Contents

6000 Troubleshooting Laminated Flow Charts

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Toll free: 1-866-929-1879

Main Components

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1. DAQ Computer & Software
2. Master panel
3. DAQ panel
4. Feed intake node

1. Data Acquisition (DAQ) Computer

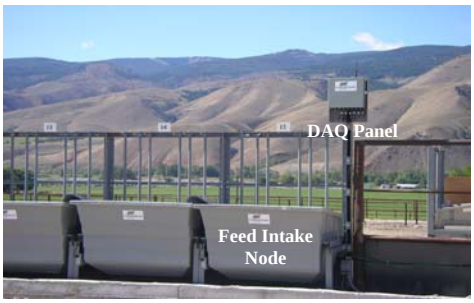
A dedicated data acquisition (DAQ) computer connected to the master panel collects and stores data from the panels located in the pen. The DAQ Computer is connected to the Internet enabling remote access. Over the Internet GrowSafe can access this computer, diagnose system failures, provide training and transfer data. GrowSafe software installed on this computer collects, processes and stores data in the database.

2. Master Panel

The master panel is connected to the DAQ computer by a USB connection.

The master panel enables wireless connectivity to the DAQ panels located in the pen.

3. Data Acquisition (DAQ) Panel



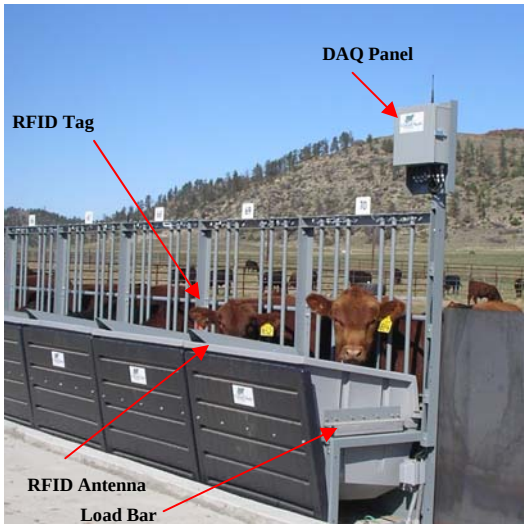
The DAQ Panel contains the GrowSafe proprietary RFID (tag reading) technology. The panel collects weight and RFID data continuously from each feed intake node and transmits this data to the master panel/DAQ computer. One (1) DAQ panel can collect data from up to eight (8) feed intake nodes.

4. Feed Intake Node

The feed intake node consists of a metal frame outfitted with adjustable vertical and horizontal neck bars enabling one animal to feed from the trough at one time. The node is fitted with 2 load bars. The load bars continuously measure trough weight. A data cable transfers data between the load bar and the DAQ panel. A 19 cubic feet Polyethylene trough plugs into a junction box that is connected to the panel, and rests on top of load bars.

Data Acquisition Process

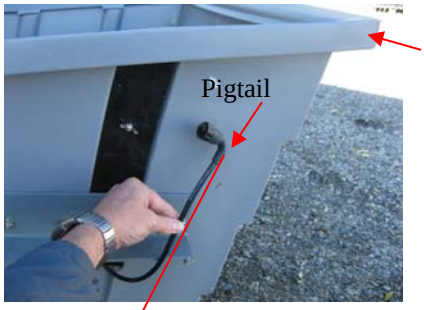
The animal is tagged with an electronic ear tag **(half duplex RFID tag).** With the RFID tag positioned properly in the animal's ear and the head passes through the neck bars, the system begins collecting animal ID data.



An antenna manufactured directly in the rim of the trough reads the RFID tag each second the animal's RFID tag is in the reading area.

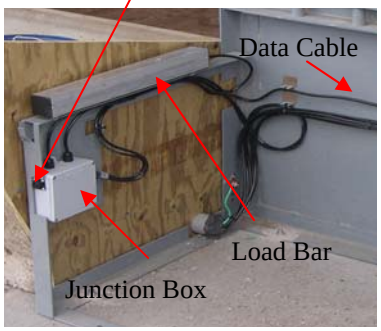
The weight of the trough is measured by the load bars every second.

