

## PRACTICAL APPLICATIONS

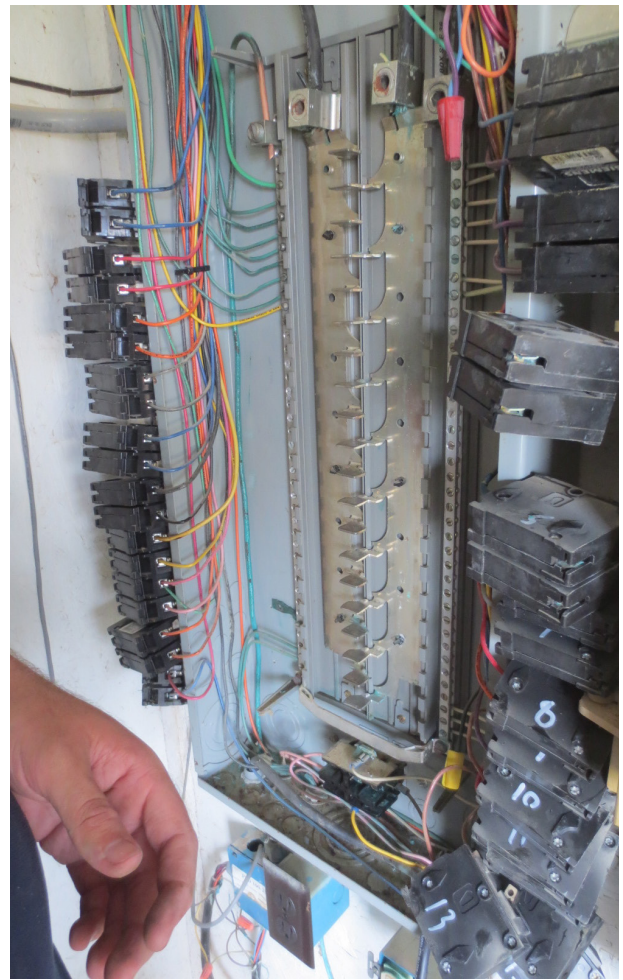
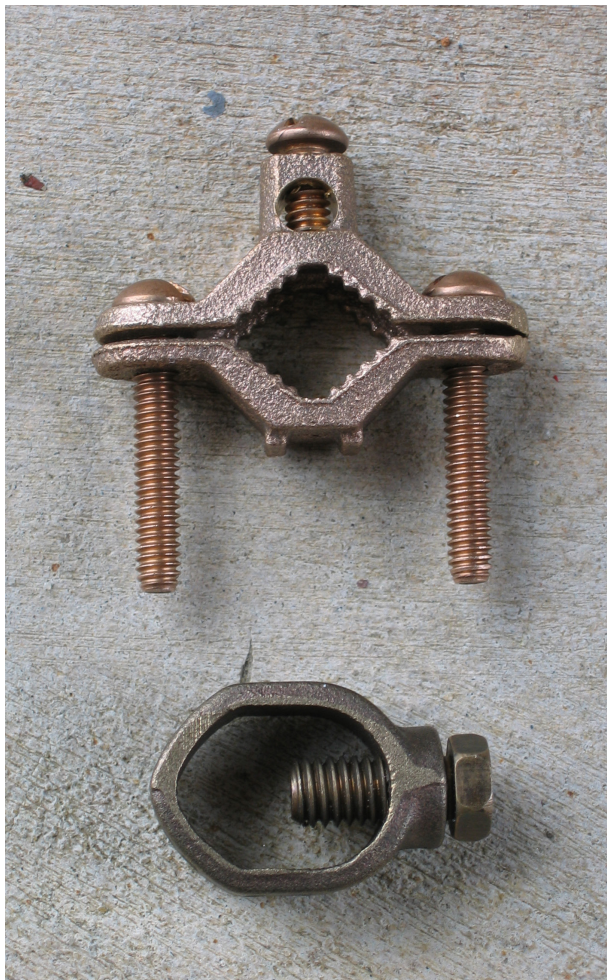
# POULTRY HOUSE ELECTRICAL CHECKLIST

Jess Campbell, Jeremiah Davis and Kelly Griggs - National Poultry Technology Center – March/April 2021

**H**uman safety, flock safety and fire prevention are three major reasons why it is important to conduct a yearly electrical inspection on every farm. We suggest hiring a professional to do some of these inspections and repair work. Now might be a good time to contact your local electrician to schedule an inspection. With hot weather just around the corner, here are some items that will help you get pointed in the right direction. **NOTICE: All electrical work must be done with circuits OFF and backup systems OFF!** Hire a professional as needed, as safety comes first.

