

OP-LCM-W

High Reach Order Picker Truck Load Weighing Scale Installation & Calibration Manual

OP-LCM-W V8



General Installation Guide

This **OP-LCM-W Series** system installation & calibration guide describes how to install, calibrate, test and use your high reach order picker onboard weighing scale. Following the instructions in this guide will enable you to get your system operating quickly and easily. In the event that you require additional assistance, please contact customer support via e-mail at support@skidweigh.com or visit www.skidweigh.com or contact us at number below

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Safety

Always disconnect the vehicle battery while installing SkidWeigh system or any other electronic product. Make sure that unit, pressure transducer and any other associated cables are securely mounted and do not impede any of the vehicle's controls. Use care when routing the components cables. Route the cables where they will be protected. Use commonly accepted install practices for after market industrial vehicle electronic devices. The installation of the SkidWeigh systems should only be performed by an acknowledged lift truck dealer technician or end user electro and hydraulic technical installer.

Here are two acceptable methods of making a wire connections:

- * Soldering your connections (recommended)
- * Crimp connectors (with the use of the proper crimping tool)

Regardless of the method you choose, ensure that the connection is mechanically sound and properly insulated. Use high quality electrical tape and shrink tubing where necessary.

Electro-Magnetic Compatibility

CE conformity to EC directive 89/336 (EMC) by application of harmonized standards: Interference stability EN 61000-6-2 and EN 61326-1 interference emit EN 61000-6-3, EN 61326-1 for the pressure transducer.

OP-LCM-W SkidWeigh Elite Series

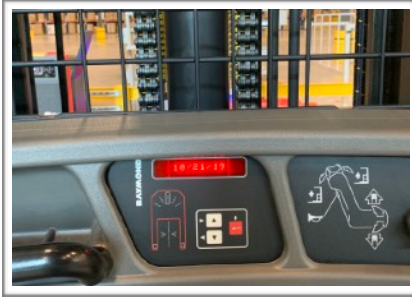
Our policy is one of continuous improvement and the information in this document is subject to change without notice.

Overview of components

The standard **OP-LCM-W** SkidWeigh Elite Series onboard weighing scale consist of four main components:

- * Master Digital indicator with Bluetooth module, wiring harness, mounting bracket (*Five wires cable*)
- * Slave digital indicator with Bluetooth module, wiring harness, mounting bracket (*Two wires cable*)
- * Hydraulic pressure transducer with 3 wires cable
- * Installation & calibration manual and operator usage instruction

Operational principal

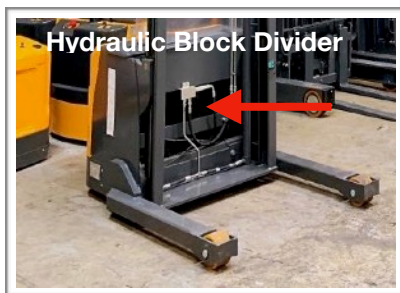


The **OP-LCM-W Series SkidWeigh** system operational principal is based on the hydraulic pressure transducer installed in the vehicle lifting hydraulic circuit that will automatically activate the proprietary lifted load “measurement algorithm”. The increase in pressure is converted in an electronic signal at the sample rate of 16000 readings per measurement cycle during the lifting operation. The system will automatically calculate and display lifted load. The OP-LCM-W load weight readout will be clearly visible to the operator.

Pressure transducer installation

The pressure transducer must be installed in the lifting hydraulic line **between the lift control valve and lift cylinder(s)**. In majority of cases a T-piece is used to install the pressure transducer in lifting hydraulic line. In some cases you can install the pressure transducer in the flow divider, drilling and tapping for 1/4”-18 NPT male in spare plug (if only single or double mast configuration) or in the body of the flow divider. Also, you can drill and tap on any “larger elbow” that might be available in the hydraulic lifting circuit in the vehicle.

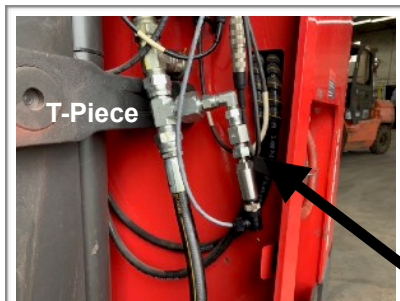
Pressure transducer installation precautions



Before mounting the pressure transducer in the hydraulic lift circuit make sure that system is pressure free.

