

Installation & Calibration Manual



Electric Pallet Truck Check Weighing System **SC5 SkidWeigh Classic** (Hydraulic Pressure Transducer)

SC5V2



General Installation Guide

This SkidWeigh Classic SC5 systems installation & calibration guide describes how to install, calibrate, test and use your electric pallet truck on-board weighing system. Following the instructions in this guide will enable you to get your system setup and operating quickly. In the event that you require additional assistance, please visit www.skidweigh.com for system calibration video.

Safety

Always disconnect the vehicle battery while installing SkidWeigh systems 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 component 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 a lift truck dealer technician or end user with electro and hydraulic experience.

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. This product is connected directly to the vehicle's ignition switch, operating voltage from 12 to 55 VDC.

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.

SkidWeigh Classic SC5 Series

Our policy is one of continuous improvement and the information in this document is subject to change without notice. Check that software version displayed on LED is the one applicable for your application.

Overview of Components

The standard **SkidWeigh Classic SC5 Series** check weighing system consist of the following components:

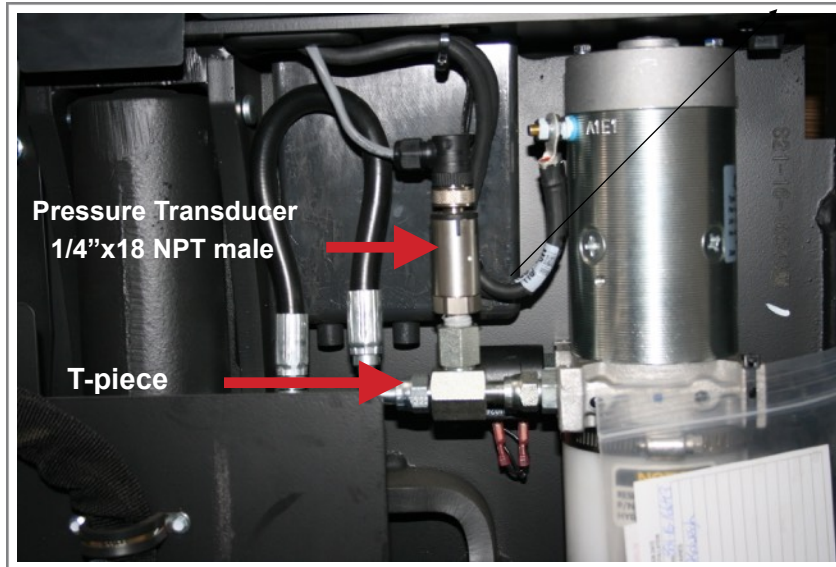
- * Digital indicator with wiring harness, mounting bracket and anti-vibration mount
- * Hydraulic pressure transducer with 3 wires cable
- * Installation & Calibration manual and operator usage instruction

Operational Principal

The **SkidWeigh Classic** systems operation is based on the hydraulic pressure transducer mounted in the vehicle lifting hydraulic circuit. The increase in the hydraulic pressure will activate the specific "weighing cycle" algorithm and initiate a readout at a sample rate of 16000 readings per measurement session and will convert it to the load weight that will be shown on LED display.

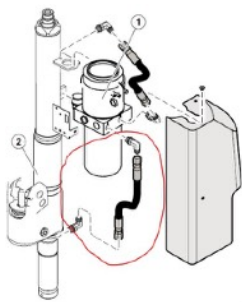
* *System application for older vehicles with mechanical lift limit switch and newer vehicles with proximity lift limit switch.*

Pressure Transducer Installation



The pressure transducer must be installed in the lifting hydraulic line **toward the bottom of lift cylinder(s)**. Mount a T-piece in hydraulic line for the installation of the pressure transducer. System will operate on vehicles with two lifting cylinders.

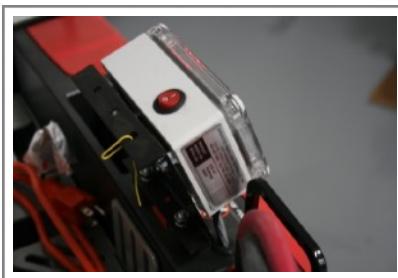
Pressure Transducer Installation Precautions



Before installation of the pressure transducer the hydraulic lift circuit must be pressure free.

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

The pressure transducer has a **1/4"-18 NPT male thread**. Use thread seal to ensure tight fit.



Mounting Location for Digital Indicator

Use the mounting bracket with the anti vibration mounts and fasten the digital indicator to the vehicle dashboard, or any other convenient place on the electric pallet truck body There are many examples of mounting locations that will depend on the vehicle model. However, additional mounting items such as a flat brackets may be needed to help secure the unit.

Electrical Connections

All SkidWeigh systems operate from 12 to 55 VDC.

