



WP92021W

Leaf Chain Forklift Weigh Kit

Installation and User Manual



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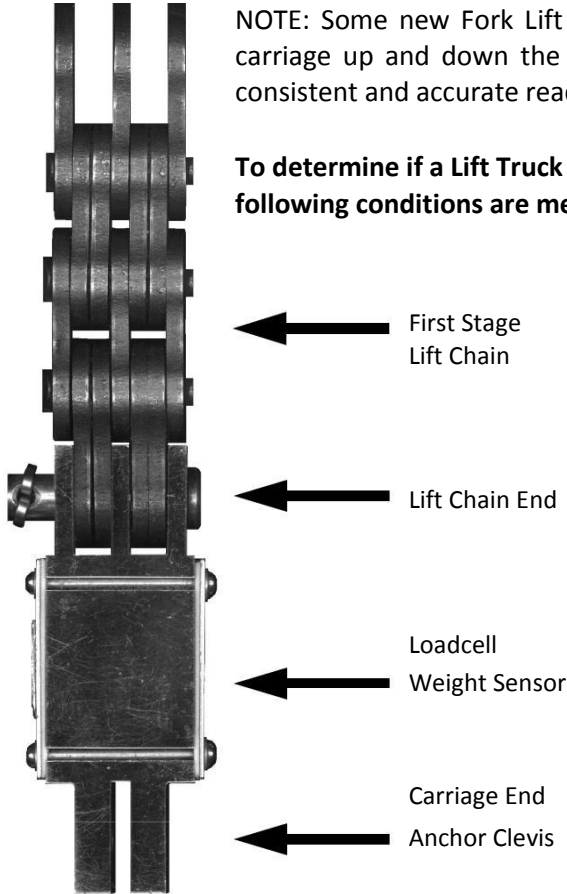
Leaf chain scale system parts list - WP92021W

| Qty | Part no. | Description |
|--------------|----------|---|
| 1 | WP9202 | Indicator model WP9202 s/n _____ |
| 2 | BL _____ | Loadcell w/ integrated cable and clevis pins S/N _____ |
| 1 | 101-002 | 4-position connection strip for junctioning |
| 2 | 101-005 | Display mounting plates w/ nuts and bolts |
| | | |
| 15 ft | 109-001 | Power cable |
| | | |
| 1 | WP8802 | Wireless transmitter/receiver kit |
| | | |
| 1 | | Tie Wraps package for cable tie down |
| | | |
| 1 | 101-003 | 4 ft cable for diagnosing/testing |
| 1 | | Installation/instruction manual |
| | | |
| Option: 1 | | Power supply and insulated bracket for electric trucks only |
| | | |
| | | |

Pre-Installation Assessment

NOTE: Some new Fork Lift Trucks are sometimes stiff and require a work-in of the carriage up and down the columns for several weeks before the scale will show a consistent and accurate reading. Removal of a shim may also be indicated

To determine if a Lift Truck Weigh Kit will work with your truck please check that the following conditions are met:



- Your lift truck must use leaf chains rather than roller chains.
- Most installations are at the front of the column.
- Loadcells are attached from the carriage anchor stud directly to the first stage chains.
- To permit the loadcells to mount without interference, at least 3" of chain section should be exposed between the carriage and chain pulley when the carriage is raised just past the first stage. In particular, observe the amount left below the sheave (chain pulley) with the forks raised to the top of the 1st stage. Then raise the forks to the up most position and observe if there would be sufficient clearance for the load cells.

