

# ED Series SkidWeigh Systems

Hydraulic Check Weighing for Material Handling Vehicles

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## ED SERIES SKIDWEIGH SYSTEM

### Lift Truck Operator Check Weighing Procedures

The ED Series is a lift truck check weighing system used to verify load weights on the move. This is **not** a “**Legal For Trade**” scale; but an on-board check weighing system that will allow your lift truck operator to determine the load weight within +/- 1% of the vehicle lift capacity. The only requirement from the operator is to initiate the **proper load weight cycle**.

The system is a dynamic load weight indicator. Any digits that are displayed on the indicator while the vehicle is in motion, standing loaded or unloaded, forks positioned to the ground level showing “default value”; **does not represent any load weight**.

The load weight readout accuracy within +/- 1% of the vehicle lift capacity will be achieved only when the lift truck operator initiates the proper **load weight cycle 1 to 4**, as per the following.

## Weighing Loads

### (Load Weight Cycle)

1. Lower the forks to the ground and insert the forks under the product to be weighed. Make sure that the pallet is positioned all the way to the fork carriage.
2. When lowering the forks to the ground level, wait until the digital indicator shows a “Default Value”, (a small digital value on the indicator that could be any low number such as 10 or 20). This does not represent any load weight.
3. Activate the lift control valve by lifting the load just above the ground in the same way that you normally do when picking up the load. Do not slow down this cycle, do not tilt the load in any direction, do not start to lift the load to different heights.
4. The indicator digits will start to move and increase in value. Wait approximately 3 to 5 seconds and observe when the **peak load weight readout value is reached**. The correct load weight readout should be taken when the indicator shows the highest digital value. It is important that the operator watches the digits increase until it reaches the highest value. This is the correct weight readout. Once the digits start to decrease, the operator does not have to concern himself with the numbers.

#### NOTE:

##### Display Digits Decreasing

The digits will start to decrease after the indicator reaches the highest digital load weight value. As soon as the digits start to decrease, **do not take these values as load weight**. If you wish to take another load weight measurement, initiate a new load weight cycle 1 to 4.

## ED Series SkidWeigh System

### Installation Instructions

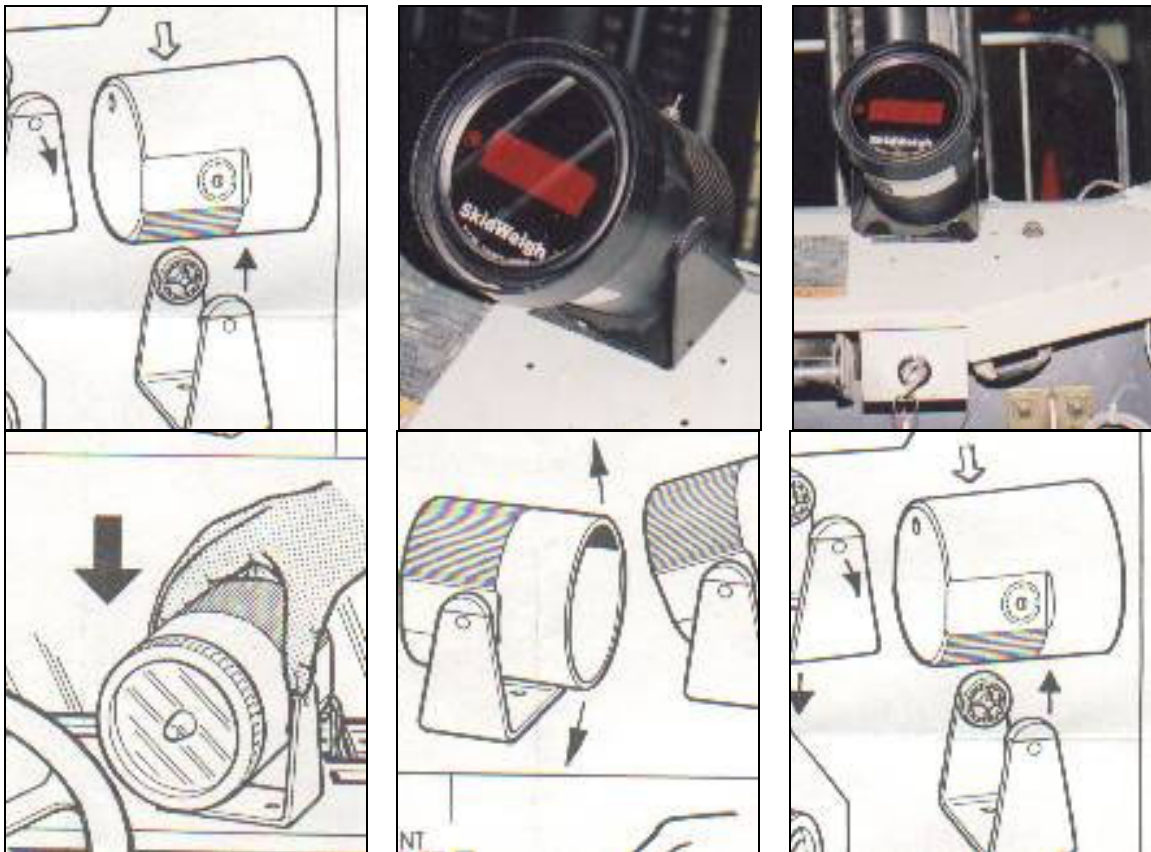
The ED Series SkidWeigh System can be installed on any type of lift truck, regardless of the model or make, for lifting capacity up to 10,000 lb. or kg.