Orange Wire (+) Key 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

Two Black Wires (two separate wires) are used for lift motor pump solenoid interface (**Older Vehicles**)

Electric Pallet Truck Lift Motor Pump Solenoid Interface (Older Vehicle)

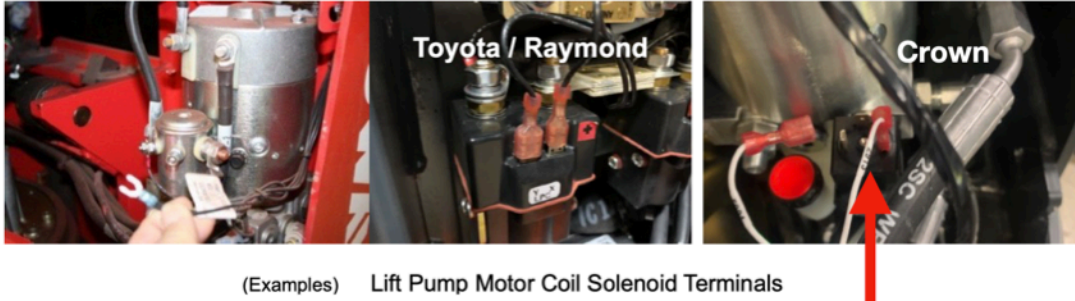


Disconnect one wire from solenoid coil terminals, positive or negative side.

Splice two black wires from the indicator in series with one disconnected wire and coil terminal.

Typical example for two black wires lift motor pump solenoid interface

Electric Pallet Truck Lift Motor Pump Solenoid Interface



Disconnect one wire from solenoid coil terminals, **positive** or **negative** side. Splice two wires from the indicator in **series with disconnected wire and coil terminal**.

Note: SC5 systems have is using with two separate **black wires** for lift pump motor solenoid interface control. **SC5-OEM** systems is using two wires from main wiring harness cable (**Yellow and Green wires**) for lift pump motor solenoid interface. (two extension wires Yellow and Green are supplied to connect to solenoid coil)

Two wires are connected internally to dry contact relay, **normally closed contact**. With indicator power switch in OFF position lift motor pump solenoid operates normally. With indicator power switch is in ON position, internal relay activation is controlled by the software.

During the weighing cycle when **operator lift control valve is activated and hold** the internal normally closed contacts will open and power to the solenoid will be interrupted for the moment, resulting in:

- * Pump motor will stop (*lifted forks will stop at predetermined forks height for 3-4 seconds*)
- * Load weight will be calculated and shown on indicator display
- * Once the load weight is shown **internal relay contact will close**. The lift pump motor solenoid circuit will be in normal operational mode. **Note:** *On some vehicles during the weighing cycle the ERROR fault might be shown on vehicle display during the interruption of the power to the lift motor pump solenoid.*

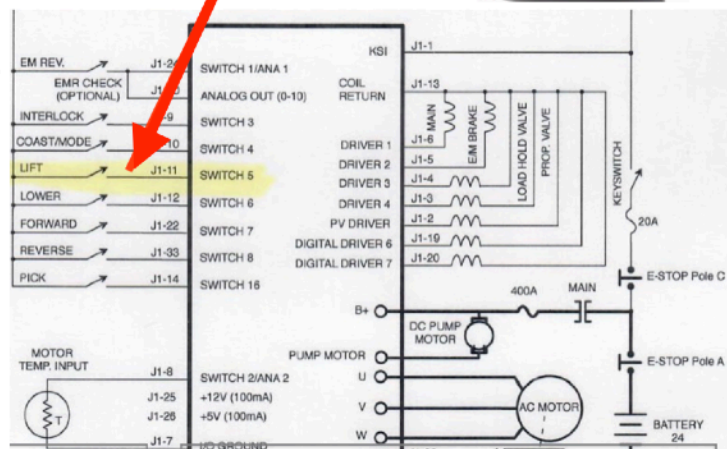
With vehicles controllers that are activating lift pump motor (*without lift pump solenoid*) connect two wires in series with **lift activated switch on the controller terminal side**.

Example: →

Disconnect lift switch wire from terminal J1-11 on controller side. Splice two interface wires in series with switch 5 (Terminal J1-11) on vehicle controller terminal and disconnected lift switch wire.

When the system weighing function is not used turn indicator power switch OFF. Vehicle will operate without lift motor pump interruption cycle.

Lift Pump Motor Interface (Vehicle without solenoid)





All **SC5 Series** electric pallet truck weighing systems have indicators supplied with **two separate black wires** for the lift pump motor solenoid interface control when required, mostly in older vehicles.

Note: Two black wires are connected to internal relay SPST N.C. “dry contacts”.

Lift Accurate Technology

The SC5 series indicator with power switch in OFF position allows vehicle to operate normally with no interruption to the lift motor pump control.