Loadcell weight sensor for lift trucks with BL-634 chains

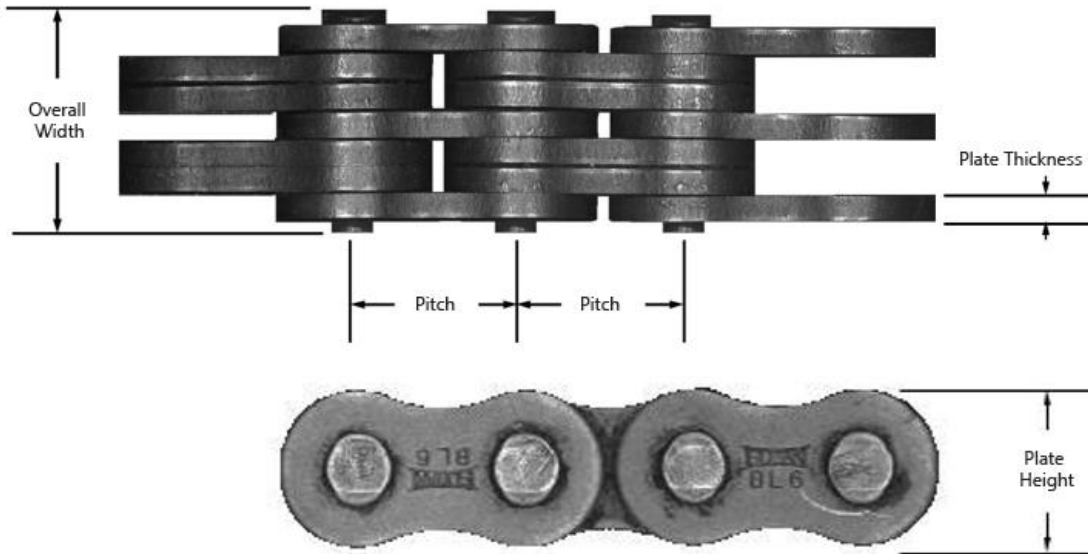
There are three steps that must be taken before we can determine which Lift Truck Weigh Kit is right for you:

Check to determine which chain your truck uses. The most common we find is BL-634. We have or can make loadcells for most types of leaf chains.

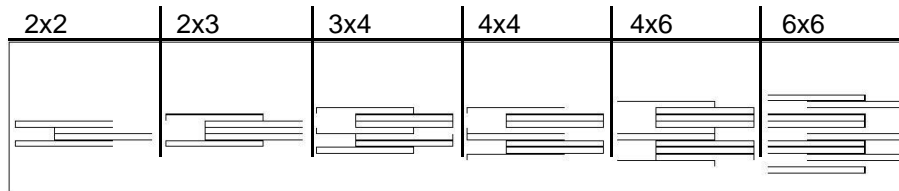
Find out the voltage of your lift truck's electrical system. Our system requires 12 VDC, advise truck's voltage is 24, 36 or 48 VDC, a power supply will be added to the kit for voltage conversion. The kit will also run from a rechargeable battery as an alternative to using your truck's power.

Consider adding features to your kit. We can provide you with a printer that mounts in the truck or even interface your weight display to a portable computer.

UNDER NO CIRCUMSTANCES SHOULD THE LOADCELLS BE MOUNTED ON THE CHAIN AT THE REAR , I.E. THE OPPOSITE SIDE OF THE CARRIAGE.



Key to Lacing Combinations



BL Series Dimensions

| Chain No. | Lacing Combination | Overall Width | Pitch (in.) | Plate Height | Plate Thickness | Pin Diameter |
|-----------|--------------------|---------------|-------------|--------------|-----------------|--------------|
| BL-422 | 2x2 | 0.427 | 1/2 | 0.475 | 0.080 | 0.200 |
| BL-423 | 2x3 | 0.510 | | | | |
| BL-434 | 3x4 | 0.677 | | | | |
| BL-444 | 4x4 | 0.764 | | | | |
| BL-446 | 4x6 | 0.929 | | | | |
| BL-466 | 6x6 | 1.094 | | | | |
| BL-522 | 2x2 | 0.498 | 5/8 | 0.594 | 0.094 | 0.234 |
| BL-523 | 2x3 | 0.594 | | | | |
| BL-534 | 3x4 | 0.791 | | | | |
| BL-544 | 4x4 | 0.888 | | | | |
| BL-546 | 4x6 | 1.083 | | | | |
| BL-566 | 6x6 | 1.278 | | | | |
| BL-622 | 2x2 | 0.645 | 3/4 | 0.712 | 0.125 | 0.311 |
| BL-623 | 2x3 | 0.778 | | | | |
| BL-634 | 3x4 | 1.041 | | | | |
| BL-644 | 4x4 | 1.173 | | | | |
| BL-646 | 4x6 | 1.437 | | | | |
| BL-666 | 6x6 | 1.701 | | | | |
| BL-822 | 2x2 | 0.794 | 1 | 0.950 | 0.156 | 0.373 |
| BL-823 | 2x3 | 0.953 | | | | |
| BL-834 | 3x4 | 1.281 | | | | |
| BL-844 | 4x4 | 1.453 | | | | |
| BL-846 | 4x6 | 1.772 | | | | |
| BL-866 | 6x6 | 2.098 | | | | |
| BL-1022 | 2x2 | 0.944 | 1 1/4 | 1.126 | 0.187 | 0.435 |
| BL-1023 | 2x3 | 1.138 | | | | |
| BL-1034 | 3x4 | 1.530 | | | | |
| BL-1044 | 4x4 | 1.708 | | | | |
| BL-1046 | 4x6 | 2.114 | | | | |
| BL-1066 | 6x6 | 2.514 | | | | |

Trial installation

Check the suitability of the lift truck weigh system without the expense or effort of a full installation. Install the system and test for satisfactory before considering cutting the leaf chain as it will be slack in the lowered fork position.

