737/A319 instructions

M2000-3-250,000lb Kit
Top of Jack Load Cell
Large Aircraft Scale System
www.jawsscales.com

Jackson Aircraft Weighing Systems
561-281-6179

Jackson Aircraft Weighing Systems

Scale instructions for set up and use of the model M2000 digital system:

1. Connect electrical leads to the indicator, it is very important insure good connections
2. Screw in the cell to jack adapter
3. Plug in the unit power supply and turn ON the unit. The unit will display the software version
4. The unit is now ON and displays all available channels press the >0< function to "0" the indicator; the scale should now display "0" with no weight on the cells.
5. The scale is now ready for use; place the load cells on top of the jacks, jack and level the aircraft as per the aircraft manufactures instructions. Lower the aircraft and recheck the scale zero, jack and level the aircraft again as per the aircraft manufactures instructions.
6. Select channel 1 Red cell, press "1" followed by the "print select key" read the weight of channel 1
7. Select channel 2 Blue cell, press "2" followed by the "print select key" read the weight of channel 2
8. Select channel 3 Yellow cell, press "3" followed by the "print select key" read the weight of channel 3
9. Select 4, press "4" followed by the "print select key" to read the total weight of all channels.
10. Select 5, press "5" followed by the "print select key" to scan all channels one at a time
11. After recording the weight of the channels, lower the aircraft and check for "scale drift" on each channel. If the scale does not return to "0"
12. Positive number should be deducted from the total weight of each channel
13. Negative number should be added to the total weight of each channel.
14. Repeat the above procedure at least once to confirm weight readings.
15. Turn the unit OFF and return all item to the case

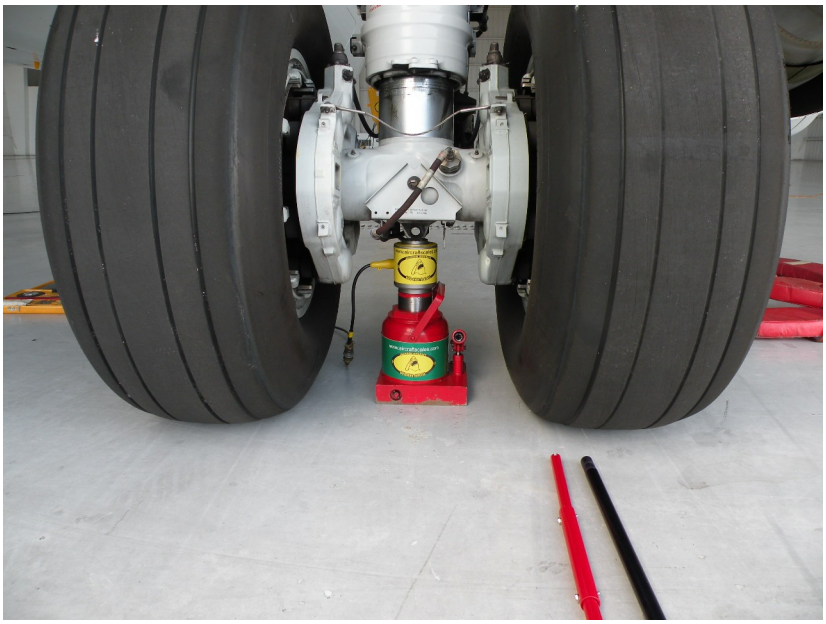
Do not attempt to make any adjustments to the scale, only use the functions as noted above. If you have any questions please contact Jackson Aircraft Weighing Service.

WWW.JAWSSCALES.COM Fax: 561-844-6464 Bus: 561-281-6179

Jack placement and setting load cells in position:

Under axle jacks being used are machined to receive the load cells with one inch mounting studs as well as over the top jack top ram adapters. Below find the set up for the main jack point with 100K large format cell installed.

Locate the jack and cell under the axle point, determine if there is less than one inch clearance between the cell and the jack point. If less than one inch proceed as pictured.



If more than one inch clearance an over the top jack adapter will be required as shown below:

Jack placement and setting load cells in position:

Nose jack point jack and cell set up is similar, use the small cell and one of the cell top adapters that fits best.

If more than one inch clearance an over the top jack adapter will be required as shown below:

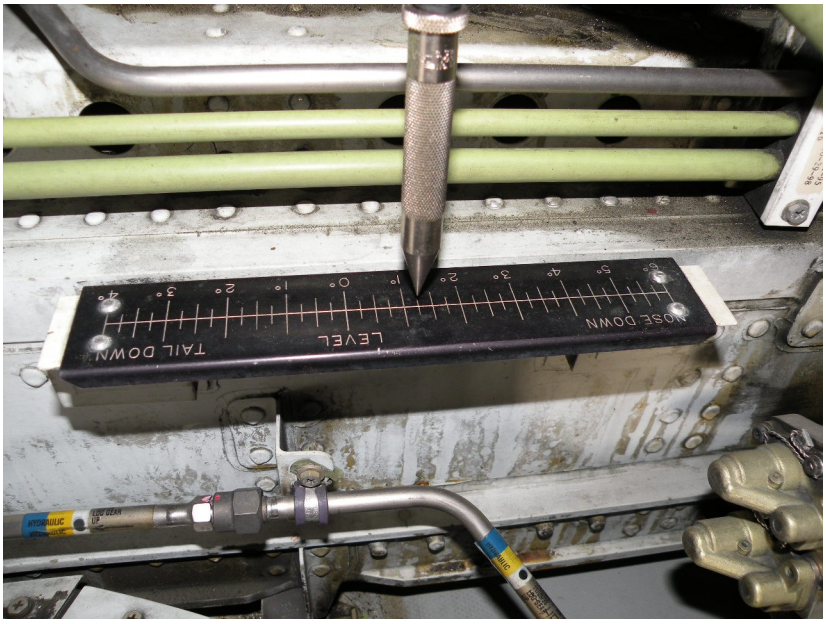
Jack and level aircraft:

Caution: Keep aircraft chocked at all times to prevent it from rolling, Chock tires in place prior to lifting, leave chocks in place while jacking. Lower wheels back into the chocks without moving. It has been reported that sometimes on unleveled floors that the aircraft may roll when being lowered and weight transfers from the jacks to the landing gear.

Maintenance manual procedure:

Check the maintenance manual procedure for under axle applications and weighing procedures. Always follow the manufactures instructions for jacking and weighing.

Check the manual for an "Out of level" weighing condition and determine the degree of fore and aft level allowed. Boeing has out of level charts and the product of which can be used once the CG is determined applied to the final result to compensate for the out of level condition.



With jacks in place and load cells connected, check that there is no contact with the cells to the jack points. Check the zero of the scale channels and zero if needed.

Place a plumb bob in the wheel well and check level. Jack the nose first if the nose is low, followed by the mains. Jack till the tires are clear of the ground and the aircraft is level.

With the aircraft in the condition of level required you are now ready to read the weight of each point. Follow the instructions in this manual for use of the indication system.

Jack and level aircraft:

Jack the nose and mains clear of the floor as shown:

If the jacks run out of lift prior to clearing the ground then jack adapters should have been used. In some conditions, ½ inch shim plates can be placed under the tires and or jacks to shim accordingly to obtain the proper lift.

This system is set up to lift the 737 aircraft free and clear of the ground with a one degree nose down out of level condition. Adjustments to the jacks and or placement of adapters may be required for aircraft with different tires or ply ratings.

Scale troubleshooting for use of the model M2000 digital system:

Unit powers up, display reads large weight numbers:
The unit must be zeroed <0>. Press the <0> function and check for a 0 reading. The zero reading may be unstable at first and drift, wait for the cell to completely power up and stabilize and check zero. Do not move the cell from the top of the jack; let the cell stabilize prior to jacking the aircraft.

Unit powers up, but still drifts and will not hold a zero reading:
This can be caused by several factors:
Check connections, reconnect and zero (cell connections are critical to obtaining a stable reading, check for poor, dirty, damaged plugs, pins or moisture on the connectors, clean with contact cleaner if necessary)
Cells came from cold to hot or hot to cold storage; let the cells stabilize to the temperature of the area being used. Check wire cables for damage.

Unit indicator became unstable while the aircraft was on the cell:
Check the connector on the unstable cell, unplug and re plug the connector, check if the reading became stable. Let the aircraft down and check zero, if the indicator has more than 3x the division (5lb division x3=15lbs) re zero and re weigh. If not add negative numbers to the total or subtract positive numbers from the total and record as "scale drift"

Unit weighs heavy or light:
The 300,000lb per cell scale kit is designed for use with large aircraft, this system is not intended to be used for small aircraft with small jack points, and weights under 5,000lbs.

Suspect one cell of weighing too heavy or light:
Rotate cells from point to point and confirm weights in rotation. Aircraft was jacked improperly, jack legs are lifting or load cells are being cocked, check for air gap between the load cell and top of jack ram.

One cell confirmed bad:
Continue to rotate cells and record readings, after 3-rotation average the readings of the known good cells and record weights.

Scale readings from rotation are different at the same point weighed:
Jacking the aircraft level is very important. A load cell can become "cocked" on the jack ram and the angle of deflection can cause errors. Ensure the aircraft jacks are "set" in position and all legs are on the ground. Jack legs "lifting" are signs of a jack not properly located under the jack point.
Jacking the aircraft on un-level ground can also produce error. If necessary "shims" may need to be placed under a jack leg to "level the jack" then jack the aircraft in a level position.
Some aircraft have excessively high nose conditions when level on jacks. Make sure the nose is brought up first to a level position, and then jack the mains to raise the aircraft evenly.

Cell reads low:
Ensure the wheels are off of the ground, jacks do sometimes "bleed down" allowing contact before the reading can be made.