Data Acquisition Process



RFID Antenna

The RFID tag is read by the antenna which is manufactured directly in the rim of the trough. RFID data is transferred via the pigtail which is plugged into the junction box.



The weight of the trough is measured by the load bars and transferred via a junction box.

Data is transferred to the DAQ panel via data cable continuously.

Data cable is connected to the DAQ panel.

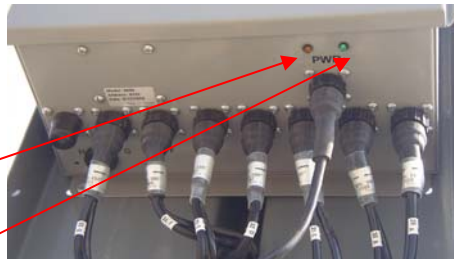
Data from the DAQ Panel is transmitted wirelessly to the master panel in real time.

Checking Power

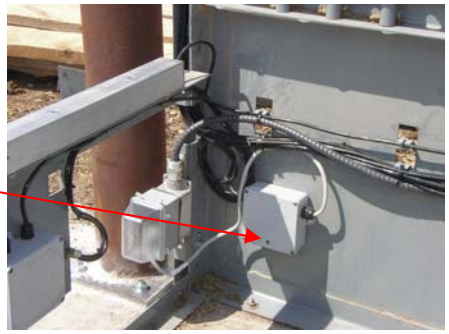
Check the DAQ panel in the pen.

No amber light flickering means that the DAQ panel is not communicating

No green light means there is no power to the DAQ panel.



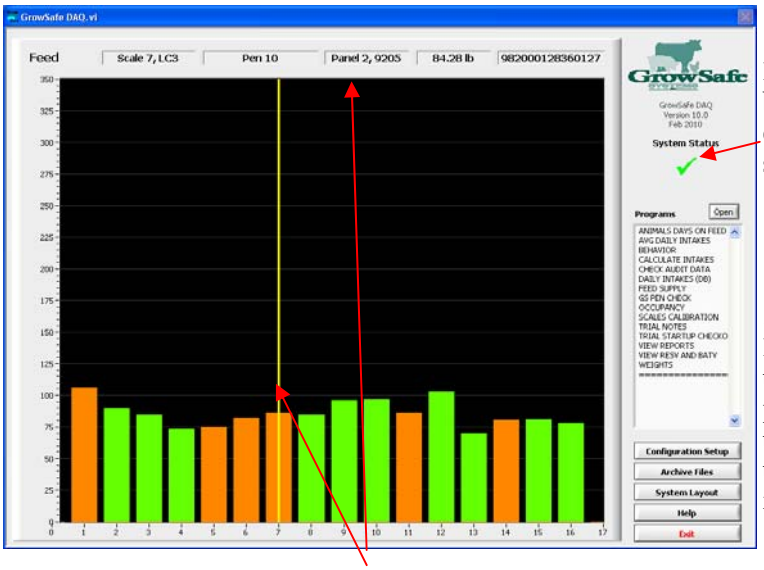
If no green light, check for green power light on power supply.



If no green power light check for power at plug:
- Check power connection
- Check main power supply
- Check GFCI (if applicable)

Where to Begin? Main DAQ Screen

You will likely first notice system problems from messages or oddities on the main software screen .



If the status bar is a green check mark the system is OK

. If the exclamation mark appears the system needs troubleshooting.

