

IMPORTANT

Engineering Bulletin #103 K-Tech Load Weigh System Installation & Adjustment

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K-Tech Load Weigh System Installation and Adjustment

O. Thompson Microflite Ultra 2000 controllers with pretorque use the K-Tech Load Weigh System. Proper installation and adjustment of this device is essential to the operation of the control system. Failure to follow these procedures as outlined here can result in poor ride quality and improper operation of the control system.

This Bulletin is intended as a supplement to the K-Tech Installation and adjustment manual. Read all related material before beginning installation of the unit.

Preparation

Before beginning the installation of the unit, the car should be adjusted and running at contract speed. The cab should be complete, with all walls, ceiling panels, and flooring installed. If not, **do not install the unit until the cab is complete!**

Sensor Mounting

The sensor must be mounted while the car is at the lowest landing. Failure to do so could cause the sensor to 'unload' at lower floors and lead to erratic operation.

Locate an area of the crosshead about 1/3 of the way from the end. This area should be clear of brackets or other structural members. Refer to Figure 1 below.

RECOMMENDED SENSOR LOCATIONS

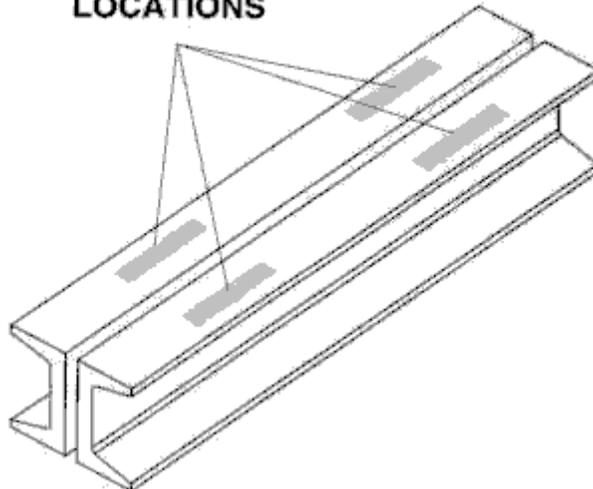


Figure 1

File, sand or lightly grind the area where the sensor will be located to remove any paint. Lay the sensor on the cleaned area of the crosshead about 1/2" away from the edge. Shine a light behind the sensor to ensure that it lays flat on the crosshead. If light can be seen under the sensor, file the area until the sensor lies perfectly flat.

Locate the sensor 1/2" in from the outer edge of the crosshead channel. The sensor should be mounted so the wiring connection is facing toward the center of the crosshead. Also, make sure the edge of the sensor is parallel with the edge of the crosshead channel.

Mark the crosshead where the hole closest to the center of the car is located. Carefully drill a 9/32" hole at this point. Locate the position where the hole next to the first one must be drilled. Carefully drill this hole. Loosely install the mounting bolts in these holes. Mark the location of the last two holes. Remove the sensor. The last two holes should be drilled using an 11/32" drill bit. Carefully drill these holes.

Loosely mount the sensor to the crosshead. It should be able to move slightly in the mounting holes. If not, lightly ream the holes so it can.

Install the sensor to the crosshead using the supplied hardware. The bevel washers are installed under the lip of the crosshead so the mounting bolts are not tightened on an angle. Erratic operation may occur if the bolts are not tightened flat against the sensor. Refer to Figure 2 below.

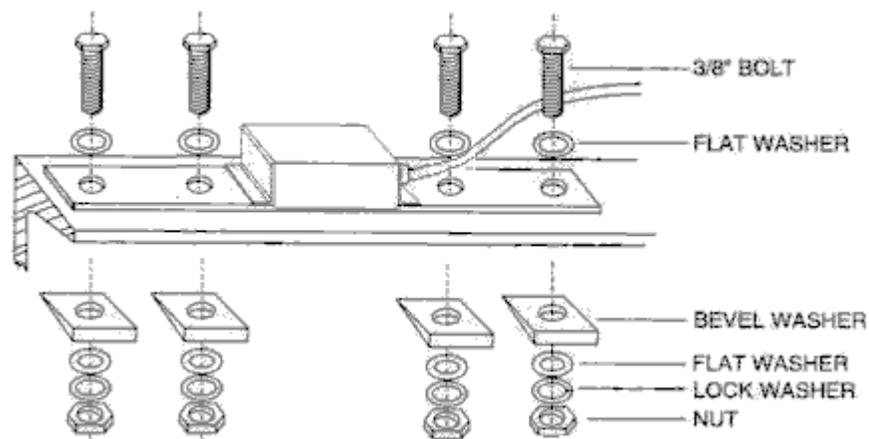


Figure 2

Electronics Box Mounting

Mount the blue electronics box in close proximity to the sensor. If possible, mount it so adjustments can be made while standing on a landing. This is not critical, but makes the adjustment procedure easier.

After the box is mounted, route the sensor cable through the knock out provided. Coil any excess cable inside the box. Tighten the nylon nut onto the strain relief.

Electrical Connections

Refer to Figure 3 below for terminal locations.

