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College of Agricultural and Environmental Science/Athens, Georgia 30602-4356

Poultry Housing Tips

Time for an Electrical System Check-up

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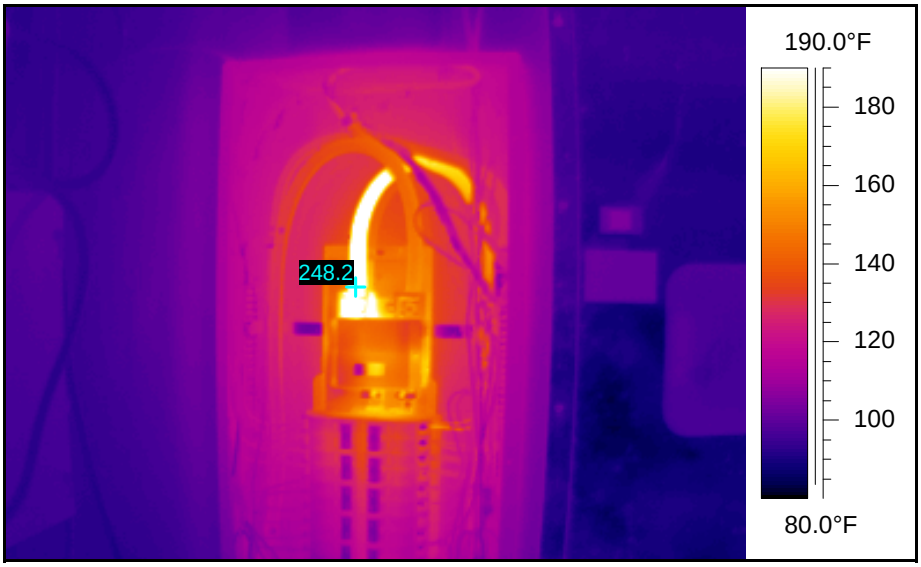

Figure 1. Thermal image of a loose main connection.

With hot weather quickly approaching this is the time of year to give your licensed electrician a call to schedule a check-up of your farm's electrical systems. As with fans, pads, curtains, etc. a house's electrical system should have periodic maintenance to avoid costly situations. One of the primary things an electrician should check are the quality of the connections in each of the farm's service panels and disconnects. Over time the connections can become loose or corroded which leads to increased resistance. Resistance leads to heat and heat can lead to a circuit breaker tripping at the worst possible time.

The thermal image in Figure 1 was taken in a house with 50 day-old-birds when the outside temperature was in the mid-nineties. The difference in temperature between a proper connection and a loose connection is easy to see. There is essentially no heat being generated at the connection at the right side of the panel whereas the left side connection of the incoming power is running approximately 250ºF. It is not a matter if the main breaker was going to trip...it is a matter of when. Luckily this was caught and the producer immediately called his electrician to fix the problem.

Figure 2 was taken on a broiler farm with four-week-old birds with just a few fans operating. Again the difference between a proper connection and an improper connection can be easily seen. Had the house been in full tunnel with all the fans operating the heat generated by the improper connection would have been even hotter and again sometime in the future (most likely with market age birds on a hot afternoon) the main breaker would have tripped.

This particular farm had a Breaker Spot$_{TM}$ on the main breaker on each of houses. The Breaker Spot$_{TM}$ is a sticker that changes color if the temperature of the breaker becomes excessive indicating the breaker is in danger of tripping. The problem was the Breaker Spot$_{TM}$ was positioned at the bottom of the breaker near the good connection. Ideally the main breaker would have had two Breaker Spots$_{TM}$, one for each of the two legs of power.

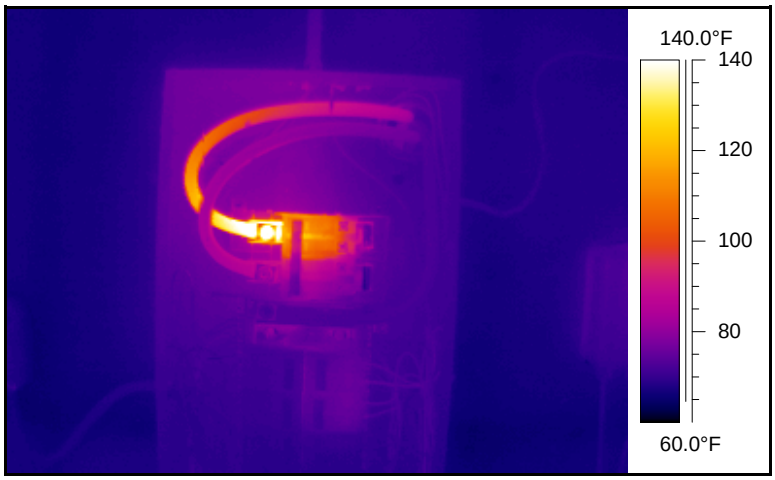

Figure 2. Loose main breaker connection.