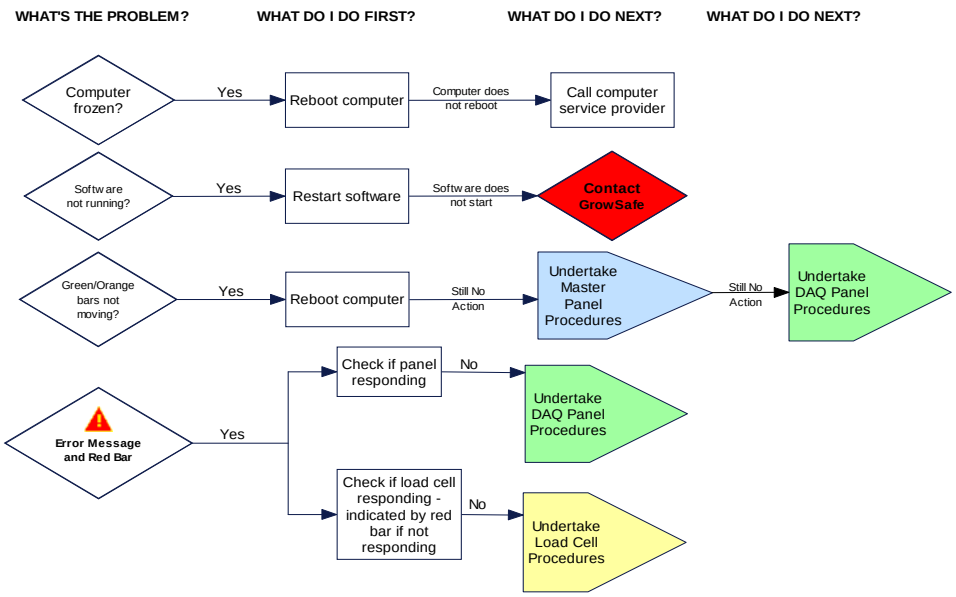
Version 10 DAQ Software—Yellow Cursor Bar when moved will display Information for the trough in question in the status bar above.

The height of the bars indicate the weight in the trough on the Y axis. If the bar is green there is no animal feeding at the trough, if a bar turns orange this means an animal is feeding at the trough.

Note — New feature — When a bar turns red this means the weighing mechanism is not functioning.

Main DAQ Screen

Main DAQ Screen Troubleshooting Procedures



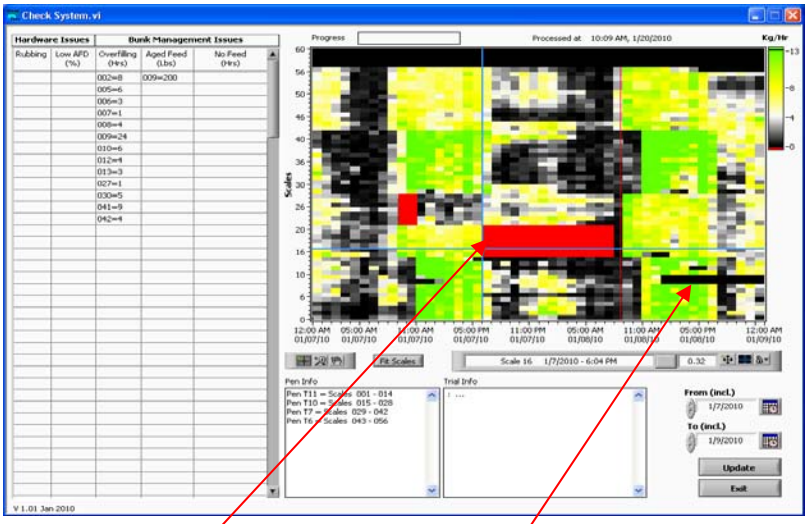
We have condensed troubleshooting into easy flow charts which are laminated and found in larger format at the front of this binder. The decision tree on the flow charts will take you through several YES and NO scenarios which will isolate the likely issue you are having with any of the following components:

- EID—tag reading issues
- Master Panel
- DAQ Panel (panel located in the field)
- Load Bar issues (aka Load Cell)

Follow the Main DAQ Screen Troubleshooting Flow Chart first to resolve any issues you have noted on the Main Screen.