This is important information that will save your installer valuable time. We are convinced that following these procedures will avoid frustration and assure you of the best accuracy and long scale life.

It's true that each forklift truck has, in a matter of speaking, a personality of its own. A scale installed upon apparently identical trucks may perform quite differently. This disparity of performance can be detected early without investing in hours of futile installation time.

Caution: Do not attempt this procedure if you are unqualified - get help from a lift truck service company if required.

The trial set up involves placing the loadcells between the first stage lift chains and carriage, temporarily wiring the WP9202 indicator to the loadcells and providing power to WP9202 with a 110V to 12 V power supply.

Before beginning the installation check clearances. The loadcells must not contact the chain sheaves (pulleys), cylinder walls or at any point through their range of motion. Check the clearance by lifting through the travel and watching the length of chain remaining between the carriage anchor stud and sheaves. This distance should be sufficiently far to allow for the height of the loadcells to be inserted. Closely observe the clearances between the chain and cylinder walls as projections could cause interference with loadcell travel.

Read over these steps before beginning the installation to familiarise yourself with the process.

1. Block carriage and fork assembly at a convenient work height. This will remove tension on the chains.
2. Remove the pin from one of the two front anchor clevis's located at the carriage. This anchor clevis connects the carriage to the lifting chain assembly.
3. Remove necessary segments from the chain to insert the loadcell in their place.
4. Install loadcells directly into the anchor clevis. A slide fit is expected and little or no grinding of the loadcell's mating clevis is required for it to fit the anchor clevis. Face the integrated loadcell cable toward the carriage centre. Install a clevis pin and cotter pin to complete the connection.
5. The free chain end now can be inserted into the loadcell's upper mating clevis and secured with a clevis pin and cotter pin.
6. Repeat steps required to insert the loadcell in the second chain.

Once installed, the sensor cables will be routed (carefully) and temporarily to the side of the carriage. Connect the cables with display and providing power to the display (see colour coding on page 7). Follow the indicator set-up procedure. Keep in touch by phone with our technical support to guide you through any glitches. With known weights available check the scale operation. Your tech support can advise you how to tune the scale or advise of alternative solutions.

Permanent Installation

If satisfied with the trial installation you can proceed with a permanent installation.

Loadcells

The loadcells are secured with hardened pins and cotter pins between the carriage anchor studs and first stage chain.* The chain must be shortened to the original length. In some cases the rear anchor studs may be tightened to take up the slack rather than remove chain links.

L/C Wiring

Parallel together each of the four loadcell wires and reeving or coil cable wires, i.e. at junction join 3 green, join 3 white, join 3 red and join 3 black.

The Reeving system of wiring

The reeving system required both loadcell cables and the reeving cable to junction close to the loadcell location. An appealing arrangement is to have the wire cable alongside the lifting chains similarly to the route followed by reeved hydraulic hoses. In fact, the scale cable is sometimes installed into hydraulic hoses to provide additional protection. The kellems and tension springs are supplied to keep the cable properly tensioned on the pulleys – see page 9.

The Coil cable system of wiring

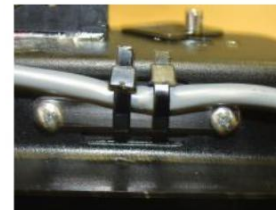
The other wiring method uses a sturdy coil type cable outboard to the column. This method requires the loadcell cables to be protected against damage in routing both cables to the junction box secured to the end of the carriage. Take care to avoid snagging on the side shifter. The junction box can usually bolt directly onto the carriage with an existing tapped hole. The coil must run without obstruction from the carriage to the top of the column. You may elect to run the coil cable from the top of the column directly across to the cab.

Indicator

The WP9202 indicator can be mounted wherever convenient. It is not advisable to mount the indicator where it would be exposed to direct sunlight, excessive mechanical abuse or moisture. The cable from reeving (or coil) connect to the terminal strip on

the rear of the indicator.

The cable wiring matches the label colouring.



Strain relief the cable by utilizing the dual tie wraps provided next to the indicator's communication port.

