

Installation & Calibration Manual



ED3/ED4 SkidWeigh Plus Series

Lift Truck On-board Check Weighing System

:ED3V1.47



General Installation Guide

This **ED3 & ED4 SkidWeigh Plus, Version: 1.47** series installation & calibration guide describes how to install, calibrate, test and use your on-board check 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 , visit www.skidweigh.com or contact us at the address or contact number below:

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Safety

Always disconnect the vehicle battery while installing SkidWeigh system or any other electronic product.

Make sure that indicator, pressure transducer and 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.

This product is connected directly to the vehicle's ignition switch, 12 to 55 V DC. There is no on-off switch on the unit.
(Application for vehicle having operating voltage of 80 V DC, order VC-160 voltage convertor)

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.

ED3 /ED4 SkidWeigh Plus 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 LCD is the one applicable for your application.

Overview of 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

Hydraulic Pressure Transducer SkidWeigh Series Operational Concept

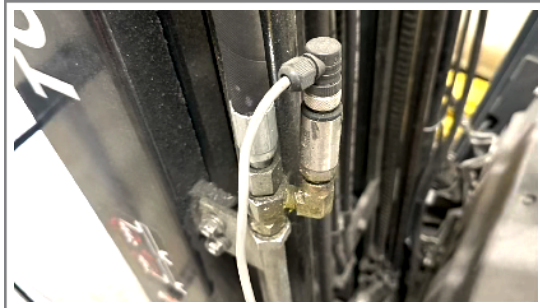
The ED3 SkidWeigh Plus operational principal is based on the hydraulic pressure transducer mounted in the vehicle lifting hydraulic circuit and specific software that will automatically activate the “weighing cycle / specific algorithm ” every time a skid load is lifted just above the ground. The increase in pressure is converted in an electronic signal at the sample rate of 16000 readings which is converted into a load weight reading.

Pressure Transducer Installation

The pressure transducer must be installed in the lifting hydraulic line **between the lift control valve and lift cylinder(s)**. Mount a T-piece in 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 found in vehicles with larger hoses to accommodate larger vehicle lifting capacities.

Pressure Transducer Installation Precautions

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

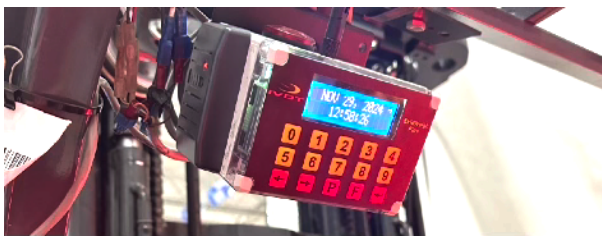


There are two ways to do that:

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 chain(s) 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.

Selecting the Mounting Location for Digital Indicator



Use the mounting bracket with the anti vibration mount and fasten digital indicator on the vehicle dashboard or side railing preferably on the right hand side. 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 to upper right corner of the guard or side railing.

Choose the correct location and make sure that:

- Indicator is visible and within reach of the operator
- Location so that operator does not hit a head



Compact Size Indicator

All of the SkidWeigh systems are compact size ideal for the installations to all kinds of material handling vehicles limited dashboard space.

Electrical Connections

All SkidWeigh systems operate from 12 to 55 V DC.



Digital indicator five wires single cable

- **Orange Wire (+) Ignition switch**
- **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**



Pressure Transducer Cable

- **White Wire, output signal 0 to 2,5 V**
- **Black Wire, signal negative**
- **Red Wire, power supply + 11 V DC**



Power Short Circuit Protection

All 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.

Note: Any external devices connected to the SkidWeigh system, such as non standard onboard printer might require external fuse.

“Quick Test to Determine if Electrical Connections are Done Right”

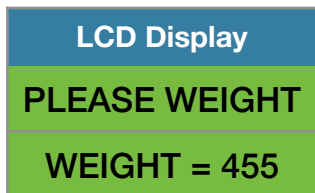
Note: SkidWeigh weighing calibration function is not done yet at this stage. This procedure is only to test if electrical connections of the system installation into the vehicle is done properly!

After you have connected electrical power and pressure transducer cable you can “quickly” check the system operation.

