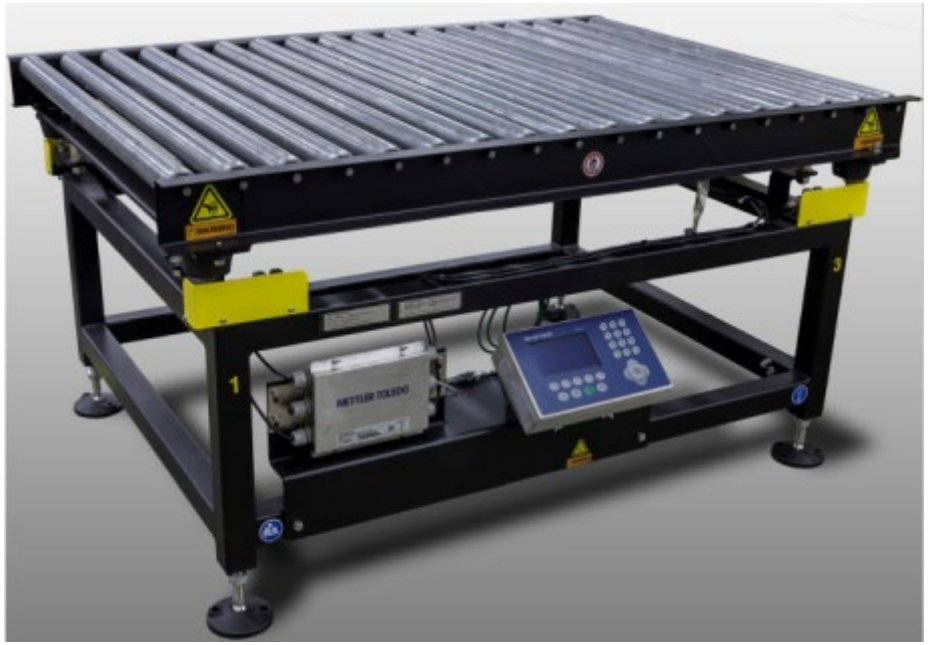
MTWT
24-May-2017
Hugh Hindmon



Static Weigh Conveyor

Basic Training (updated)

METTLER TOLEDO

Agenda

1	Product Overview
2	What is SWAK?
3	Preinstall Checklist
4	Tools Required
5	Installation
6	Weight Tests
7	Troubleshooting Scale Issues
8	Customer Acceptance Test
9	Troubleshooting Communications

Static Weigh Conveyor

- Two platform models: 36" wide x 54" long and 48" wide x 54" long
- Four load cell scale (each cell is rated at 250 lbs)
- Scale capacity is 200 lbs, increment size is 0.1 lb
- There are three common configurations
  - FedEx Ground uses the 36" and 48" model with Ethernet IND570 terminal
    - Standard terminal with quick disconnect cables
  - UPS WorldPort uses the SWC 36" model with a Serial IND570
    - Terminal with custom TE program to communicate with WorldShip
  - Amazon uses the 48" model with an IND236 indicator

What is SWAK?

Scan Weigh and Key is a FedEx term

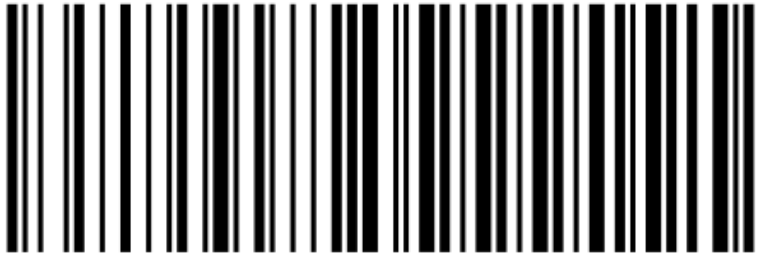
- SWAK systems are used by FedEx for revenue recovery
- Metter Toledo has provided many versions of the SWAK scale over the years
  - Some had power conveyors
  - Some had Industrial PCs
- The current version is SWAK V
  - Mettler Toledo provides a static scale
  - FedEx uses their ring scanners to capture the package ID
  - Their AS400 reads the weight from the scale
- A daily certification test is built into the FedEx application
  - Test uses a 15 lb and 50 lb test box prepared by FedEx
  - Test can only be done once per day
- Issues with current version
  - Operator training is critical to proper operation
  - Operator cannot easily see the scale display
  - FedEx system is not checking for stable weight