Power

Find out the voltage of your lift truck 's electrical system. Our system requires 12 VDC, a power supply will be added to the kit for voltage conversion if necessary. The kit will also run from a rechargeable battery as an alternative to using your truck's power.

ATTENTION

Properly install the loadcell pins. Two styles available.

Clevis Pins with Cotter Pin Lock

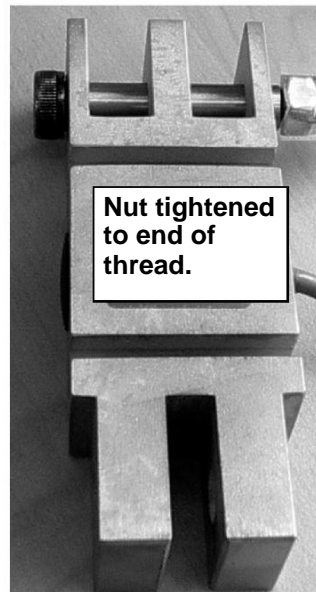
This styles requires the cotter pin be properly bent to prevent release.



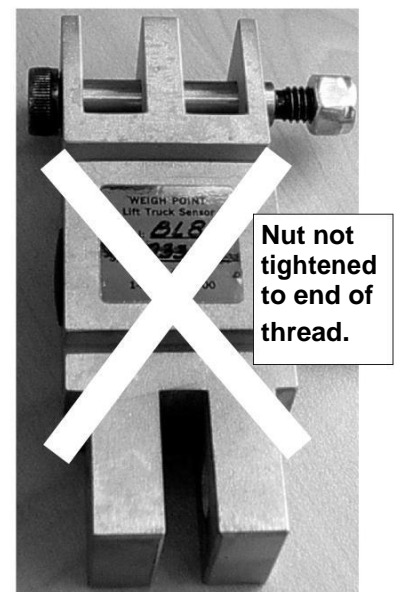
Shoulder Bolt Style

The shoulder bolt is to be secured with the supplied nylock nuts. The nut must be fully screwed to control the bolts shoulder and also guarantees that the nylon lock is properly engaged on the shoulder bolts thread.

