AEI Barn Inspection

Site:

Barn:

Date:

Description	Initial	Equipment Conditon
Check & Calibrate Temp Sensors		
Tighten Connections in Control Cabinet		
Tighten Connections in RCU		
Tighten Connections in MCU's		
Verify Open and Close		
Tighten Connections in A/B Split		
Change any lamps not working		
Tighten Connections in Power Supply		
Check 12V Power Supply		
Tighten Connections on Fan Contactors		
Replace any noisy contactors		
Inspect barn and pit for broken pipes		
Check and adjust springs in screeners		
Load Test Battery		
Change Annually		
Tighten Connections in FCU		
Verify all tier switches work		
Zero out static pressure		
Tighten connections in PMP		
Test alarm relay operation		
Put system into backup and test		
Check WDT		

AEI Equipment Maintenance

This document better describes each step used in the AEI Barn Inspection sheet. If there are any questions about the procedures listed in this document, please contact AEI technical support. If you have problems with any of the procedures document in the AEI Barn Inspection sheet and take proper action to fix. If you have any problems resolving the problem please contact AEI technical support.

Check and Calibrate Temp Sensors

Verify that the temperature sensor is labeled and wired correctly to the computer system. This is accomplished by unscrewing the temperature sensor from its connector box. Use caution that you do not lose the small rubber gasket between the socket and the sensor assembly. If it does fall out just replace it into the socket. Once the temperature sensor is removed from the system the person at the computer should see a "NA or 0" appear at the appropriate temperature sensor on the screen. After the sensor has been verified it can be plugged back in and calibrated.

To calibrate the temperature sensors it is recommended that you use a hand held digital thermometer and calibrate each sensor separately. You may use a permanently mounted thermometer in the house but it is not recommended. We recommend you calibrate sensors monthly or any time hardware is changed within the system.

When calibrating, the temperature should be taken only a few inches from the sensor. Give the hand held thermometer a few minutes to level out; this insures an exact temperature reading. At this time make sure the temperature sensor is not in contact with any metal or chickens, if you notice a large amount of air movement across the sensor move to a different location to prevent false readings. Replace any sensors that look damaged.

If you have variable speed drives and turning the drive off makes a difference in temperature readings, then filtering the noise is necessary. This can be done at the drive or at each temperature sensor. Call AEI for more details.

If you notice the temperature sensor won't calibrate properly it is a bad sensor and needs to be replaced. If you enter diagnostics you should see an analog value of around 130 in the corresponding DGP Channel.

Tighten Connections in Control Cabinet

We recommend that all connections are checked and tightened in the control cabinet annually. If doing this when the system is still powered up use caution not to short anything out. Often time's customers will do this when the birds are out of the house and shut all power off when doing maintenance on the system.

Once all terminations have been tightened replace any missing covers. Clean any dirt and or debris that have accumulated in the cabinet since the last service of the cabinet. While in the cabinet look to make

sure everything is communicating, this can be done be observing the send and receive lights on all hardware that requires communication the PC.

Tighten Connections in the RCU (Relay Control Unit)

USE EXTREME CAUTION WHEN WORKING IN THE RCU CABINET IF ALL POWER HAS NOT BEEN REMOVED!

The RCU has line voltage and low voltage wiring inside of it, there is also multiple power sources feeding into it so you may need to shut off several circuit breakers to ensure all power is off. It is recommended that all connections are checked and tightened annually. There may be relays at the right side of the cabinet which may also need to be checked and tightened. All terminations on the door of the cabinet also need to be checked and tightened.

Under normal working conditions the "Computer Control" light should be lit, if it is not you are either in backup or have a board with a bad LED on it and that should be replaced. It is important that you know when you are or are not in computer control, we will often ask this when called for technical support. We will discuss how to check for proper operation of the RCU later in the "Put the system into backup and test" section of this document.