There are two ways to do that:

1. Place the forks on the ground in their lowest position and make the hydraulic system pressure free by tilting the mast forward. The chain(s) should be slack.
2. Lift the forks and position them on the top of a supporting fixture. Start lowering the lifting cylinder into its lowest position. Be sure that chains are slack.



Make sure that that installed pressure transducer will not touch any moving parts or assembly of the vehicle while in normal operation.

Pressure transducer has **1/4”-18 NPT male thread**.

Use thread seal to ensure tight fit.



Swiss Made, **Custom Made Pressure Transducer**

The **OP-LCM-W** pressure transducer part number is IPT-1500 must be used with system

MASTER indicator mounting location

There are many examples of mounting locations for the master indicator that will depend on the vehicle model. However, additional mounting items such as a flat brackets may be needed to help secure unit.

Choose the most convenient mounting location on the **vehicle body frame** (*Not to be mounted on moving operator platform*).



The system set up, calibration procedure and connection of the hydraulic pressure transducer is done to the MASTER Indicator.

SLAVE indicator mounting location

Mount SLAVE indicator in front of the operator on lifting platform. Use plastic ties on molded external brackets to fasten the indicator.



The slave indicator has only two wires to be connected to the vehicle power on switch.

The automatic Bluetooth pairing from the master indicator to the slave will show the operator current vehicle load capacity in percentage of the maximum allowed load being handled.

Electrical Connections

The **OP-LCM-W** SkidWeigh systems operating voltage is from 12 to 55 VDC.

MASTER Indicator

- **Orange Wire** (+) Ignition switch On position
- **Brown Wire** (-) Battery negative
- **Red Wire**, connect to RED wire of the pressure transducer cable
- **Black Wire**, connect to BLACK wire of the pressure transducer cable
- **White Wire**, connect to WHITE wire of the pressure transducer cable

SLAVE Indicator

Red Wire, (+) Ignition switch On position

Black Wire, (-) Battery negative

Pressure transducer 3 wires cable must be connected to main cable of the Master indicator.

Electrical power short circuit protection

All of the SkidWeigh systems are internally short circuit protected with resettable fuse. There is no need to install external inline fuse in orange wire connected to the ignition switch.

The **OP-LCM-W** system has a reversal power supply protection.

“Quick test to determine if electrical connections are done right”



Note: SkidWeigh **OP-LCM-W** calibration function is not done yet at this stage. This procedure is only to test if electrical connections into the vehicle is done properly!

After you have connected two wires to the vehicle power and pressure transducer cable you can “quickly” check the system operation.

- **Lower the forks to the ground**

- Turn on vehicle power switch

- Digital LED display will be activated, showing software version and serial number

- Number **8** will be shown on LED display above the **MODE** digit.

- Lift the empty or loaded forks to increase pressure in lifting cylinder. Number **8** will go off and indicator will show “some” load on LED display. *If the above test is valid the system electrical connections are done right.*

*The next procedure will be to calibrate the **OP-LCM-M** system.*

OP-LCM-W weighing function calibration procedure

The **OP-LCM-W Series SkidWeigh** calibration is automatic and is done by lifting empty forks with operator on platform **just above the ground**. The calibration with the known load weight is done with loaded forks and platform at the highest **operational forks height for the particular high reach order picker truck**

Note: *The known calibration load weight should be at 24” load centre.*

MAKE SURE THAT YOU HAVE A KNOWN LOAD WEIGHT AND KEEP IT NEARBY TO COMPLETE THE CALIBRATION.

For the best results use minimum calibration load weight of 40% to 70% of the vehicle maximum lifting capacity of the vehicle at maximum lift height as stated on vehicle name plate.

Use customer floor scale or use a known skid load weight for the **RT-LCM-W** load weight calibration.

Master Digital Indicator (OP-LCM-W system calibration utilizing two push buttons)

- Left button “**M**” is used to enter into calibration mode and to shift to the left to the next digit.

- Right button “**Arrow Up**” is used to enter numerical increments from 0-9, wrap around.

- Both buttons are used during the system calibration.

- Buttons can be accessed through two small holes on the cover.
- Use paper clip to activate buttons. *Do not push buttons too hard!*
- Left most significant digit represents **Mode of operation**.
- Other five digits represent the load weight readout.