Check System Report

One of the daily system checking routines— “Check System” has been designed to provide a quick and accurate overview of how the system is performing, how you are managing your bunks. Both of which has impact on your trial data. Run the routine and then follow the troubleshooting flow chart to resolve issues.



Red Bars

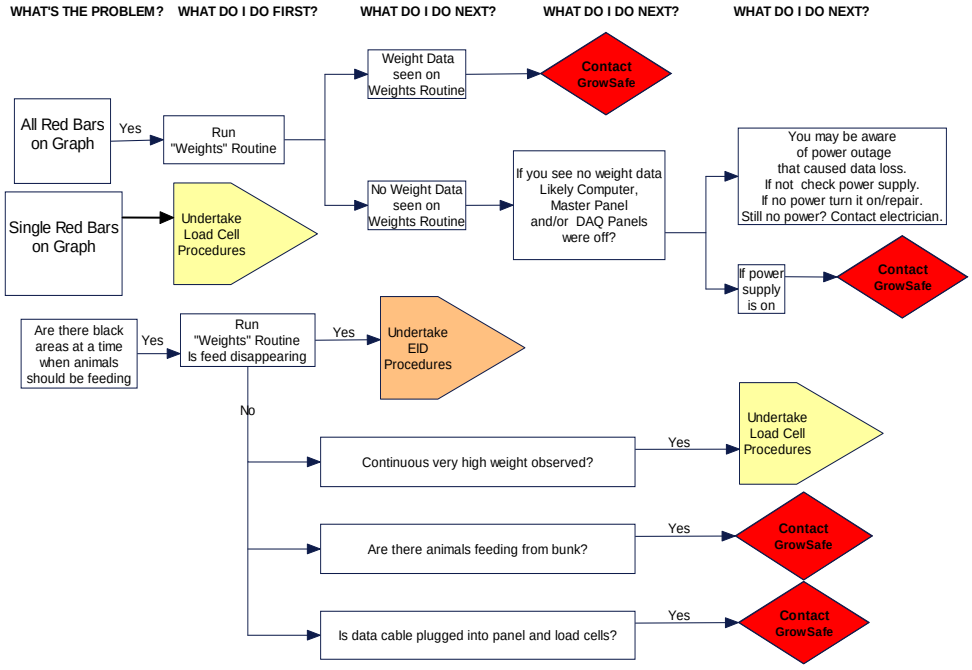
Red bars indicated that no data has been collected.

Black Bars—where they should not be

Black bars mean that there is no feed intake recorded from the trough. In this example you would definitely want to investigate further because feed was disappearing from all other troughs.

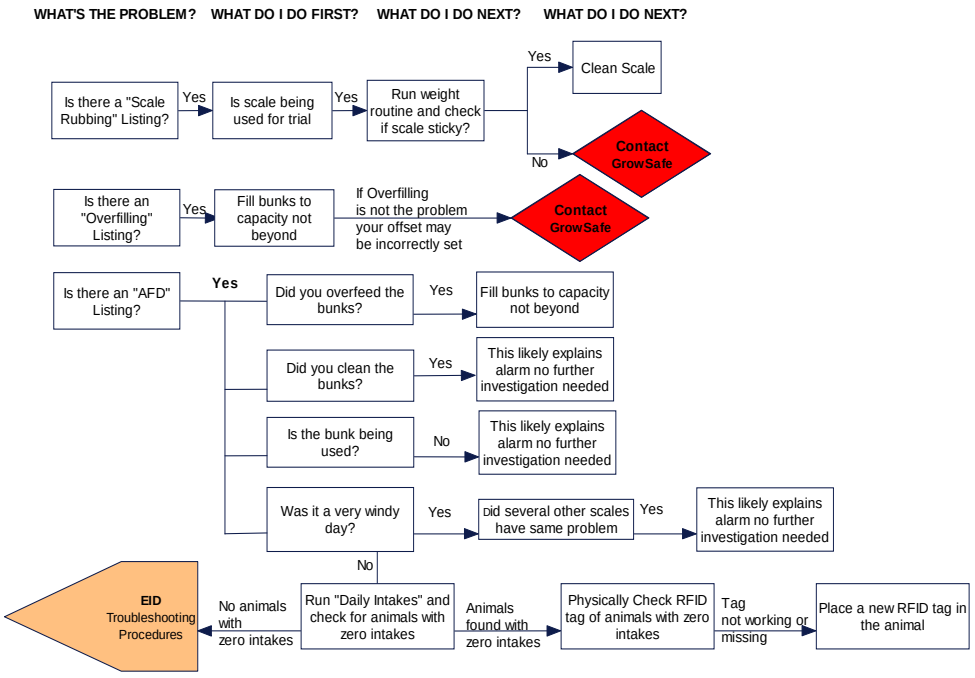
Check System Routine Troubleshooting Procedures—Page 1

