RCI Lite

Operating Instructions

During normal operation the safe working load of a crane should not be exceeded. Therefore, the warning of overload should not be used as a normal operating facility. Certain statutory requirements do not permit the safe working load to be exceeded except for the purpose of testing.

This Rated Capacity Indicator (RCI) is not suitable for use in explosive atmospheres. Adjustment by unauthorised persons will invalidate any warranty or certification supplied.

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Document History

Version	Date	Change
V1.0	15-04-2020	Initial release

Contents

1. General information

1.1 Start up

The **RCI Lite** will start automatically when the machine ignition is switched on. After a short delay, while the system transfers information from the I/O controller, the display above will appear. The RCI will operate after 10 seconds, or immediately if **ok** is pressed.

During the start-up sequence both the internal and external alarms will sound. If the system is configured for hydraulic control then the motion of each controlled service will be inhibited. Press **ok** to confirm the alarm operation and start the RCI.

1.2 External beacon

The system supports an optional beacon (red and magenta are available). The beacon is active when the RCI is enabled.

1.3 Track lock

If the track lock function is enabled, the machine will not travel if overloaded.

1.4 Operating the system

1 **Radius** Horizontal distance from the machine slew centre to the lifting point, typically the bucket pin or quick hitch, in metres.

2 **SWL** Maximum safe working load for the current lifting point radius and height, in tonnes

3 **Hook Load** The load currently suspended from the lifting point in tonnes. Note: Will not be accurate if the boom cylinders are at full stroke.

4 **Capacity bar graph** The graph will 'illuminate' from left to right as the lifting capacity is used. The green zone represents 0 to 95% of capacity, the amber zone 95 to 105%, and the red zone 105 to 130%.

5 **Lifting duty** This is the current lifting duty selected. In a single duty system, the **DUTY** button label will not appear.

6 **Function buttons** The system is operated entirely by these four keys. Depending on the system set-up, some of the key labels may not appear. Button labels will change position depending on the operational mode. Buttons with no labels do nothing.

7 **Data entry buttons** These buttons are only active in system set-up and calibration.

This symbol will appear on the screen if the machine ignition is switched **on** but the engine is **not** running. This to prevent flattening the machine battery if the system has hydraulic motion control.

When this symbol appears on the screen, it indicates that any hydraulic motion control is disabled. On the **XW2 Lite** this will only appear in digging mode.

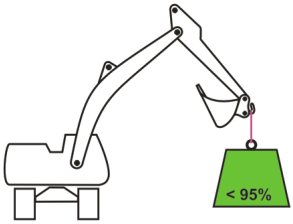
1.5 Settings key switch

The Settings key switch is an **option** and is mounted inside the machine cab. If fitted, the key must be in the unlocked position to allow the RCI to be enabled/disabled. If the switch is not fitted, all features are available to the operator.

2 RCI Page

The lifting capacity being used is indicated by the horizontal bar graph in the centre of the display. The following three sections show how the system will perform.

2.1 Safe Operation

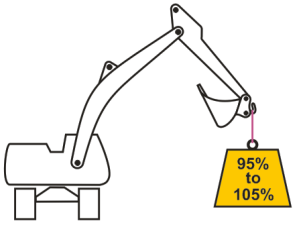


Internal alarm **OFF**

External alarm **OFF**

Motion control NO

2.2 Approaching Overload

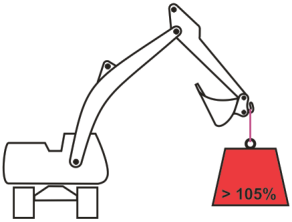


Internal alarm **ON**

External alarm **OFF**

Motion control **NO**

2.3 Overload



Internal alarm **ON**

External alarm **ON**

Motion control **YES**

2.4 Hydraulic Limitation

If the safe working load is limited by hydraulic capacity rather than stability, the offending service will be shown next the SWL label. Depending on machine type, this can be:

Boom

Artic

Arm

2.5 Disabling the RCI

If digging mode is available, pressing **DIG** will disable the RCI and the Dig page will become active. No RCI monitoring will be performed. If digging mode is unavailable pressing **OFF** will Disable the RCI. The page below will then become active.

Press **ON** to re-enable the RCI.

2.6 Overriding the RCI

If the system is configured to provide motion control in an overload condition then all motions that would raise the load or increase the load radius will be prevented when overload is detected. Under normal circumstances the load can either be lowered or the radius reduced to clear the overloaded state. However, there are certain situations where the machine can become 'stuck' - to prevent this happening, an override function is provided.

Pushing the **O/R** button will release all the hydraulic controls. The internal and external alarms will continue to sound. The override will automatically clear when the machine becomes safe.

2.7 Offset boom

BOOM NOT STRAIGHT !

If the machine has an offset boom, the RCI can only operate correctly if the boom is centred. If the boom is off centre, the warning banner shown above will appear on the screen.

2.8 Digging mode

Digging mode provides a rudimentary digging aid. As no bucket angle sensor is fitted the displayed depth will only be accurate when the bucket in the same orientation as when the system was zeroed (referenced). Referencing is best made with the bucket flat on the ground - this guarantees that the bottom of any excavation performed will be accurate.

On initial entry to the dig page the depth displayed will be the current lifting point height (usually the bucket pin). Place the bucket flat at the reference elevation and press **ZERO**.

Once referenced, the displayed depth value will represent the true elevation of the excavation base as long as the bucket is in the flat orientation.

Once the desired depth has been achieved, the system can be re-zeroed at the base of the excavation - now the correct depth will correspond to 0.00m on the screen.

3 Fault Page

The system continuously monitors the health of the sensors and the IO Controller inputs and outputs. If a problem is detected, the screen shown above will appear. If the system has motion control valves fitted, the system will failsafe and close all the valves. The failed sensor(s) will be shown in red.

If a fault occurs with IO Controller a further line of text will be shown at the base of the screen. If there is more than one fault, the messages will cycle.

Possible IO Controller faults are:

- Fault: Output 0 (Boom up)
- Fault: Output 1 (Artic up)
- Fault: Output 2 (Arm up)
- Fault: Output 3 (Arm down)
- Fault: Output 4 (Beacon)
- Fault: Output 5 (Ext alarm)
- Fault: Output 6 (Int alarm)
- Fault: Output 7 (Auxiliary)

- Fault: Input 5 (Engine on)
- Fault: Input 6 (Duty lo)
- Fault: Input 7 (Duty hi)
- Fault: Input 8 (Limit key)
- Fault: Input 9 (Access link)
- Fault: Input 10 (Override)
- Fault: Input 11 (Auxiliary)

If the **optional** override key is fitted, the motion control valves can be temporarily overridden by turning the key switch mounted in the IO Controller cover clockwise.