Once all terminations have been tightened replace any missing covers. Clean any dirt and or debris that have accumulated in the cabinet since the last service of the cabinet.

Tighten Connections in the MCU's (Motor Control Units)

USE EXTREME CAUTION WHEN WORKING IN THE MCU CABINET IF ALL POWER HAS NOT BEEN REMOVED!

We highly recommend that you test the operation of the units weekly because the inlets are how your birds get air and without air they will die. To test if the unit is functioning properly press the open button and verify that the inlet opens, then press close and verify that the inlet closes. If you notice the inlet functions but the lights do not work, replace the indicator board. When the switch on the front is in the computer position the computer will control by looking at temperature and static pressure for that group. When in static pressure the inlets will operate off of the static pressure unit.

We also recommend that you tighten all connections in the MCU's annually. Once again remember that there is high and low voltage inside this enclosure. There should only be one line voltage power supply but we cannot guarantee this.

Once all terminations have been tightened replace any missing covers. Clean any dirt and or debris that have accumulated in the cabinet since the last service of the cabinet.

Tighten Connections in A/B Split

USE EXTREME CAUTION WHEN WORKING IN THE A/B SPLIT CABINET IF ALL POWER HAS NOT BEEN REMOVED!

We recommend that all connections are checked and tightened annually. When doing this remember, that there is both line and low voltage power in this enclosure. Most of the low voltage power is feed from the main A/B Split Cabinet in the processing area. High voltage is typically feed from each house individually.

If you notice any lights not working properly on the front cover, replace. The lights indicate if the egg flow is running and what split mode the house is in if any.

Once all terminations have been tightened replace any missing covers. Clean any dirt and or debris that have accumulated in the cabinet since the last service of the cabinet.

Tighten Connections in Power Supply Cabinet

USE EXTREME CAUTION WHEN WORKING IN THE POWER SUPPLY CABINET IF ALL POWER HAS NOT BEEN REMOVED!

We recommend that all connections are checked and tightened annually. When doing this remember, that there is both line and low voltage power in this enclosure. Once all connections are tightened you should check and adjust the 12VDC output voltage. Adjust the power supply using the white adjustment screw. It should be set at 13VDC. Once it is adjusted turn you multi meter to AC Voltage and make sure you have a reading of 0. If you show any AC voltage your temp sensors may not function properly and the power supply should be replaced.

Once all terminations have been tightened replace any missing covers. Clean any dirt and or debris that have accumulated in the cabinet since the last service of the cabinet.

Tighten Connections on the Fan Contactors

USE EXTREME CAUTION WHEN WORKING IN THE FAN CONTACTOR CABINET IF ALL POWER HAS NOT BEEN REMOVED!

Although the fan contactor cabinet is typically not provided by AEI we still include it in our maintenance list because proper operation is critical in controlling the house environment. We recommend that all connections are checked and tightened annually.

Once all connections are tightened listen to the contactors and replace any contactors that have excess noise. The noise indicates a bad connection inside the contactor and is a good indication that the contactor will not work for much longer.

When you have finished clean any dirt and or debris that have accumulated in the cabinet and replace covers.

Inspect Barn and Pit for Broken Pipes

As temperatures fluctuate in the house the PVC piping expands and contracts. When this happens the pipe can break. Over time the edge on the broken pipe will cut through any wires it contains which will

cause many different problems depending on what wires that particular pipe contains. You should also look at any flexible connections made going to motors and fans. Any broken pipes or flexible connections should be documented and fixed as early as possible to prevent any major problems in the future. It is recommended you walk the barn and pit annually for inspection.

Check and Adjust Springs in Screeners

We recommend that the pressure switches be checked, tested, and adjusted annually. The proper operation of the switch is critical for the feed system.