Jacking, jack placement, floor condition, load cell mounting, leveling jacks and aircraft, considerations

Jacking:
When jacking an aircraft the manufactures instructions must be followed or damage to the aircraft may result due to improper jacking. Follow the aircraft manufacture requirement for the type and capacity of jack to be used, use only quality jacks, inferior jacks can result in jacking issues and or load cell mounting issues. One-inch mounting must be used to mount the load cell to the top of the jack. Jacks with out this mounting should not be used.

Jack placement:
Jack placement is critical to proper load cell performance. Jacks should never be placed in position over drains, large cracks or severely unleveled floor conditions. Floor condition and level should be considered prior to placement of the aircraft and jacks in the hanger. Determine the level and pitch of the hanger floor, locate the aircraft either nose up hill or down hill depending on the level of the aircraft as it sits on the floor. Jacking an aircraft in a wing low to high condition must be avoided to prevent side loading the jacks, load cells and trapped fluid running inside the wing.

Floor condition:
The condition and level of the floor is a factor in proper jacking and load cell performance. Floors should be surveyed for drains, level, pitch to the drains, cracks, power outlets and other items located on the floor. In general the floor pitch will run to the drain(s) located in the center of the floor or front across the hanger doors. Check the floor pitch and locate the aircraft accordingly.

Load cell mounting:
Load cells are mounted on the top of the jack using a one-inch hole located in the top of the jack. One-inch studs are supplied with the load cells, locate the threaded hole on the bottom of the load cell and screw in the stud adapter. Make sure the adapter is screwed all the way into the load cell, there should be no air gap between the stud and cell, studs must fit flat and in full contact with the bottom of the cell.

Load cells are mounted on the top of the jack ram, check the top of the jack for the mounting interface. Most quality jacks will have a removable jack point cup held in place with a removable pin, remove the pin and cup to expose the load cell mounting hole. Mount the cell with the stud connected to the top of the jack, the cell must always fit flush with full bottom contact to the top of the jack ram.

Leveling jacks and the aircraft:
When jacking the aircraft on load cells it is important to raise the aircraft in a level position to prevent load cell cocking and side loading. It is also important to level the actual jack by checking the center of the cylinder for vertical level.

Jack leg lifting is a sign of an improperly placed or unleveled jack, improperly jacked aircraft, or poor hanger floor placement of the aircraft and jacks. This can cause the aircraft to jump off of the jack and drive the load cell into or through the wing or nose skin.

Continued on the next page

Jacking, jack placement, floor condition, load cell mounting, leveling jacks and aircraft, considerations

Leveling jacks and the aircraft continued:

Once floor pitch and level is surveyed, locate the aircraft in a nose high or nose low position. Locate the jacks in position with the load cells mounted and zeroed, make contact with the jack points and slightly jack the aircraft. If the nose of the aircraft is not level and low, raise the nose jack to level the aircraft or adjust the main jacks accordingly. At this time the vertical level of the jack cylinders should be checked, jack legs should be checked for lifting and adjustment to the jacks should be made.

In some instances the jack legs may have to be shimmed to level the jack. What needs to be done, is to raise the aircraft in a level condition straight up, with no jack leg lifting or side loading on the load cells.

Once the aircraft is leveled and the jack level is corrected check the load cell to top of jack ram for air gap. There must not be any air gap between the top of the jack ram and the bottom of the load cell, if air gap exists, remove the aircraft from the jacks and recheck all of the above conditions.

Jack the aircraft in a level condition and clear the wheels to apply full weight to the load cells. Read the weight of the cells and record the results. Lower the aircraft, with all weight removed from the load cell, check the zero of the load cells, cells should return to zero with in a couple of minutes. If cells do not return to zero, rezero the channels and reweigh the aircraft.

Considerations:

Only use trained personnel in jacking and weighing an aircraft. Aircraft can be damaged or incorrect readings can be obtained by improper use of jacks and load cells.

Use of the proper size scale system and cell rating is required to achieve the desired results, do not use a large jet 100,000lb per cell, 300,000lb kit to weigh a 5,000lb aircraft.

Consider the weight of the aircraft and its expected weight, determine a target weight with in +/- 100lbs for light aircraft or +/-200lbs for larger aircraft. If the aircraft weight is not within the target limits the aircraft and its inventory must be checked for condition. Extra weight or missing weight must be explained and accounted for. If the conditions do not explain the increase or loss suspect improper jacking or scale damage. Load cells are delicate instruments, if dropped they must be returned for inspection and calibration.

Large weight changes and center of gravity changes must be explained and understood. Only trained personnel should be used to calculate the weight, CG and release the aircraft after weighing. If you are not getting the result you expect and your jacking application is correct, suspect that the scale has been damaged or is out of calibration limits. Return the scale for inspection and calibration to Jackson Aircraft Weighing Service for service, do not send the unit to a unknowledgeable scale facility.