Correct



Wrong

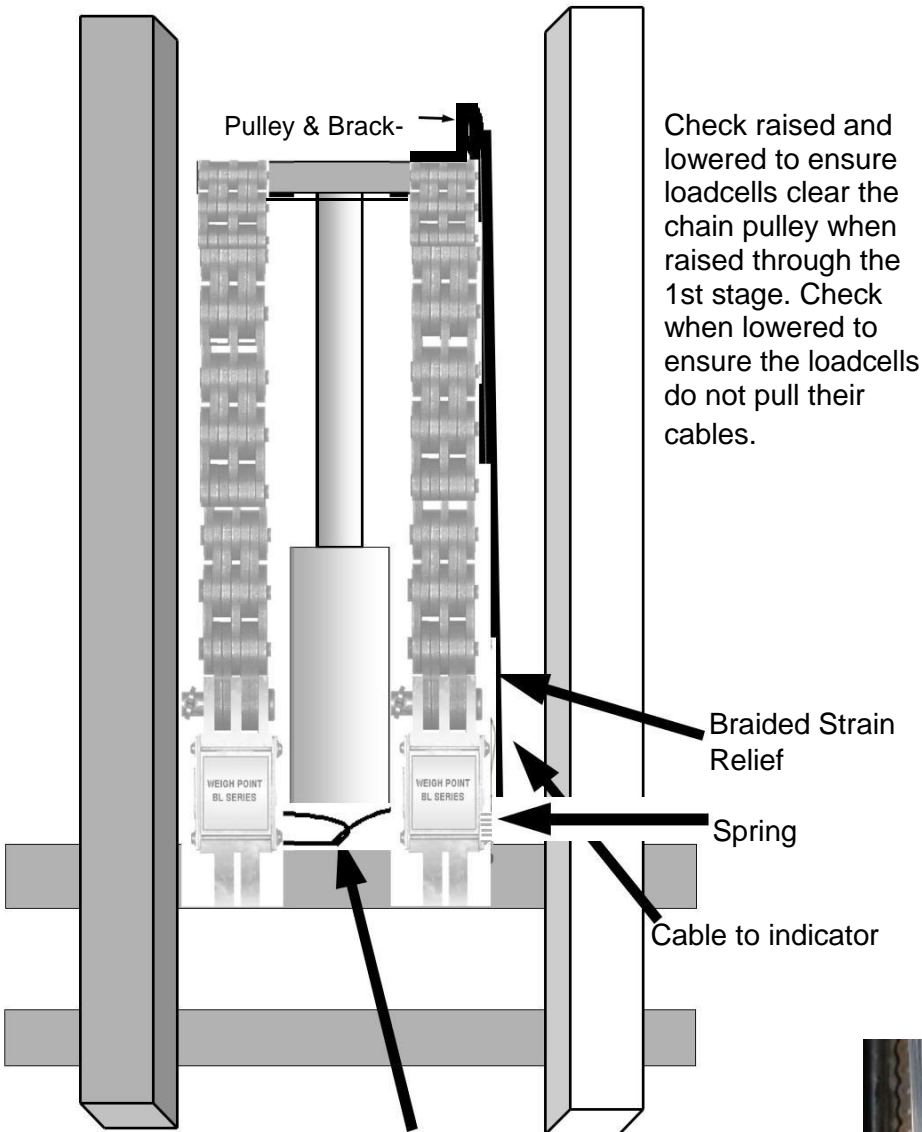


Avoid Loadcell Obstruction

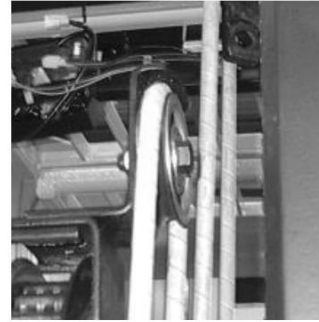
The loadcell must have no side pressure. It must be always in line with chain and anchor stud. Take care to check for clearance between loadcell and carriage.

Leaf Chain System – Internal Reeving

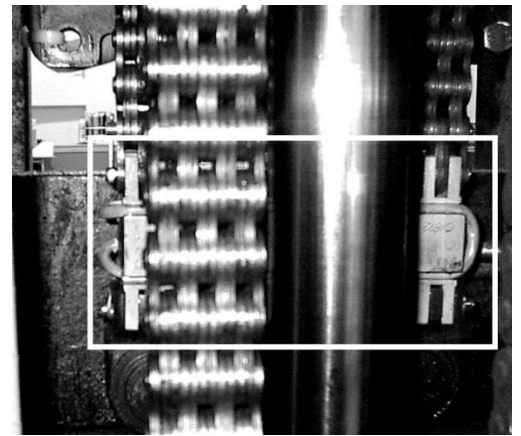
Only 1st stage & Reeving shown. This arrangement is then repeated for 2nd and 3rd stage trucks.



Loadcell cables, loose but anchored (e.g. Tie wrapped)
Loadcell cables can face out or towards each other as required