The ED Series kit consists of:

- 1 Electronic Digital LED or LCD Indicator, including adjustable mounting brackets**
- 1 Interface Module, with harness**
- 1 Pressure Transducer, with harness**
- 1 VHS Installation Video (5 min.)**

### Mounting Location for Digital Indicator

1. Mount the electronic indicator head on the vehicle dashboard or side railing of the lift truck. Use the mounting bracket to fasten the indicator to the vehicle, with two screws. The bracket can be removed from the indicator head as per the attached drawing.



2. Adjust the indicator head view angle as required.

## Interface Module

The interface module is the main component of the ED Series System. One set of wires will be connected to the vehicle power and pressure transducer and the other set of wires is connected to the indicator head. The system calibration will be done through this interface module. The interface module operating voltage is from 12 to 50 VDC.

**NOTE:** The interface module should be easily accessible for calibrating the system before it is permanently put away.

Connect the plug from the indicator head to the plug from the interface module.

**NOTE:** For connections of the other wires from the interface module to the vehicle, see “Electrical Connections”.

## Pressure Transducer

1. The pressure transducer has a male port  $\frac{1}{4}$ " – 18 NPT and must be installed in the hydraulic line of the lift truck **between the lift control valve and the lift cylinder(s)**.



2. The majority of pressure transducer installations into the vehicle hydraulic system requires some kind of T-piece to be connected in the hydraulic line. In addition to the T-piece method, pressure transducers can be installed in the “hydraulic block divider”, spare plug, or by drilling and tapping  $\frac{1}{4}$ " –18 NPT in any “larger elbow” within the hydraulic system already on the vehicle.
3. Make sure that the installed pressure transducer will not touch any moving parts or the assembly of the lift truck when in normal operation. (Moving mast, tilt cylinder, etc.)

## Electrical Connections

1. The plug from the indicator head should be connected to the plug of the interface module.
2. The gray cable from the pressure transducer ( three colored wires – Red, White and Black ) is to be connected to the corresponding gray cable (three colored wires) of the interface module. Make sure that all connections are secured properly and these wires are connected before the power wires are connected.

### 3. Power Connection

**Red Wire (+)** Connect to the ignition switch “ON” position. It is recommended to install an in-line fuse in this line.

**Black Wire (-)** Connect to the battery negative (electric motor powered lift trucks) or to the vehicle chassis for combustion powered lift trucks. (Scratch the chassis paint to achieve a better conductivity contact.)

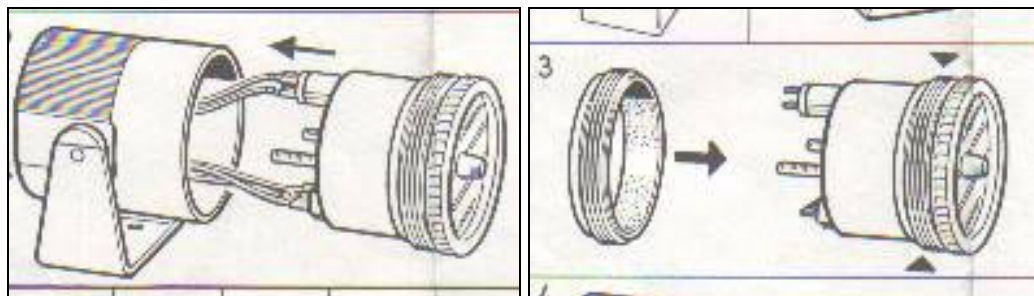
## ED Series SkidWeigh System

### Dip Switch Range Selection For Vehicle Maximum Lift Capacity

Every ED Series system can be used on any lift truck having a maximum lifting capacity of 10,000 lb or 10,000 kg. You will notice that the indicator dial is not marked in lb or kg and it is up to the end user to calibrate the system in **pounds** or **kilograms**.