Preinstall Checklist

- Pre-visit Info
  - Project Engineer contact info (usually not on site)
  - Terminal Manager or Facility Maintenance Manager (onsite contact info)
  - Type and number of scales to be installed
- FedEx Responsibility
  - Reference Tech Manual section 3.4 steps 1-5 & 9-10
  - Scale unpacked and moved into location
  - Scale should be bolted to the floor or stand (rubber pads installed)
  - Network service box and power connections provided near the scale
  - Ground wire connected to scale frame
  - Documentation and hardware kit should be with the scale
  - Test weights 50lb and 15lb (yellow boxes)
- Scale Review
  - Check for missing components or damage
  - Ensure scale is level and secured to the floor or stand
  - Verify power, ground and Ethernet connections are available
  - Notify the Facility Maintenance Manager (FMM) of any concerns

Tools

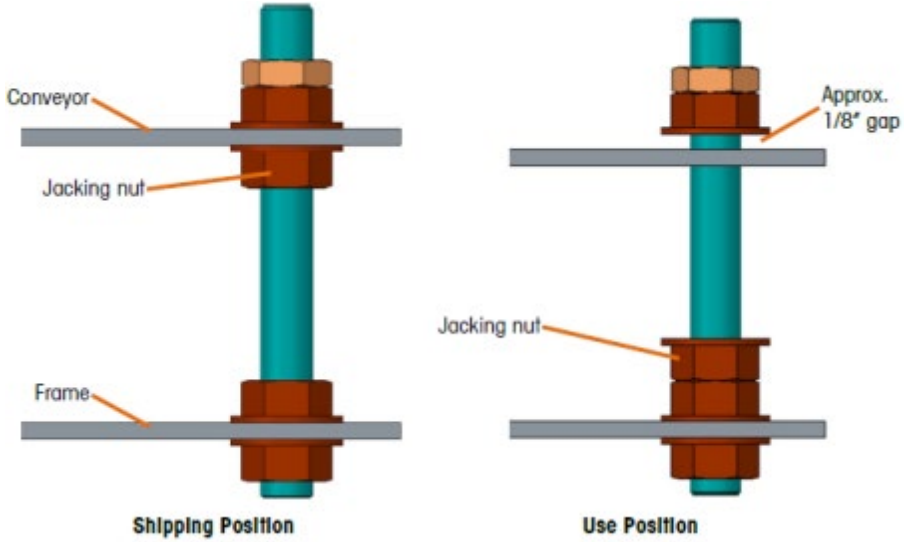
- Torpedo level or smartphone bubble level application
- 15/16" open-end wrench or 10" crescent
- Two ½" wrenches
- Optional tool for opening IND570
- FedEx supplied
  - Supervisor ID barcode
  - Barcode Ring Scanner
  - Scale ID barcode label
  - Drawing indicating location of each scale
  - IP address for each scale
    - Subnet
    - Gateway