Pulley & Brack-



Loadcells Mounted in chains

Technical Support 1-800-268-7400

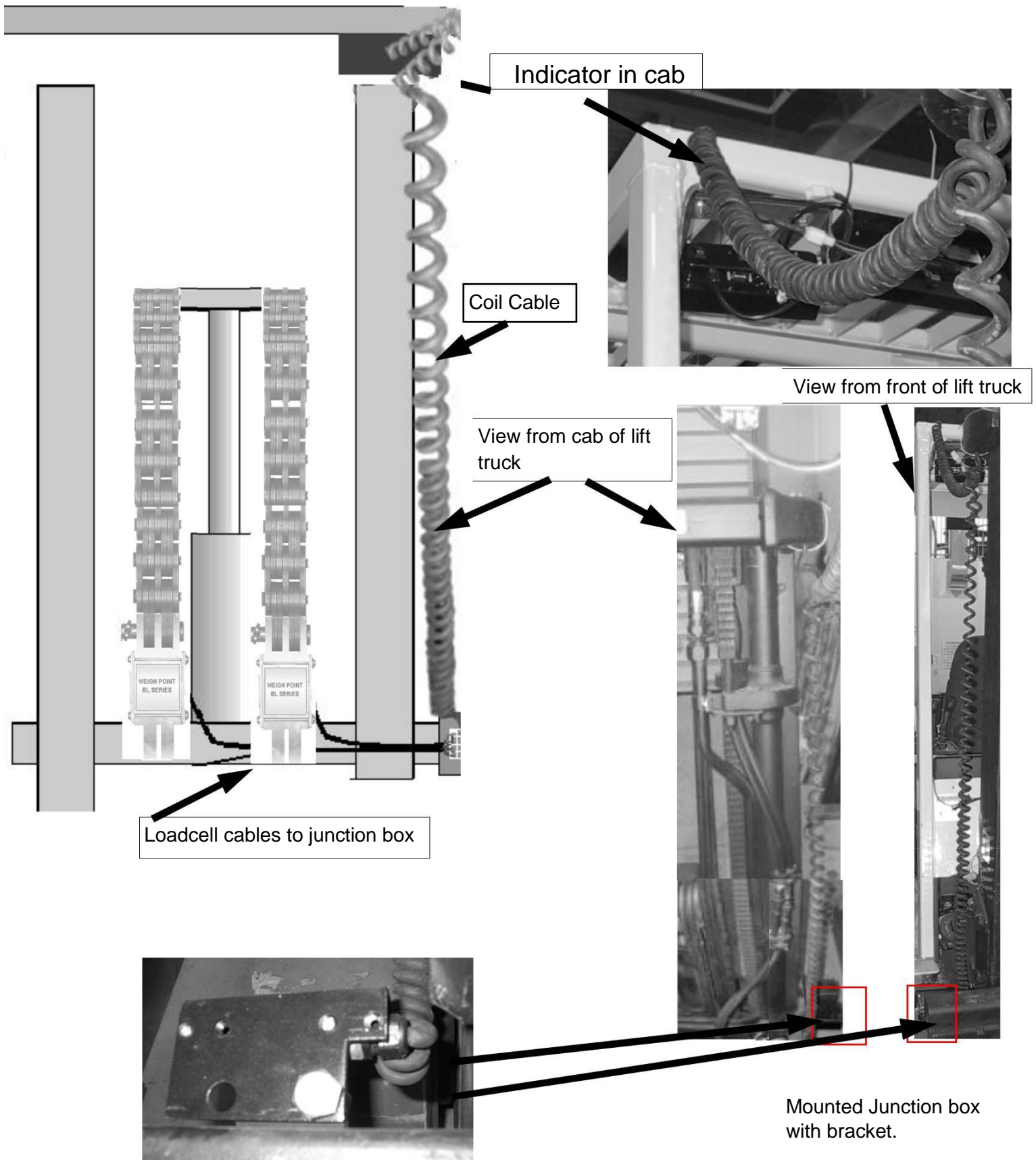


Reeving @ front of carriage



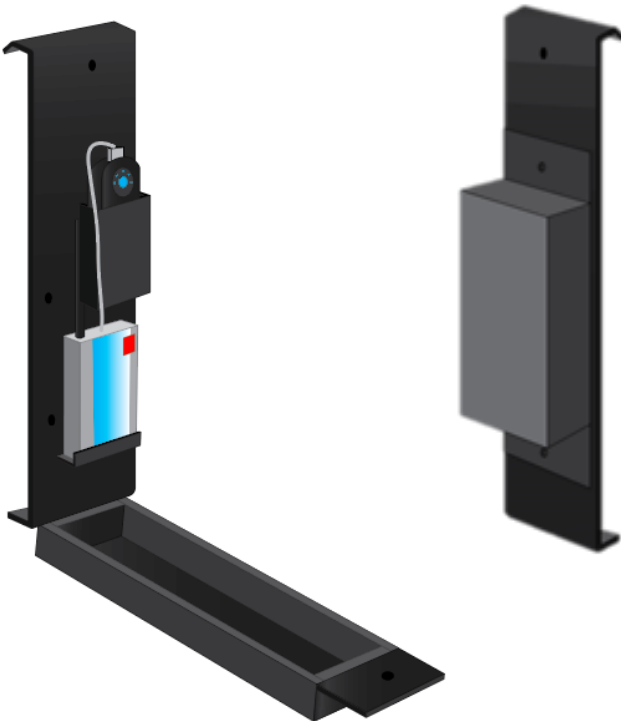
Reeving @ back of carriage

Coil Cable Installation



Wireless Installation

The most common method of transmitting the millivolt signal from the sensors to the cabs display is by wireless). The wireless system comprises a transmitter mounted between the forks on a plate positioned on the trucks carriage. This transmitter receives a signal directly from the sensors through short 4 wire cables.



To ensure the provided carriage strap that holds the transmitter is secure please perform the following:

Mount the strap upon the carriage by tightening the two setscrews located on the vase of the strap. Raise the carriage and remove the strap observing the hole impressions caused by tightening the set screws on the underside of the carriage. With a 1/8" drill lightly dish out the 2 impressed spots on the carriage. Reinstall the strap and make sure the setscrews are firmly pressing into the 2 formed dishes. Also, ensure the setscrews are nuted to avoid premature loosening.