The ED-Series indicator head is supplied with internal 4-position dip switch settings to accommodate the majority of the lift truck lifting capacity on the market. The Dip switch location is on the back of the indicator. ( *Note: On older units, the dip switch was located on the back of the mounting cup, as shown in the installation video.* )

To access the dip switches, you will have to remove the indicator gauge from the mounting cup. This will require patience and some twisting and pulling of the gauge from the mounting cup, as the gauge's rubber ring is a very tight fit.



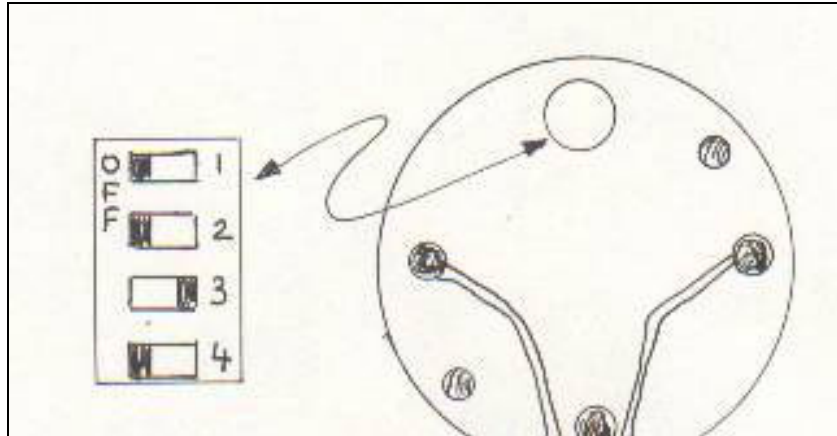
Mounting cup

Indicator gauge

Rubber ring

As an example; if the maximum **lift capacity of the particular vehicle is 3,000 pounds**, then these switches should be positioned as per enclosed table “A”. In order to get within the calibration range of 3,000 pounds, the system calibration will have to be done with the known weights in pounds.

If maximum **lift capacity of the particular vehicle is 3,000 kg**, then these switches should be positioned as per enclosed table "B". The system calibration will have to be done with known weights in kilograms.



*Location of dip switches on the back of the digital indicator*

**Every ED Series system is supplied with the default dip switch selection for a lift truck lifting capacity of 3,000 lb. or 3,000 kg**

**Off Off On Off**

### **Dip Switch Setting Table "A"**

Vehicle lifting capacity in lbs.

Switch 1	Switch 2	Switch 3	Switch 4	Vehicle Lift Capacity (LB)
OFF	OFF	OFF	ON	1,500
ON	OFF	OFF	ON	2,000
OFF	OFF	ON	OFF	3,000
ON	OFF	ON	OFF	4,000
OFF	OFF	OFF	OFF	5,000
ON	OFF	OFF	OFF	6,000
OFF	ON	OFF	OFF	7,000-10,000

### **Dip Switch Setting Table "B"**

Vehicle lifting capacity in kg

Switch 1	Switch 2	Switch 3	Switch 4	Vehicle Lift Capacity (kg)
OFF	OFF	OFF	ON	1,500
ON	OFF	OFF	ON	2,000
OFF	OFF	ON	OFF	3,000
ON	OFF	ON	OFF	4,000
OFF	OFF	OFF	OFF	5,000
ON	OFF	OFF	OFF	6,000
OFF	ON	OFF	OFF	7,000-10,000

## Electrical Connections Test

When all the electrical connections have been completed, turn on the ignition key. The indicator digits will light up and show zero's or low number such as 10, 20 or 30. To test the connections to the pressure transducer, lift the empty forks or put some load on the forks and lift it. The numbers on the indicator should change and increase.