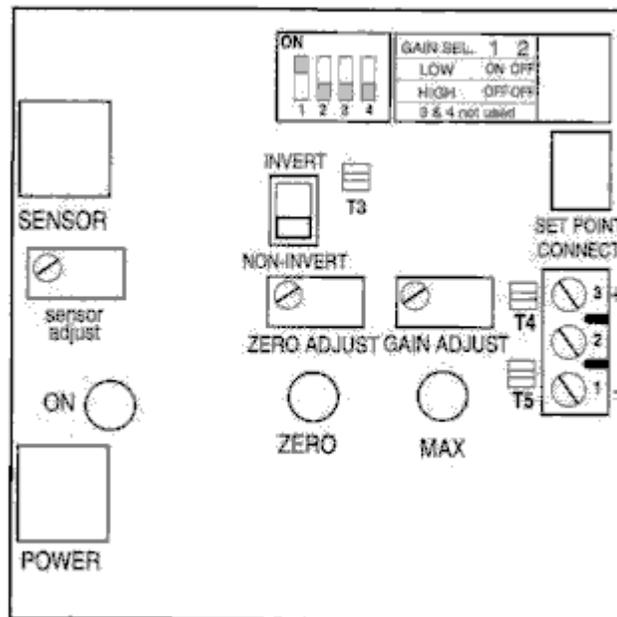


Figure 3

Connect the sensor cable to the terminal block labeled "SENSOR" on the amplifier board.

Connect the AC power supply (O. Thompson terminals IP and IPX) to the terminal strip terminals AC HOT (IPX) and 4 (IP). Ground the lug in the electronics box to controller ground.

A twisted - shielded cable must be run for the output of the unit to the car top encoder. The output of the amplifier board, "SET POINTCONNECT"

terminals T4 & T5 will be connected to the O. Thompson Encoder power supply board terminals J3-1 and J3-2. Route the cable through the knockout in the K-Tech electronics box to the Encoder. Connect the cable shield to the ground terminal in the K-Tech box. Confirm that K-Tech terminal T4 is connected to Encoder terminal J3-1 and K-Tech terminal T5 is connected to encoder terminal J3-2. Ground the shield of the cable inside the Encoder box.

The electronics box is now connected, the sensor mounted, and the unit is ready to be calibrated.

Sensor Calibration

If possible, perform the calibration while standing off the car top. If this is not possible, be sure to stand in the same position for each procedure.

Bring the car to the lowest landing. There should be nothing in the car or on top of it.

Connect the positive (red) lead of a Digital VoltMeter (DVM) to test point T3 (signal) and the negative lead (black) to test point T5 (ground). Set the meter to the milli-volt scale.

If the controller is powered up, the red LED should be illuminated. If the controller is not powered up, do so now.

While standing on the car, turn the "SENSOR ADJUST" pot until the meter reads zero, plus or minus one milli-volt.

Step off the car. The meter should change, and the voltage should be positive. If the voltage is negative, the "NON-INVERT/INVERT" switch must be in the "INVERT" position.

NOTE: The observed voltage at test point T3 will not change. It will remain negative. This is OK.

The voltage should be between 5 and 20 mV. Step back onto the car at the same position where you were previously. Adjust the "SENSOR ADJUST" pot to obtain the same value that was seen with you off, only opposite polarity. For example, if the meter read +10 mV with you off the car, step back on the car and adjust the meter for -10 mV.

Step off the car. The meter should read zero. If not, adjust the "SENSOR ADJUST" pot until it does.

Amplifier Board Calibration

Remove the positive meter lead from T3 and place it on T4. Set the meter to read 0 – 10 volts.

Step back on the car to the same position you were in previously. Turn the “ZERO ADJUST” pot to obtain 1.0 volts, plus or minus .05 volts.

Step off the car. The meter reading should drop a little. Calculate how much the voltage drop was by subtracting the current meter reading from 1.00.

Step back on top of the car. Adjust the “ZERO ADJUST” to exactly equal the observed voltage drop. For example, if the meter dropped to .80 volts when you stepped off, adjust the pot to obtain 0.20 volts with you standing on the car.

Step back off the car. The meter should read 0.00 volts, plus or minus .05 volts. If not, adjust the “ZERO ADJUST” pot to obtain 0.00 volts with an empty car.

Place the car with a full load on it at the top floor. Adjust the “GAIN ADJUST” pot to obtain 8.00 volts, plus or minus .05 volts.

Step off the car. Observe the meter reading. Calculate how much the voltage dropped (8.00 minus current meter reading).

Step back on the car to the same position, and adjust the “GAIN ADJUST” pot to obtain 8.00 plus the observed voltage drop.

Step off the car. The meter should read 8.00, plus or minus .05 volts. If not, adjust the “GAIN ADJUST” pot until it does.

Remove the weight from the car and bring it back to the bottom landing.

With the meter still on T4, adjust the “ZERO ADJUST” pot to get 1.00 volts.

Step off the car. Observe the meter reading and calculate the voltage drop.

Step back on the car. Adjust the “ZERO ADJUST” pot to get 1.00 plus the observed voltage drop.

Step off the car. The meter should read 1.00 volts, plus or minus .05 volts. If not, adjust the "ZERO ADJUST" pot until it does.

The K-Tech load weigh device is now properly adjusted for the O. Thompson Microflite Ultra 2000 controller.