MODE	Digit 5	Digit 4	Digit 3	Digit 2	Digit 1

Note:

- Every time the power is applied the software version will be shown momentarily for a brief moment.
- When forks are lowered to ground LED display will show **Mode 8**.
- If you make a mistake during the system calibration, turn power ON / OFF and start all over.

Calibration Procedure

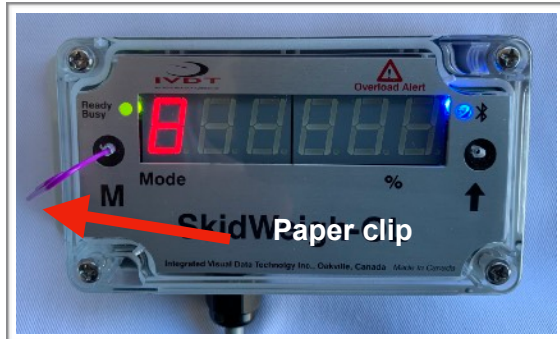
Important: If you want the system to show load weight in pounds, use the known load weight in pounds during the system calibration and enter that value accordingly. The same would apply if you want the system to show load weight in kilograms then use the known load weight in kilograms and enter that value into the system accordingly.

Lower the empty forks to the ground

- There should be no hydraulic pressure in lift hydraulic circuit.
- Turn power switch to on position.
- LED display will show software version briefly on the right side and number **8** will be shown in the **Mode** window.

* For vehicles with cart lower the cart to the ground

1. Calibration of empty forks with operator on platform lifted just above the ground



To initiate calibration press the “M” button (use a paper clip) and hold it down for approx. 5 seconds.

After approximately five-seconds the **Mode** display digit will change from number **Mode 8** to **Mode 0**.

System is ready for automatic zeroing

When LED display is showing **Mode 0** lift the empty forks with operator on the platform **just above the ground**.

Within few seconds LED display will go blank and will show **Mode digit 1** and default “0” value in furthest right digit display. (*Digit1*)

Automatic zeroing is done

2. Calibration of loaded forks with operator lifted to the highest operational forks height



* Drive your vehicle into the skid load with known weight at load centre of 24” and lift the load to the highest operational forks height.

Example:(In our calculation example we will use 1850 pounds as known calibration load weight)

With LED display showing Mode 1 start entering the known calibration load weight value by using **Arrow Up** button (increments from 0 to 9) wrap around. Start with Digit 1, least significant digit (in our case input number “0”) and press momentarily button “M” to advance to next Digit 2. Input number “5” and press momentarily button “M” to advance to next Digit 3. Keep doing the same until **01850** is entered into the system.

MODE	Digit 5	Digit 4	Digit 3	Digit 2	Digit 1
1					0
2				5	
3			8		
4		1			
5	0				

Use “**M**” button to shift from digit **1** to digit **5** and to the **Mode 6**.

Use **Arrow Up** buttons to input calibrated known load weight. With each press of the **Arrow Up** button you can input digits from **0** to **9**, wrap around mode.

Make sure that digit 5 is “0”.

Note: With LED display showing **501850** press “**M**” button to advance to **Mode 6** and lift calibrated load weight on the forks just above the ground.

The LED display will go “blank” for the moment.

After few seconds LED display will show the calibrated value of **1850**.

MODE	Digit 5	Digit 4	Digit 3	Digit 2	Digit 1
		1	8	5	0

System load weight calibration is done

* Lower the calibrated load weight to ground

* System is ready to be used.

* **Note:** To use the load weighing function loaded forks must be lowered to ground and **Mode 8** must be shown on LED display. Lift loaded forks just above the ground to get the load weight.

OPERATOR USAGE GUIDE



1. Turn on vehicle power switch. With forks lowered to ground SLAVE indicator will show software version and **Mode 8** will be shown on LED display.

WEIGHING PROCEDURE

2. 1. Insert forks into pallet load
2. Make sure that loaded forks are completely on the ground
3. With no hydraulic pressure in lift circuit the LED display will show **Mode 8**
4. Activate the lift control valve and lift loaded forks just above the ground
5. **Mode 8** digit will go off and after few seconds the load weight will be shown on SLAVE indicator