ONE TIME CALIBRATION



Button Position for Calibrating

The indicator is programmed at factory with default parameter setting. To change parameters see WP92021 parameter sheet (page 18/19). After installation, your next step is to do one time calibration . This procedure must be performed with forks at selected weigh height. This height should be used consistently for weighing to assure best accuracy.

Your Weigh Point System is custom programmed to work with you lift truck by following these simple steps:

- 1) Slide the switch behind the rear inspection plate. (CAL →)
- 2) With key [1] depressed turn indicator on. See F1 displayed. Lower forks to the ground. Ramp F1 to F15 with [5] to go forward, or [4] to go backwards.
- 3) With F15 displayed raise forks to weigh height, press key [2] then press key [3]
- 4) Lift known load to selected weigh height and press key [4] or [5] to display F16
- 5) With F16 displayed press [2]. Proceed with entering known weight using keys [4] (shift) and key [5] (ramp) numbers.
- 6) Press [3] to set weight
- 7) Move slide Switch at rear of indicator to reset system.

Easy Operation – WP9202



Button Position for Operation

Your Weigh Point System is custom programmed to work with you lift truck by these simple steps:

WEIGHING: Raise load and read displayed weight.

ACCUMULATION: Each raised load can be accumulated by pressing [5]
Notice the display will briefly display the accumulated weight.

RETAINED ACCUMULATION: is displayed by pressing [4]

CANCEL ACCUMULATION TOTAL: by pressing [4] followed by quickly pressing [2] while accumulation total is displayed.

Standard Setup for leaf chain system

The tare button is deactivated so that accumulation is available. The accumulation is set with parameter A7 @3 (page 16)

Note: If the readings tend to drift down then you can set the digit lock (peak hold) by parameter A7 @ 4 and A8 @100 (page 16)

To use the system automatically with peak hold, the operator can either allow system to lock automatically or in some trucks the peak hold might lock on an incorrect reading. This is remedied by the operator pressing button 1 immediately after the weight lift.

Maintenance

Performance of the Fork Lift Weigh Kit is generally non deteriorating, however, there are factors that do affect accuracy and reliability and there are preventative maintenance procedures that can be performed by skilled mechanics or technicians.

The scale relies on evenly tensioned first stage lifting chains and free moving carriage guide rollers. The lifting truck should be checked for these factors during truck maintenance or once a month.

The facility should have available a known weight (200 to 1000 lbs) that can be lifted regularly to confirm the accuracy of the scale.

Calibration of the scale is constant and will not degrade unless the carriage assembly has been damaged to cause significant misalignment. Do not recalibrate until the mechanical conditions are corrected.

Most common problems involve damage to the loadcell cable and to the coil cable. The damaged cable can be completely replaced or sometimes replaced in part by splicing.

Prevention of damage begins with adequate secured and protected cables. For example it is often beneficial to bolt a protection plate between the forks, on the front of the carriage.

Weekly:

Inspect cables for damage such as cuts or crushing.

Monthly:

Inspect loadcells, clevis pins and cotter pins for visual signs of damage.

How to Weigh for Greatest Accuracy and Consistency

- locate loads to be weighed toward the heels of the forks.
- Always weigh at the same height off the ground. This point should be within the first lift stage. A height of 6" is often suitable.
- Some lift trucks cause a false reading when weighing on the lowering sequence. If it is necessary to weigh during lowering of forks please bring the forks to a standstill and lift just a few inches to provide a correct weight.

Avoid False Readings:

Pressing the [ZERO] button when the forks are on the ground can cause an erroneous reading. With no load on the forks and the display indicating a weight do not assume the system is incorrect and zero the indicator. The system may be accurately indicating the effect of varying column friction. Because this effect varies, zeroing it out with no load will lead to inaccuracies if the column friction effect disappears with a load on the forks. If it is obvious through repeated use that the reading is a significant reading with no load then a deadload function can be performed.

Enhanced accuracy leaf chain scale systems:

- Friction – free up and down carriage movement is often improved by freeing up the roller guides in the columns. Either adjustment or shims added/removed will give that clearance column and guide that results in greatly improved weigh accuracy and consistent readings.
- Hose tension can cause weight drift, however normal hose tension will not cause problems
- Deadload and weigh at a predetermined fork height will improve accuracy .