## Calibration Instructions

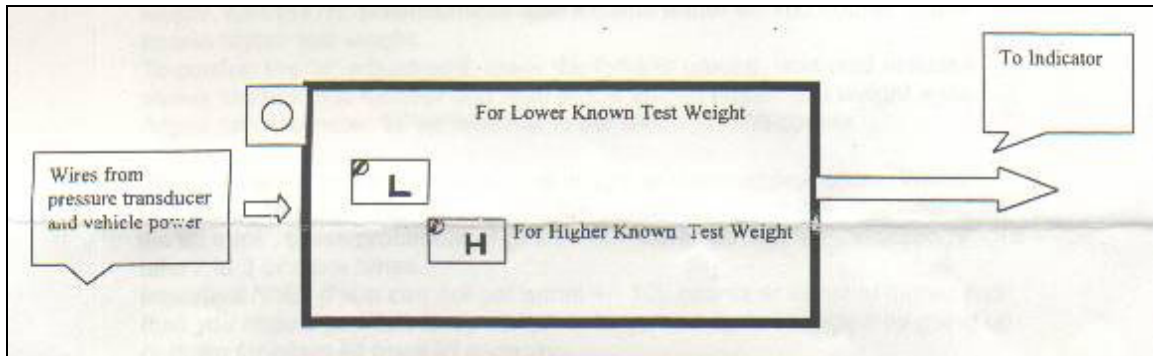
The system can be calibrated with **two known test weights** – one low known weight and one high known weight.

### Example:

The known test weights should be in the range of at least 20% and 70% of the particular lift truck lift capacity. For a 3000 lb lift capacity, use approximately **600 lb** and **2100 lb**.

Chose any two known test weights. Make a record of the weights and set these two known weights aside so they can be easily used during the calibration procedures.

## Interface Module (Calibration)



Make note of the two potentiometers marked as "L" and "H". They will be used to calibrate the system against two known test weights.

## Coarse Calibration Procedures

(Within +/- 100 counts)

1. Always start with the known lower test weight. Drive into the skid and lift the loaded forks just above the ground (2"– 6"). The indicator digits will start to increase in value. Wait until the digits "slow down" and reach a peak value. Make a quick observation of the peak value on the indicator against the known lower test weight.
2. If the indicator value is much higher or lower than the known lower test weight, turn the "L" potentiometer until it reads within +/- 100 count of the known test weight.
3. Once you have turned the "L" potentiometer you **must lower the forks to the ground** and lift the known lower test weight again, just to see if it requires an additional turn on the "L" potentiometer. If the display shows within +/- 100 counts against the known test weight, proceed to the next step. (Do not worry about +/- 100 counts error at this time.)
4. Next, pick up the known higher test weight, just above the ground. Wait until the digits "slow down" and reach a peak value. Make a quick observation of the peak value on the indicator against the known higher test weight.

If the indicator value is much higher or lower than the known higher test weight, turn the "H" potentiometer until it reads within +/- 100 counts of the known higher test weight. To confirm the "H" adjustment, **lower the forks to the ground**, wait until the indicator shows a low two digit number ( 10 or 20 ) and then lift the known higher test weight again. Adjust the "H" potentiometer as required to get within +/- 100 counts.

5. Now, go back to the known lower test weight and repeat the procedure. When finished, go to the known higher test weight and repeat the procedure. Depending on the lift truck, this procedure of going from lower to higher calibration, may take two or three more times to complete.

**Important Note:** If you can not get within +/- 100 counts at the lower or higher end, you should go back to the dip switch settings and try to change it by going up or down the dip switch table for the given lift truck capacity.



## Fine Calibration Procedures

(Within +/- 20 counts)

The fine calibration procedure consists of lifting known lower and higher test weights and turning the “L” and “H” potentiometers by only  $\frac{1}{4}$  turn or less.

Once the potentiometers are turned, you must always test the results by lowering the load weight to the ground and then lifting it to make sure that the indicator shows that the load weight is within +/- 1% weighing accuracy

### A. Lift Known Lower Test Weight

Wait and make a note of the peak value shown on the indicator against the known weight. If the error is within 25 to 50 counts, turn the “L” potentiometer  $\frac{1}{4}$  turn or less.

B. Lower the forks to the ground, wait until the indicator shows any low two digit number. Lift the known lower test weight again and make a note of the **new peak value against the known test weight.**

C. Adjust the “L” potentiometer if required.

D. Lift the known higher test weight and repeat the procedure with the “H” potentiometer.

***For fine adjustments; you must turn the “L” and “H” potentiometers in small increments and the results must be checked by lowering the loads to the ground and then lifting them above the ground to see the final results on the indicator.***