To check the switch operation you should disconnect all power going out to the screeners to prevent entanglement. Once all power has been disconnected you can remove the cover from the screeners and locate the pressure switches inside. When you press each switch you will hear a "click", if you do not turn the nut on the spring till you hear a "click" and then continue one more half turn. Turning the nut to the right tightens it putting pressure on the switch and turning it left reduces pressure. If you cannot get it adjusted properly then document and replace.

Load Test Battery

We recommend that you test the battery monthly and replace the battery annually to ensure proper operation when it is needed. The battery is used to keep other houses communicating if you should lose power to one house. Because the battery is connected to a charging circuit the 12VDC power supply must be turned off to do a proper "Load Test" of the battery.

Once the power supply is turned off you should still see lights blinking on the splitter board which indicates it has power and is communicating properly. While under load check the voltage of the battery, it should read around 12.5VDC. It is important that the battery be replaced if your voltage is below 12VDC. When you replace a battery remember to document and place a date on the case of the battery so you know when it was installed. That way you can tell very easily if the battery has been in service for over and year and needs to be replaced.

Tighten Connections in the FACU Cabinet (Feed Auger Control Unit)

USE EXTREME CAUTION WHEN WORKING IN THE FEED AUGER CONTROL CABINET IF ALL POWER HAS NOT BEEN REMOVED!

We recommend that all connections be tightened and checked annually. This will ensure proper operation of the unit. Once all connections have been tightened, turn each tier switch to manual and check for the feed augers to run for that tier. Also at that time make sure the screeners start and that the cross auger starts and is bringing feed into the house. Test each tier separate to ensure proper operation. Remember to put all switches back into the auto position when finished so the computer will control.

Zero Out Static Pressure Unit

We recommend you calibrate the static pressure unit annually. There are many manufacturers and you should check with them on the steps needed to calibrate the unit, but the following is a basic guide for calibrating the unit. First remove the 2 plastic hoses from the unit and shut all fans off in the house. It is critical that this been done quickly so you can get the fans back on if there are birds in the house. Next, you need to make sure the unit read zero if it doesn't refer to the user manual on how to zero the unit out. Reading proper static pressure is important because the computer looks at static pressure when deciding to open and close inlets. Make sure you connect the right hose to the correct position when replacing them. If backwards the unit will not operate properly.

Tighten Connections in PMP (Power Monitor Panel)

USE EXTREME CAUTION WHEN WORKING IN THE FEED AUGER CONTROL CABINET IF ALL POWER HAS NOT BEEN REMOVED!

We recommend that you test proper operation of the panel monthly and tighten all connections annually. To test for proper operation just remove one relay. Wait a few minutes, and then you should see an alarm on your computer for that relay. Once finished move on to the next, do not forget to remove any phase loss relays also which will be in a separate enclosure. If any relays do not trigger an alarm on the screen then you must fix or replace. It is important that once you replace the relay that you test it again. It may be a different problem and if these do not work you may not get a dial out for a power loss.

When you tighten the connections on the phase loss relays you will need to remove the relay from the base in order to get at the screw terminals. Please note that some houses may have the power loss alarms located in the RCU rather than in their own enclosure.

When you have finished clean any dirt and or debris that have accumulated in the cabinet and replace covers.

Put System into Backup and Test

It is important that you put your system into backup and test monthly. The easiest way to put the system into backup is to either disconnect a full DGP board by removing the communication plug at the top corner of the board or unplug the watch dog relay in the control cabinet, this simulates a loss of communication to that house. Make sure the Computer Control light is off on the front of the RCU. After you do that go out to the house and test the operation of each backup thermostat by turning the temperature setting up and down listening for fans to turn on and off. Replace WDT or reconnect the DGP board that was disconnected and watch for the computer control light to come back on, on the front of the RCU cabinet.

Walk out to the house and turn the fail safe thermostat to a temperature setting less than that of the barn temperature. This will simulate going into backup because of a high temperature. Look at the front of the RCU to verify that the Computer Control light shut off. Then go out to the house and adjust each thermostat as you did with the WDT relay pulled and verify fan operation.