- Lower the forks to the ground
- Turn On ignition switch
- Digital LCD display will be activated, showing software version and serial number
- Digital LCD display will show current date and time



If the loaded forks are lifted above the ground LCD digital display will show **“PLEASE WAIT”** and within few seconds display will show “some” load weight . (Example: 455, not calibrated load weight at this stage)

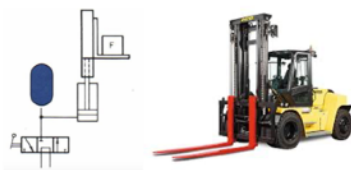


If the above test is valid then the system electrical connections are done right. The next procedure will be how to calibrate the SkidWeigh weighing function.

Lift Tuck Equipped with Hydraulic Accumulator(s)



If the standard SkidWeigh system is installed on the lift trucks equipped with hydraulic accumulators, please contact us to provide you with different digital indicator having specific software algorithm for such application.



Administrative Menu

Installation Technician: The administration menu allows the installation technician to calibrate system weighing function, set the overload alert, input proper time / date, vehicle ID# and any other functions applicable for the system purchased.

- To enter into **Administration Menu** (*LCD must show Time /Date*), press **F key** and press number **9**.
- Input password **521**.
- Use **left** arrow key to scroll for functions that will apply for your system.
- Press **“Enter key”** ↵, input the required value and press **“Enter key”** ↵ to move to next scroll function.

Date / Time Set Up

In the event that date and time is not right you can correct to proper value.. With LCD showing “SET CLOCK ENTER TO SELECT” press **“Enter key”** ↵. **Important:** Use left ◀ and right ▶ arrow key to change the set to **MANUAL** and press **“Enter key”** ↵ to confirm the setting. The cursor will automatically move to (Month, Day, Year, Hours, Minutes, Seconds). Use left ◀ and right ▶ arrow key to change value and press **“Enter key”** ↵

On the last correction for the seconds item press **“Enter key”** ↵ to confirm new date / time set up. Use left ◀ arrow key to move to next item in the menu.

Note: **AUTO** set up for Date/ time is automatic and is used with **RF Base Station** only.

Load Weight Calibration



The **ED3 & ED4 SkidWeigh Plus** calibration is automatic and is done by lifting empty and loaded forks (or any other attachment such as paper clamp) **just above the ground**. **MAKE SURE THAT YOU HAVE A KNOWN LOAD WEIGHT AND KEEP IT NEARBY TO COMPLETE THE CALIBRATION.**

For the best results use at least minimum calibration load test weight of 30 to 50% of maximum lifting capacity of the lift truck. Use customer floor scale or find a known skid load weight within the operational facility.

Important: The weighing calibration must be done with known load weight in pounds.

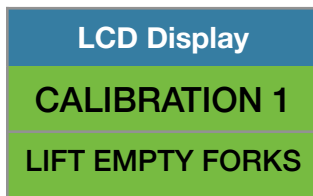
Note:

With the system calibrated in pounds the end user can change load weight display from pounds to kg or (*kg to pounds if already pre set*) by pressing **F key** and number **0**. Use **< >** scroll key to **WEIGHT DISPLAY**, select **kg** and press **“Enter key”** ↵.

Calibration

In **Administration Menu** Use left ◀ and right ▶ arrow key until LCD shows **SET CALIBRATION 1**.

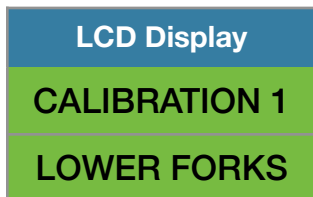
Empty forks must be lowered to the ground. To initiate automatic calibration press **“Enter key”** ↵ and follow instruction.



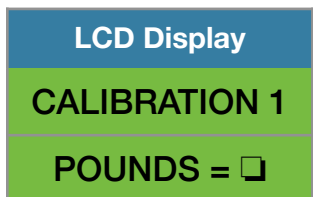
Lift empty forks just above the ground.

You must activate lift control valve and lift the empty forks just above the ground the same way that you would normally do when lifting loads. Do not slow down this lifting operational cycle, do not tilt the load, do not lift to different heights or move vehicle.