To operate onboard check weighing scale the indicator power switch must be turned to ON position. With forks on the ground (no hydraulic pressure in lift hydraulic circuit) the LED Display will show **Mode 8** digit. During the system calibration and normal weighing cycle **lift control valve must be activated and hold until** lifted forks will stop automatically resulting in:

- * **Pump motor will stop** (*lifted forks will stop at predetermined forks height for 3-4 seconds*)
- * **Load weight will be calculated and shown on LED indicator display**
- * **Once the load weight is shown on LED Display the lift pump motor solenoid circuit will be in normal operational mode.**

Electric Pallet Truck with Proximity Sensor Lift Limit Switch (Newer Vehicle)

For newer vehicles with **Proximity Lift Limit Switch** there is no need to use two black wires. During the system calibration and normal weighing cycle **activate and hold lift control valve** until lifted forks stop automatically.

Electrical Power Short Circuit Protection

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

Weighing Function Calibration Procedure

The SkidWeigh SC5 load weight calibration is automatic and is done by lifting empty and loaded forks.

For the best results use at least minimum calibration load test weight of 30% to 60% of maximum lifting capacity of the electric pallet truck. Use floor scale or find a known load weight with a confirmed and trusted weight.

Important:

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

Weighing Function Calibration Procedure

Lower the Empty Forks to Ground

- * There should be no hydraulic pressure in lift circuit
- * Turn indicator power switch to On position
- * The LED Display will show software version for the moment and **Mode 8** will be shown.
- * System weighing function is ready to be calibrated



Empty Forks Calibration

- * With lowered empty forks on the ground the **Mode 8** will shown.
- * Use paper clip and press and hold “M” button for approx. 3 seconds. **Mode 8** will change to **Mode 0**.



***Activate and hold lift control valve until lifted works stop automatically.** The LED Display will go blank for the moment and within few seconds will show “0” digit in furthest right digit display

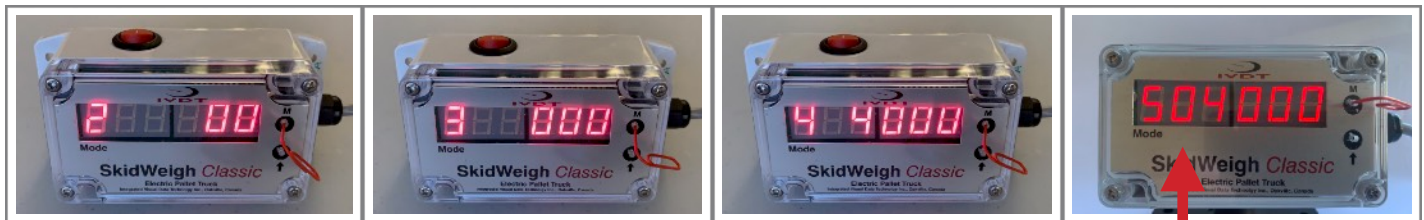


*The algorithm software will calculate and store the value of empty forks being lifted.
Lower the empty forks to ground.

Automatic zero load weight function is done

Calibration of Loaded Forks

- * Have known calibration load weight near by (Kg or pounds depending on your needs)
 - * Position the forks into the skid with your known load weight.
 - * In our **example** the known load weight is **4000**.
 - * Start entering into the system known load weight (Use paper clip). *Start entering with first least significant digit of your known load weight.*
- Use **"M"** button to shift from right to left beginning with **Mode 1 digit to Mode 6 digit**.
- Use **"Arrow Up"** button to input known weight (increments from 0 to 9 with wrap around)



Note: In our example we have value of **4000** (four digits only). Make sure that **Mode 5 digit** is **"0"** value.

- * Next step is to press **"M"** button to advance to **Mode 6**.



- * With loaded forks on the ground and LED Display showing **Mode 6**, **activate and hold lift control valve until loaded forks are automatically stopped.**

- * During the measurement cycle LED Display will go blank for moment
- * System is calculating the load weight value



- * The LED Display will show calculated calibrated weight.
- * The calibrated value of 4000 will be stored in the system.

Automatic load weight calibration function is done



Lower the loaded forks to ground
Mode 8 digit will be shown on LED Display

System is ready to be used

Operator Usage Guide

The starting point to initiate a load weighing procedure

- * Indicator power switch must be turned ON.
- * Loaded forks must be lowered to ground.
- * LED display must show **Mode 8** digit



System Power ON/OFF Switch

System is ready to be used

Operation



- * With loaded forks on the ground and LED Display will show **Mode 8**.
- * **Activate and hold lift control switch until loaded forks are automatically stopped**
- * During the measurement cycle LED Display will go blank for moment
- * System is calculating the load weight value



- * Within few seconds LED Display will show the load weight (*Our example 583*)
- * *Depending on system set up and original calibration the load value could be in pounds or kilograms..*

Note 1. When weighing function is not used turn Power Switch OFF.

Note 2: Short power interruption to lift solenoid during measurement can be seen on some controllers as a "fault".