Check System Routine Troubleshooting Procedures - Page 1

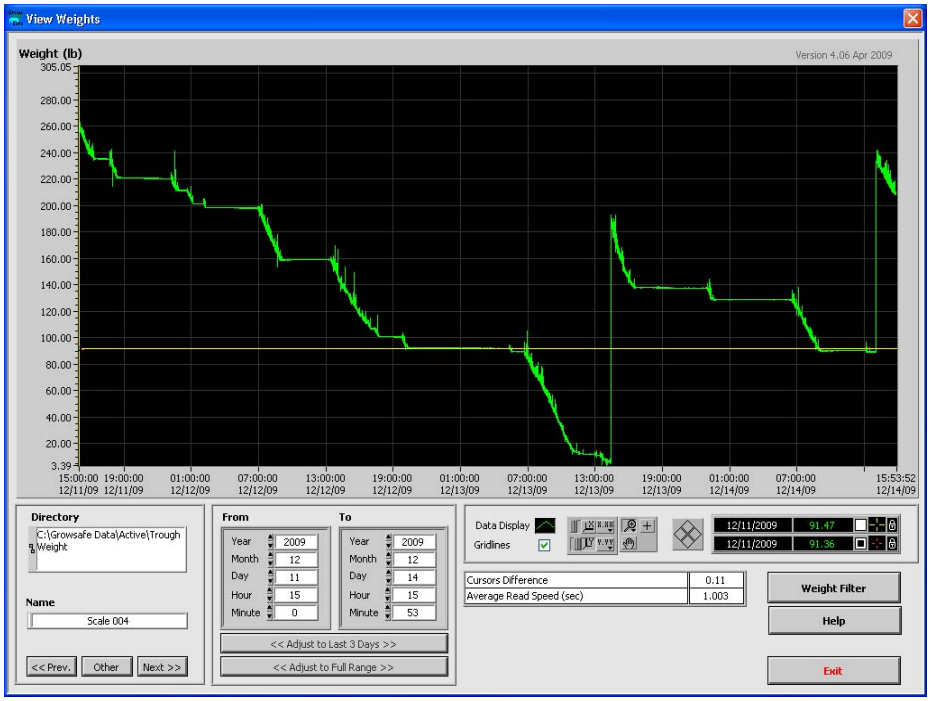


Check System Routine Troubleshooting—Page 2

Check System Routine Troubleshooting Procedures - Page 2



Run Weights Routine



When you run the Weights routine you can look at each individual trough and determine if feed is disappearing from the trough.

By selecting the adjust to last 3 days option, you will see the scale data for the past three days.