After few seconds the LCD display will show

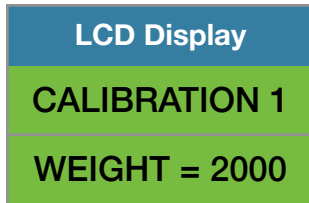


At this point you must lower the empty forks to the ground. The LCD display prompt you to input known calibration load weight. (*In our example known load weight is 2000 pounds*)



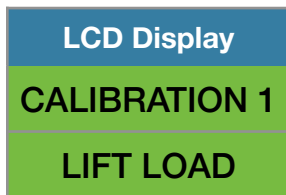
Pick up a known load weigh and **lower the loaded forks to the ground.**

(*Our example of the known load weight is 2000 pounds*)



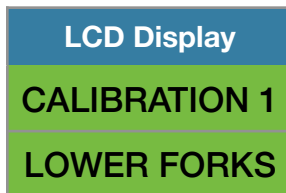
Input into the system the known load weight of 2000 into the LCD display and press “Enter key” ↵.

The LCD display will show



Lift loaded forks just above the ground. After few seconds the calibrated load weight value of 2000 will be stored in the system memory.

The LCD display will prompt you to lower “**LOWER FORKS**”.



As soon the loaded forks are lowered to the ground LCD will show Data/ Time *unless system is supplied with overload alert notification.* See instruction below!



Note: System with overload warning function (Additional step)

As soon the loaded forks are lowered to the ground the LCD will prompt you to input the overload value for your vehicle application. **OVERLOAD = _** Input the overload value and press “Enter key” ↵.

**Calibration of the ED3 & ED4
System Weighing Function and Overload Alert is Finished.**

Administrative Menu (Management)

- To enter into **Administration Menu** (*LCD must show Time /Date*), press **F** key and press number **9**.
- Input password **521**.
- Use **left** arrow key to scroll for functions that will apply for your system.
- Press **“Enter key”** ↵, input the required value and press **“Enter key”** ↵ to move to next **F** key scroll function.

Depending on the system purchased the **Administrative Menu** allows you to input, change and upload recorded events to USB memory stick.

Saving Recorded Data to USB Memory Stick

- Scroll to LCD display showing **SAVE TO USB ENTER TO SELECT**, press **“Enter key”** ↵ and follow instruction.
- Use left ◀ and right ▶ arrow key and press **“Enter key”** ↵
- Press **F** key to exit.



Operator Usage Guide

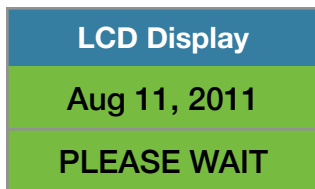
Insert the forks into the pallet or under the product to be weighed.

Lower loaded forks to the ground.

LCD display must show date and time in order to initiate weighing function.



Activate lift control valve and lift loaded forks just above the ground.



LCD will display **"PLEASE WAIT"** and after few seconds a load weight will be shown



Example: Lifted load weight of 1200

Note 1: This load weight will be shown on LCD display until next time the forks are lowered to ground.

Note 2: When vehicle in motion the LCD might show some random load weight. This is due to the hydraulic spikes and this does not represents any actual load weight value. To initiate the **"weighing cycle"** you must lower the loaded forks to the ground and lift loaded forks just above the ground.

Accumulative Load Weight Total

- With LCD display showing date / time lift loaded forks just above the ground. To accumulate load weight totals press **“Enter key”** ↵ after each load weight as shown on LCD display.

LCD Display
August 11, 2011
WEIGHT = 1200

When **“Enter key”** ↵ is pressed LCD display will show a load weight of the first load and total load weight.

LCD Display
WEIGHT#1 = 1200
TOTAL = 1200

After each new load weight shown on LCD display and pressing **“Enter key”** ↵ system will be updated showing the latest current load weight and total load weight of all loads.

To **RESET** current individual load weight or accumulative total load session press **“P” key** and session will be RESET.

Note: If the onboard printer is connected to the system by pressing “P” key after individual or total load weight you will get a printout ticket. Weight data will be recorded for upload to memory stick.

TARE Function Input

To set up TARE value into the system press **“F” key** and input number **0**.

Use left ◀ arrow key to TARE ENTER TO SELECT and input TARE value and press **“Enter key”** ↵

Press **F key** to get back to LCD showing date/time .

All of the following load weight will be displayed with TARE sign shown on LCD display.

To change TARE value press **“F” key** and number **0** and follow instruction .

To reset TARE you must press **“F” key** and input number **0** and press **“Enter key”** ↵. Press **F key** to get back to LCD showing date/time .

LCD Display
Aug 11, 2011
TARE = 0

Important: To reset TARE you must press **“F” key** and input number **0** . With LCD showing **TARE ALLOCATION** input value of **0** and press **“Enter key”** ↵. Press **F key** to get back to LCD showing date/time .