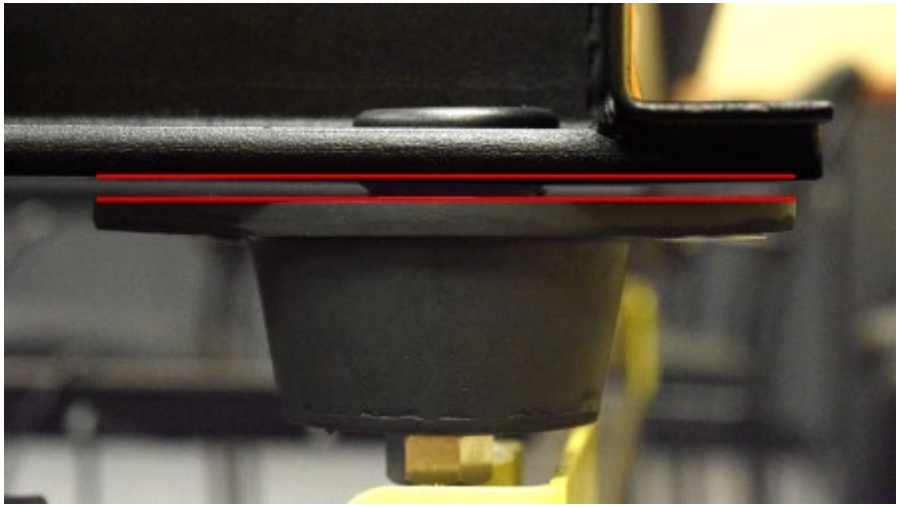
DIRECT0001

Section 3.4 step 6 of Technical Manual

- Loosen and drop the jacking nuts
  - Run the nuts all the way down and tighten



- Verify the upper frame is resting on the compression mounts



Section 3.4 step 7 of Technical Manual

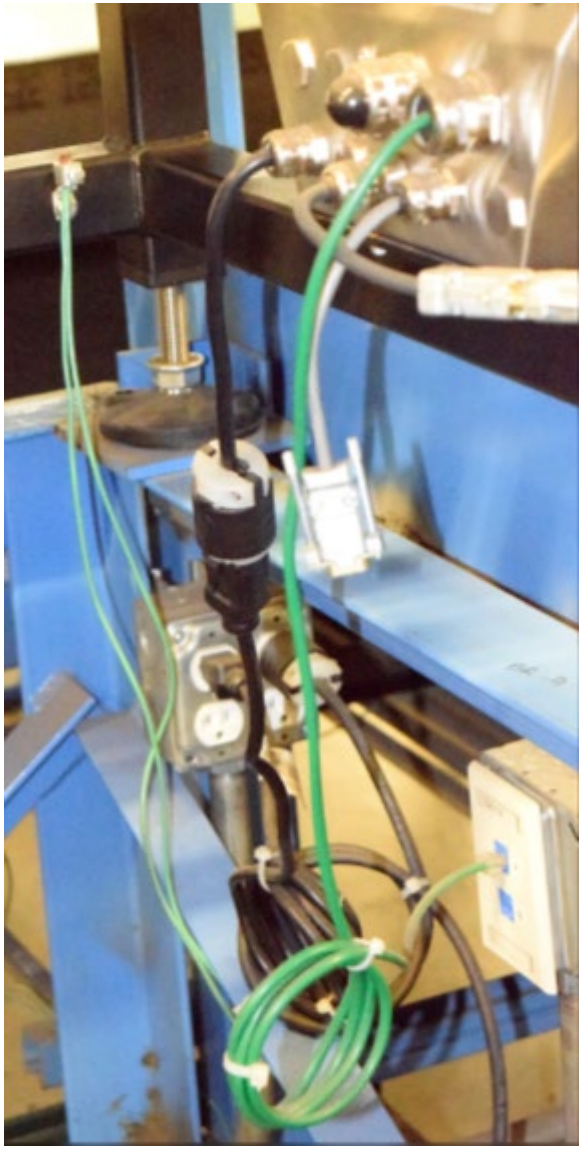
- Secure the upper frame to the rubber compression mounts
  - On the left side of the terminal, thread the screws into the frame
  - On the right side of the terminal, add washers and nuts on top

- Level the scale using a smart phone app or torpedo level
  - Verify all feet are in contact with the floor
  - Lock the jam nuts on the feet

- Apply the scale ID barcode label to the upper frame

Electrical Connections

- Verify ground connection to bonding lug
- Plug in the Ethernet cable to the service box
- Connect the twist-lock extension power cable to the IND570



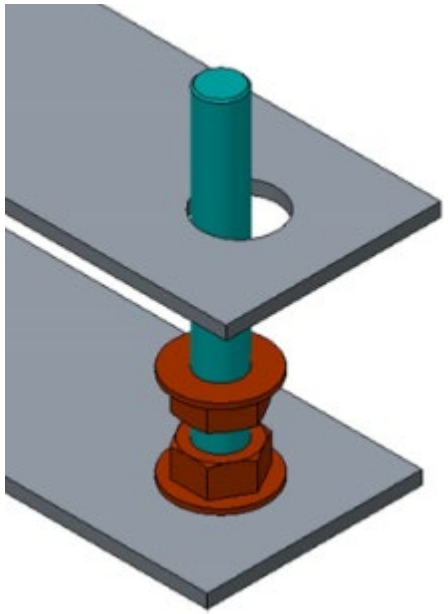
Weight Tests

Use test boxes provided by FedEx

- Verify power up zero capture
- Test Linearity
  - Remove test weight and verify scale returns to 0.0 lb.
  - Add 15 lb test box and verify displayed weight reading between 14.9-15.1lb.
  - Add 50 lb and remove the 15 lb test box. Reading should be between 49.9-50.1 lb
  - Add 15 lb test box and verify weight is between 64.8-65.2 lb
  - Remove all weight and verify scale returns to 0.0 lb.
- Verify the shift test
  - Place the 50 lb test box near the corners of the scale
  - The weight reading at each corner should be between 49.9-50.1 lb.
- If any test fails, refer to the Troubleshooting The Scale

Quick checklist

- Fails initial zero capture
  - Check the shipping bolts for interference with the upper frame
  - Do zero capture in calibration menu (do not perform span adjust)
- Linearity test fails
  - Scale doesn't return to zero:
    - Check the shipping bolts for interference with the upper frame
    - Check for debris beneath the load cells
    - Check for clearance between the overload stop and load cell
  - Test weight reading is out of tolerance:
    - Check for clearance between the overload stop and load cell
    - Do the shift test to determine if the problem is on one corner
    - Set the GEO code
    - Calibrate the scale
- Shift test fails
  - Check for clearance between the overload stop and load cell
  - Check electrical connections in the J-box