Scale Noise

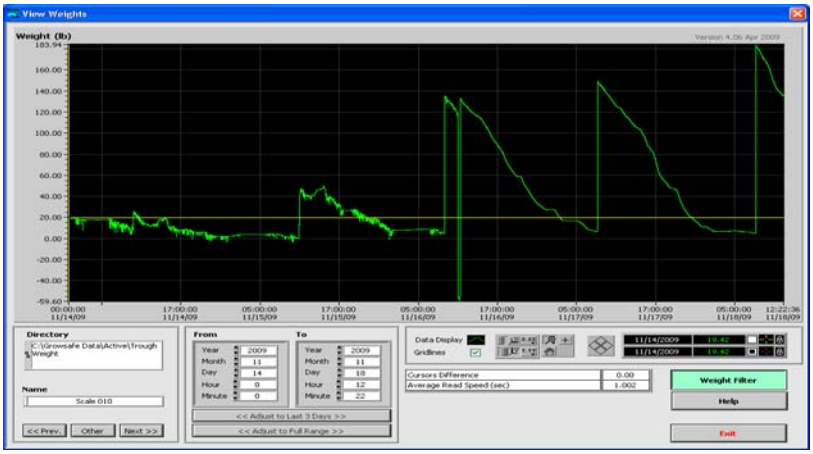
Scale Noise can be caused by:

- Wind
- Sticky scales
- Broken load bars

To identify this on the weight routine look for one scale that is higher than the rest or a sudden change in the trend.

Here is an excellent example of sticky scales. The scale suddenly jumps up a bit and then suddenly jumps down.

Sticky Scales



The example demonstrates sticky scales in the first half of the screen from the noise and the slow rise in scale weight. You can see the difference in the quality of the scale data after cleaning in the second half of the screen.

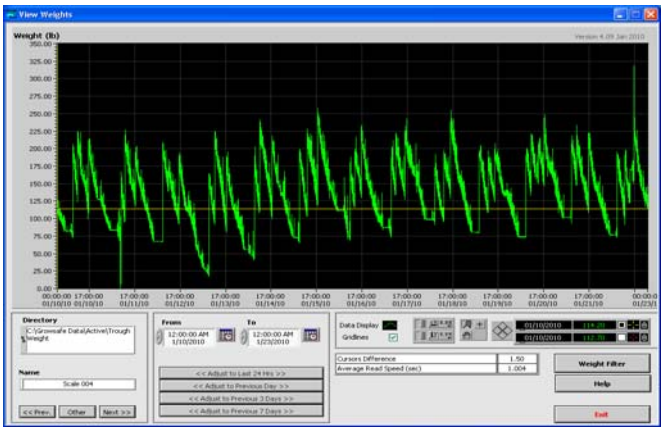
Keeping troughs reasonably clean will keep data integrity high. The system pictured on the right is obviously not an example of a clean system!

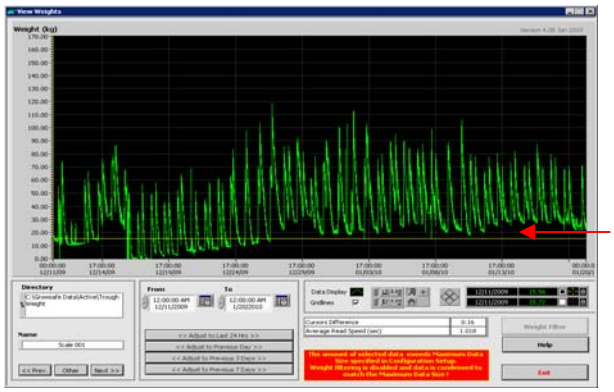
Overfilling Listing

Overfilling listing identifies the trough.

You can also see overfilling by looking at the weight routines. Fill bunks to capacity and not beyond.

