crane Remote Control Module	665	OFF	ON	• Crane Functions = PREVENTED can still use Crane Recovery if equipped	The Crane Module failed to receive messages from the Crane Remote Control Module when operating in tethered mode. Check wiring at the Remote I/O Module.	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
CAN Bus Failure – Body Module	666	OFF	ON	• No restrictions	The Crane Module failed to receive messages from the Body Module. Check wiring at the Display.	Latched
					Crane needs to be configured as a Hydraulic Gen 2 system	
CAN Bus Failure – Length and Angle Sensor	667	OFF	ON	• Length and Boom Inclination Sensor • Length and Angle sensors = UNHEALTHY	When the Boom Angle sensor and Length sensors are configured and the Crane Module failed to receive messages from the COBO Length and Angle Sensor for 250 msec.	Latched
CAN Bus Failure – Rotation Sensor	668	OFF	ON	• Rotation Sensor = UNHEALTHY	When the Crane Rotation sensor is configured and the Crane Module failed to receive messages from the Kubler Rotation Sensor for 250 msec.	Latched
Functions Locked Out – Software Version Improper	9910	ON	ON with Pop UP	• Crane Functions = PREVENTED	• The Display reported Software Major Versions that were not equal to the Crane Module Software Major Version when the Software type of the Crane Module is set to “P”. The control system may resume operation once the system is programmed.	Latched
Functions Locked Out - Constant Data Version Improper	9912	OFF	ON with Pop UP	• Crane Functions = PREVENTED	• The Crane Module's Application and ConstantData Versions do not match	Latched
Functions Locked Out – Crane Not Configured	9913	OFF	ON	• Crane Functions = PREVENTED	Crane Module detects one of these issues:	Latched
					• Crane Model is set to None	
EEPROM Failure – Check All Settings	9914	OFF	ON	• Crane Functions = PREVENTED	• The Crane Module's EEPROM checksum indicates corruption. Retained until EEPROM settings are corrected and power is re-cycled.	Latched
CCM Internal Error	9915	ON	ON	• Crane Functions = PREVENTED	• The Crane Module failed integrity tests at power-up or run-time. Refer to Functional Safety	Latched

HELP MESSAGE	DTC	STOP ICON	WARN ICON	ACTION	TRIGGER	LATCH
Length/An- gle Sensor Internal Error	9916	ON	ON	<ul style="list-style-type: none"> • Length and Boom Inclination Sensor • Length and Angle sensors = UN-HEALTHY 	When the Crane Module receives any of the following DTC's from the COBO Length and Angle sensor.	Latched
					SPN 2551:13 – Internal EE-PROM	
					SPN 2551:12 – Error Accelerometer	
					SPN 2551:16 – Temperature to High	
					SPN 2551:18 – Temperature to Low	
					SPN 2551:31 – Watchdog	



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