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**RCI-8522 HRT and LM Systems  
Installation and Service Manual**

**DRAFT COPY**

### 3.2.4 Vehicle Loader Knuckleboom Cranes

#### Tension based load measurement

Rated Capacity limiting systems for knucklebooms vary from typical crane systems in the number of limiter outputs required. Generally speaking any movement is prevented which will increase the tipping moment of the vehicle. Crane movements which are prevented varies depending upon the angles of the different boom sections.

Figure 5, Limiter Functions for Knuckle boom Crane **DWG REQD**

Figure 6, Typical Tension-based load system for Knuckle boom Crane **DWG REQD**

Table 6, Typical Tension-based Load System Components for Vehicle Loader

| Item | Description                         |
|------|-------------------------------------|
| 1    | RCI Display unit                    |
| 2    | Boom 1 Angle and Length recoil drum |
| 3    | Boom 2 Angle Sensor                 |
| 4    | Load pin for lifting point          |
| 5    | Switchbox                           |
| 6    | Slew proximity switch               |

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**IMPORTANT** Always install a 3 A fast-acting fuse in-line with the power supply positive. This avoids having to open the 8522 to access the internal slow-blow fuse.

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Refer to 10.3.3 Fuses on page 112 for fuse specifications.

## 4.5.2 Excitation Voltage Outputs

Both the +15 V output and precision +5.00 V sensor excitation output can tolerate short circuits to ground without damage and not normally result in a blow fuse. Once the fault is removed the safety system will return to normal operation after performing its startup checks.

If the +15 V output is shorted, the safety system ceases to operate and will restart once the fault is removed.

If the +5.00 V sensor excitation is shorted, a system fault is triggered and the safety system will go into motion cut until the fault is removed.

## 4.6 RCI-8522 Display Unit

The display unit may be flush-mounted in-dash, or on the optional gimbal mount. Robway recommends using captive nuts installed in the dashboard when installing the display unit in-dash.

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**IMPORTANT** Do not expose the display module to direct weather.

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### 4.6.1 In-Dash Flush Mount

Ensure that there is adequate clearance (minimum of 100 mm (4 in)) behind the display unit for cable clearance. Refer to 10.1 Display Unit on page 111.

**Figure 10, RCI In-Dash Flush Mount DWG REQD**

### 4.6.2 Gimbal Mount

An optional RAM bracket and mounting kit is available. Ensure the display unit is positioned in convenient position in the cabin and that the crane operator can easily view the display unit and reach the controls.

**Figure 11, RCI Gimbal Mount DWG REQD**

individually). To validate calibration data, access **EDIT CALIBRATION** for each sensor and press the **????** key in each field. Repeat for all other sensors.

This menu item is also used to calibrate transducers for load moment systems.

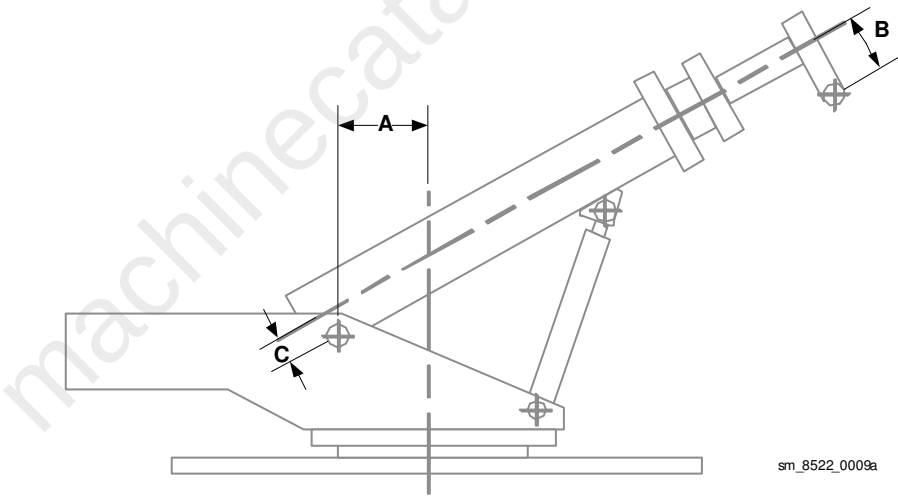
6.3.2 Geometry

These menu items define the actual physical dimensions (geometry) of the crane. Geometry settings include slew offset, footpin offset, head sheave radius, head sheave offset, ram pivot points to boom centre-line and footpin.

Factory default values are based on information received from the manufacturer at time of order and supply of the system however, crane manufacturers often do not provide complete and accurate measurements. Any changes to actual crane geometry means that you must also change these values.

|                                |                                                         |                                                                                           |
|--------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Slew offset                    | These values are used by the system to calculate radius | Centre of slew to centre of footpin (horizontal).<br>Diagram reference: dimension A.      |
| Head sheave (boom head) offset |                                                         | Centre of head sheave to centre-line of boom vertical.<br>Diagram reference: dimension B. |
| Footpin offset                 |                                                         | Centre of footpin to boom centre-line.<br>Diagram reference: dimension C.                 |

Figure 33, Crane Geometry



|                 |                      |                                 |
|-----------------|----------------------|---------------------------------|
| Piston diameter | These dimensions are | Internal component measurement. |
|-----------------|----------------------|---------------------------------|

|                          |                                    |                                                                                                                             |
|--------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|                          |                                    | Check sensor resistances against sensor datasheet.                                                                          |
|                          | Wiring Fault                       | Check Cabling and Connections<br>Check 5VDC supply to load sensor                                                           |
|                          | Load Sensor not calibrated.        | Calibrate load                                                                                                              |
| BAD LOAD READING         | Load Moment calibration incorrect. | Recalibrate system.                                                                                                         |
| Load moment systems      | Bad radius reading                 | See "Bad Radius Reading"                                                                                                    |
|                          | Bad boom angle reading             | See "Bad Boom Angle Reading"                                                                                                |
|                          | Bad boom length reading            | See "Bad Boom Length Reading"                                                                                               |
|                          | Bad Pressure Transducer Reading    | See "Bad Pressure Transducer Reading"                                                                                       |
|                          | Bad load Sensor Reading            | See "Bad Load Sensor Reading"                                                                                               |
| MOTION-CUT OUTPUT FAULTY | Wiring Fault                       | Check Digital I/O Live View service screen for expected output condition.<br>Check slave relay and/or solenoid operation.   |
|                          | RCI Internal Safety Relay Fault    | Check Digital I/O Live View service screen for expected output condition. If incorrect replace RCI, Reprogram, Recalibrate. |
|                          | System in Safe Mode                | See "RCI in Safe Mode"                                                                                                      |
| INCORRECT SWL            | Bad Slew Proxy Sensor              | Check Digital I/O Live View service screen for expected slew input condition.                                               |
|                          | Wiring Fault                       | Check Digital I/O Live View service screen for expected slew input condition.                                               |

## Full Version Available

### Robway RCI-8522 Load Moment Indicator Service Manual

Robway RCI-8522 load moment indicator service manual, with installation, calibration, service menu and troubleshooting sections. Instant PDF download.

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