Aged Feed Listing

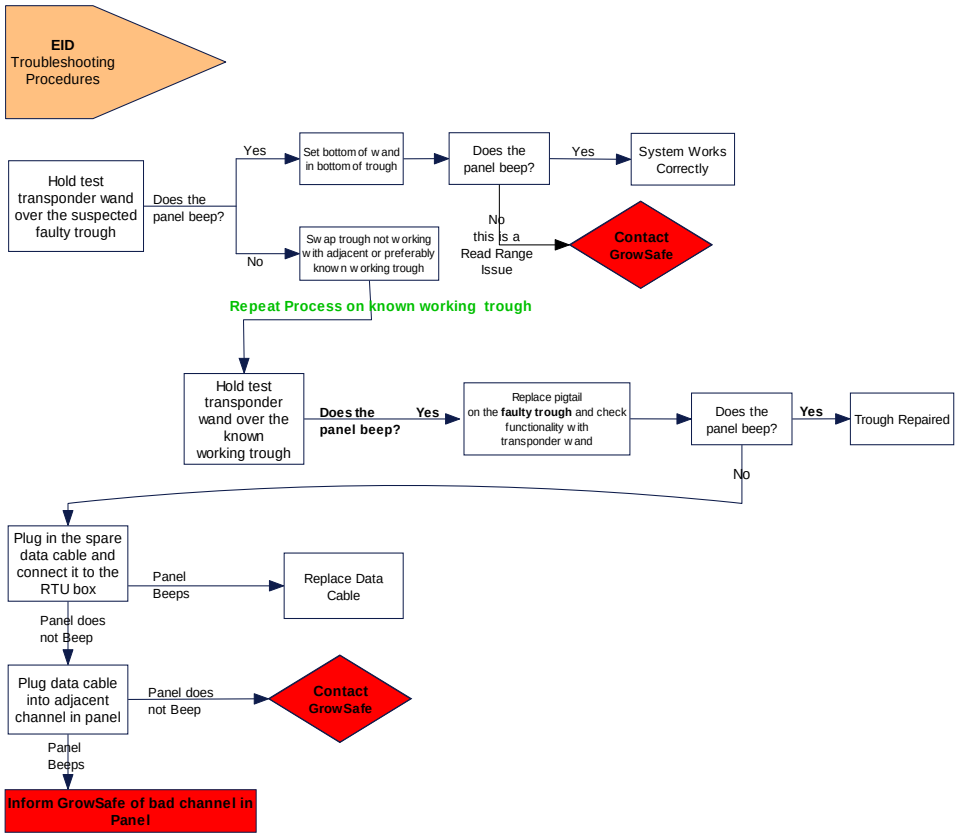




Note the bottom of the graph going up—this indicates aged feed in trough

Aged Feed listing will give you an idea how feed is building up in the bunk or as in the case of the bottom screen ice has built up in the bottom of the trough. Aged feed listings indicate that excess feed or ice has built up, troughs need to be cleaned. Good trough supply management can reduce feed from spoiling or remaining in troughs.

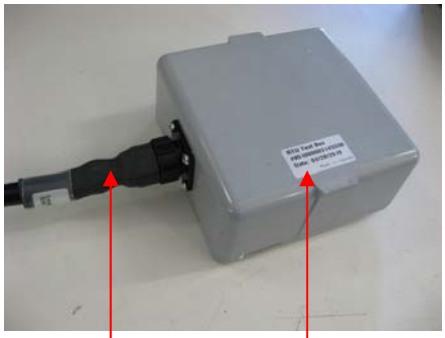
EID Troubleshooting Procedures



Test Transponder Wand and RTU Test Transponder Box

Hold the test transponder wand in the suspected faulty trough, if the panel beeps set the bottom of the wand in the bottom of the trough as pictured above. If the panel beeps the system is working correctly. This is a good check to run in advance of a trial.

If the panel does not beep, swap the trough with an adjacent and/or preferably known working trough, then test with the wand again. If the panel beeps replace the pigtail on the faulty trough and check functionality with the transponder wand again. If the panel beeps, then the trough is likely repaired.



Data Cable

Test Transponder contained within RTU box— transponder # on top of box.

If the panel doesn't beep, plug in the spare data cable from your troubleshooting tool box and follow the EID troubleshooting procedures to diagnose a bad channel or faulty data cable.