Set the IP Address

Keypad Description

Configuration Procedure at the IND570 Static Scale Indicator

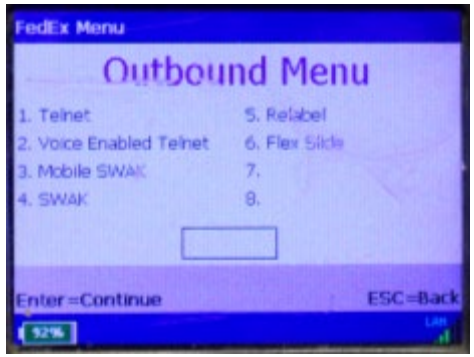
1. Press v until you see the icon, press the SOFTKEY (far right), setup menu is displayed.
2. Press v to highlight *Communication*.
3. Press > with *Communication* highlighted.
4. Press v to highlight *Network*. Press >
5. With *Ethernet* highlighted, Press ENTER.
6. Press v. To highlight *IP Address*. Press ENTER.
7. Use the keypad to enter the first octet set, Press ENTER. To advance to next octet set.
8. Continue entering IP, Subnet, and Gateway address
9. Press the far left soft key twice to exit configuration

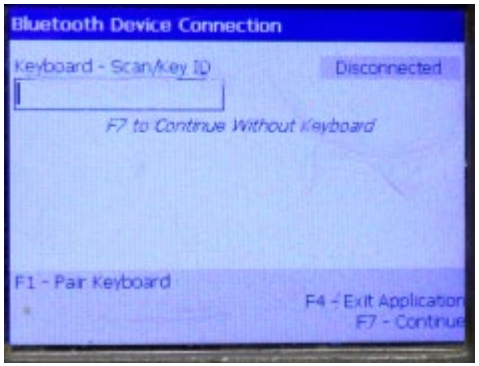
Customer Acceptance Test

- Customer test can only be performed once per day
  - If test fails, scale cannot be used or re-tested that day
- Customer provided test equipment required
  - Supervisor ID barcode
  - Barcode Ring Scanner
  - Scale ID barcode label
- Execute this test with the assistance of the FedEx on-site contact
- Complete the SWAK test procedure for a single scale
- Proceed to the SWAK test for multiple scales if required
- Verify with FedEx on-site contact that the scale weight data was received at the AS400
- *** Return to site for First Sort Startup Support ***
  - Basic weighing training of associates
  - Diagnose any issues encountered

Test first SWAK station

1. Start at the main menu on the ring scanner.
2. Press #2 for "Outbound". Press Enter.
3. Press #4 for "SWAK". Press Enter.
   - Screen displays "Initializing System… Please Wait"
4. Press the F7 key to continue without keyboard.
5. Scan FedEx Employee ID barcode.
6. Scan the scale ID barcode.
7. Screen prompt "Test Packages Required, Press ENTER to acknowledge". Press Enter.
8. Screen will prompt "Scan Test Package"
   - Place the 50 lb test box on the scale and scan the barcode on the box.
   - Press Enter to record the weight. Weight is shown on the display.
9. Screen will prompt "Scan Test Package"
   - Place the 15 lb test box on the scale and scan the barcode on the box.
   - Press Enter to record the weight. Weight is shown on the display.
   - Scanner returns to the Outbound Menu.





Test subsequent SWAK stations

- After completing the SWAK test, use the following steps for multiple SWAK stations
  1. From the Outbound Menu Screen, press the #4 key to change SWAK stations
  2. Press the F7 key to continue without keyboard.
  3. Scan the scale ID barcode.
  4. Screen prompt "Test Packages Required, Press ENTER to acknowledge". Press Enter
  5. Screen will prompt "Scan Test Package"
     - Place the 50 lb test box on the scale and scan the barcode on the box.
     - Press Enter to record the weight. Weight is shown on the display.
  6. Screen will prompt "Scan Test Package"
     - Place the 15 lb test box on the scale and scan the barcode on the box.
     - Press Enter to record the weight. Weight is shown on the display.
     - Scanner returns to the Outbound Menu.

Communication Issue Troubleshooting

Scale not communicating with AS400

- Verify SWAK ID barcode is correct for this scale
- Verify IP address, Subnet Mask and Gateway are correct
- Connect laptop to scale's network cable and ping IP address
- Use Putty to connect to the Shared Data Server
  - Read WT0101 (Displayed weight)
- Contact Project Engineer for assistance
  - Supply info from the above steps