Parameter Sheet “F” scale

| Code: | Name: | Description: | Code/Value: |
|-------|-------------------------|---|---|
| F1 | Full Scale | Full Scale Number of Division x Value of Division | 5000 1000 1500 2000 2500 3000 4000 5000 6000 8000 10000 15000 20000 30000 |
| F2 | Division | Minimum difference between two weighing reading | 1 2 5 10 20 50 |
| F3 | Decimal Pt. | Decimal point position | 0 , 0.0, 0.00, 0.000, 0.0000, 0.00000 |
| F4 | Overload Limit | Display will show “__OL__” if the reading is greater than the value | 100%F.S 110%FsS |
| F5 | Zero Tracking | Display maintain zero while the reading is less than this selection and stable | 0.5d 1d 3d 5d OFF |
| F6 | Zero Range | The range of zero-setting operation is enabled | 2%F.S 100%F.S |
| F7 | Motion Band | The MOT LED light out and the weighting operation (I.e. zero, tare) is enable while motive reading, is not exceeded the limit of this selection | 1d 3d 5d 10d |
| F8 | Digital Filter | L- light, M-middle, H-heavy. Select heavier, the reading is stable but slower | L M H |
| F9 | Calibration Unit | Select unit at calibration. You should use “lb.” weights if you select “lb.”. Select unit at calibration. You should use “kg.” weights if you select “kg.”. | |
| F10 | Communication Mode | 0-standard RS-232 output 1-printout | 0 1 |
| F12 | Print Ticket | Print ticket Mode: 0-Print “GROSS, NET,TARE” 1-Print displayed weight | 0 1 |
| F15 | Zero Calibration | Show internal codes at zero (no load on platform) and wait for MOT LED light out, press SET key to save zero calibration value. | |
| F16 | Span Calibration | Enter the value of current test weights on platform via direction keys and wait for MOT LED light out, press SET key to save span calibration value. See appendix A if display show EER 1 | |
| F17 | Manual Zero Calibration | Check or re-establish zero calibration value. | |
| F18 | Manual Span Calibration | Check or re-establish span calibration value. | |

To change these settings, place in calibration mode (see page 14)

System Serial No. _____ Indicator s/n _____

Loadcell Type _____ Loadcell S/N _____

Date _____

“A” Scale Typical Settings

1. When the power is ON, press key [1] and hold, then slide the switch behind the rear inspection plate. The display shows A1
2. Ramp A1 to A8 with keys [5] to go forward, or key [4] to go backwards,
3. Press key [2], shows value to change value use key [4] or [5]
4. To save/accept displayed data press key [3]

| Code | Name | Description | Code/Value |
|------|----------------------|---|------------------------------|
| A1 | Baud Rate | Set baud rate of the RS232 serial communication when F10 is 0 | 1200 2400 4800 9600 |
| A2 | Communication Model | “c” = continuous mode “d” = command mode | C d |
| A3 | Data bits and parity | 8N: 8 data bits with no parity bit and 1 stop bit 7O: 7 data bits with odd parity bit and 1 stop bit 7E: 7 data bits with even parity bit and 1 stop bit | 8 N 7O 7E |
| A4 | lb/kg | “0” - enable the lb/kg key “1” = disable the lb/kg key | 0 1 |
| A5 | ID no. enable | “0” = disable the ID no. “1” = enable the ID no. | 0 1 |
| A6 | ID no. entry | Pressing [4] and [5] key to input ID no. and pressing the [3] key to store and return to A6. Displaying Axxxxx. Prints ID flashing. No. column after ID no. being set (see APPE) 6-bit ID no. can be inputted | |
| A7 | Additional features | 0 typical 1 counting feature 2 peakhold 3 accumulation 4 accumulation and peakhold | 0 1 2 3 4 |
| A8 | Weight threshold | Typically 100 For lbs. threshold | 100 |

7

Warranty

The Weigh Point warranty for lift truck scale kits provides specified customer rights based upon conditions herein stated.

Weigh Point Inc. provides a one-year free replacement of faulty material and/or workmanship of the scale system. Exception loadcells are warranted two years, cabling and batteries are not warranted. No other warranty liability is expressed or implied.

The faulty goods are to be returned freight prepaid to our Cambridge facility. After repair or replacement, the goods will be returned collect to the customer.

Precautionary procedures: To prevent voiding warranty

- Weigh scales are measuring devices and require reasonable handling and care
- Inspect cabling to ensure no snagging will occur. Note that damaged cables are not covered by warranty.
- Static buildup can easily destroy the microprocessor display. If static build up is suspected then take precautions such as use of grounding straps or chains, anti-marring tires are particularly responsible for static buildup.
- Periodic inspection and adjustment of the scale components is required for scale longevity and safety.

Please note the precautionary notes are mandated as a condition of the product warranty.

Weigh Point Inc.

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