The RTU Test transponder box contained within the troubleshooting toolbox has a test transponder built into the unit. You can locate the transponder number on the sticker outside of the box.

General Troubleshooting

General rule of thumb:

- Most often the pigtail is at fault
- Then it might be a faulty channel in the DAQ Panel
- Next look for a faulty data cable
- Finally check whether the problem is a faulty load bar set

Always check the obvious first:

Is the power on?

Is the trough plugged in?

Weak Erratic or No RF Signal Strength—Pigtails

A weak, erratic or no RF signal strength is most likely a pigtail fault. Sometimes when a feed trough is removed from a bunk (without unplugging it first), or is hit by an animal or other object, there is no outward visible signs of damage. However, the connections or wire of the pigtail may have been damaged either inside the pigtail near the flange connector, or where the pigtail connects to the trough.

When replacing the pigtail at the trough, double check that the spade connections on the trough and the new pigtail are secure by visual inspection and gently tugging on the spade connections.

Maintenance

Maintaining your system is fairly simple and generally just good farm sense:

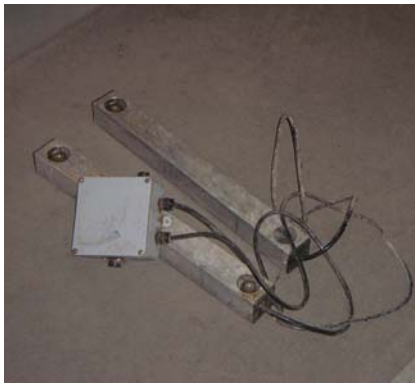
- Repair failed or broken components as soon as they fail. Most bolts, nuts and screws are standard supply but can be ordered from GrowSafe
- Mount preventative curbs to ensure that feed trucks do not collide with the system. Pen cleaning equipment should be advised to steer clear of the system.
- Adequately ground or protect your electrical supply.
- Keep the system reasonably clean.

Before every trial

- Run "Trial Start-up Check off" Routine:
- Remove, empty, and clean bunks
- Inspect connections

The cattle environment is a dusty non-computer friendly place. Clean the inside of your computer using "Dust off" or similar air spray a few times a year to remove dust.

Returning Defective Equipment—RMA



1. Verify equipment failure with GrowSafe
2. Verify warranty, extended warranty
3. If non warranty obtain PO# or written authorization for core charge plus shipping charges
4. When authorized, GrowSafe issues RMA and ships replacement (usually refurbished) item.

GrowSafe Shipping and Receiving
Telephone: 1-866-929-1879 Ext 231
Fax: 403-398-1327
Email: gerry@growsafe.com

1. Return documents will be shipped with the replacement components
2. Swap out defective component, swap in new component or replenish “trust package”
3. Package defective component in provided shipping box
4. Complete repair tag with all known failure information and include in return package
5. Apply provided shipping label
6. Call shipper for pick up
7. When defective components are returned appropriate core credits will be applied

Troubleshooting Toolbox

The troubleshooting toolbox contains a number of items that will assist you in trouble-shooting and maintaining your system.

Troubleshooting/Test Units
LED power tester for 110V outlets
10” transponder test wand
RTU test box
Pigtail extension wire

10” transponder test wand

Standard Tools
Needlepoint pliers
Multi head screwdriver
7/16” wrench
Crescent wrench
Side Cutter

Return to Manufacturer Supplies
Black sharpie pen
Repair tags

RTU test transponder box

Spare Parts
Pig Tails
1/4" Load cell bolts 1-1/4" long
1/4" load cell washers
1/4" nuts
1/4" panel bolts by 3/4" long
Female spade connectors
Male spade connectors
Butt connectors
Wing nuts 1/4"
Tie wraps
Load cell bushings
Vertical Neck Bar safety pins

Maintenance Components
Black electrical tape

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