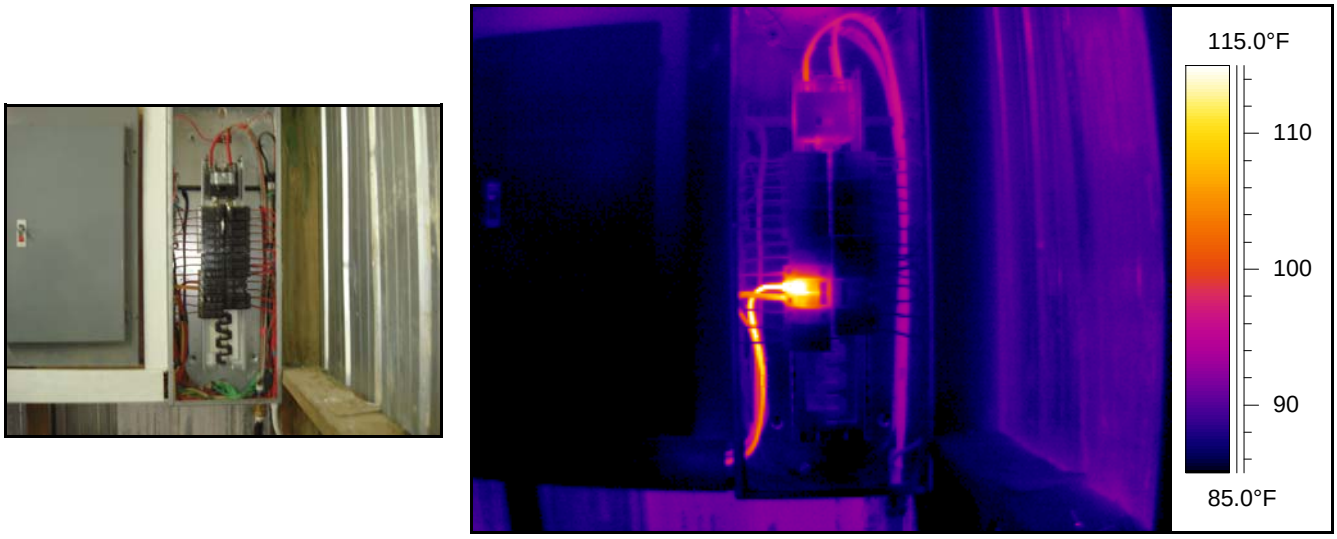

Figure 3. Loose connection going to a sub panel.

It is not only the main breaker where a loose connection can be costly. Figure 3 shows a loose connection going to a sub panel feeding all the house's tunnel fans, which brings up an important point. All connections in all farm's service panels need to be checked for corrosion and tightness. This includes main service, disconnects, auto transfer panels at the standby generator, as well as individual fan, well, and pump circuits.

The scary thing is to realize that loose connections shown in the above thermal images are not a rare occurrence. Well over 10% of the farms evaluated over the last couple of years with a thermal camera have had loose/corroded connections of one type or another. The other point is to realize that a standby generator in all of the above cases would have done nothing to save the birds had these breakers tripped.

If you have a panel or breakers that run hot keep in mind the solution is not to blow a fan over them during hot weather. Breakers are not supposed to heat up significantly while under a load. If they do you have poor connections or an overloaded circuit. A good electrician will be able to analyze the situation and solve the problem before it is too late.

The other area that your electrician needs to check is the quality of the electrical grounds on your farm. Most losses of controllers/alarm systems can be traced back to the lack of a quality electrical system grounding. A good electrician can measure the amount of resistance to ground at each of your houses to see if your connections and/or ground rods are in good shape. The fact that you can have the best surge protection installed in your houses but it does no good to protect your equipment and birds if it is not properly grounded. Lightning protection equipment no matter how good and how expensive it is, depends on a good grounding system to provide a path for the lightning to reach the ground without going through and damaging equipment.

Many bird and/or equipment losses can be avoided with a little preventative maintenance. Hiring a licensed electrician to periodically look over a farm's electrical systems can easily turn out to be one of the wisest investments a producer will ever make.

Michael Czarick
Extension Engineer
(706) 542-9041 542-1886 (FAX)
mczarick@engr.uga.edu
www.poultryventilation.com

John Worley
Extension Engineer
(706) 542-9065
Jworley@engr.uga.edu.

Color copies of the newsletters as well as others can be downloaded from www.poultryventilation.com

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