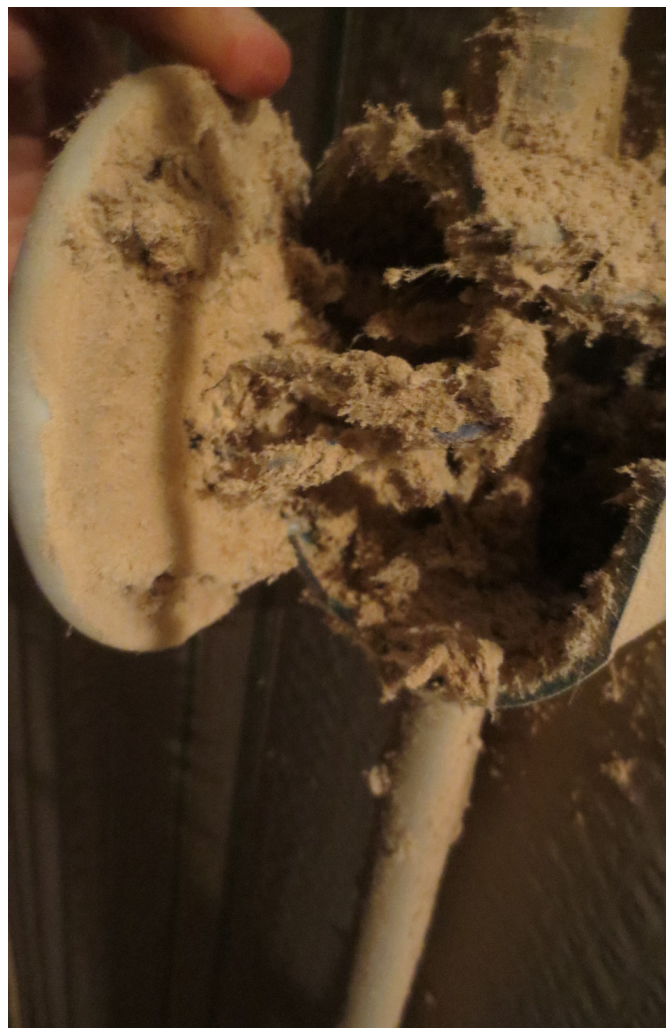
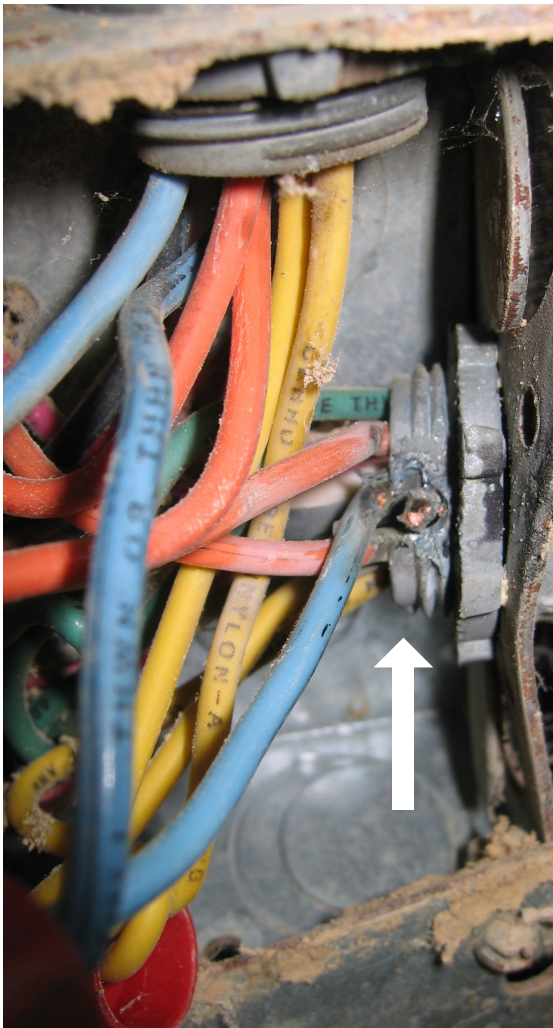
### ☐ Ground Rod Connections

- ☐ Check that the grounding rod clamp is tight. We recommend acorn-style clamps.
- ☐ If Ufer ground (concrete-encased electrode) is installed, make sure the wire to rebar clamp is tight and rebar is not corroded.
- ☐ Check that the ground wire connection to panel is tight.



*Photo 1: Pipe clamps commonly used as ground clamps are often found loose during inspections. Acorn-type clamps (bottom clamp) tend to maintain a stronger bond and a more reliable ground connection. Photo 2: A professional electrician inspects and cleans breakers and the connections in a main electrical panel. Notice that breakers are numbered to keep them in order.*





*Photo 3: If you look closely at the picture on the left you might see that the blue wire has shorted to the metal junction box. This took hours to find. This installer put too many wires inside the conduit, which eventually caused this short. Photo 4: Thin plastic boxes used for lighting sockets may fail over time due to the expansion and contraction of the PVC conduit in the house. This is difficult to repair.*

#### ☐ Main Electrical Panel

- ☐ Ensure that all main lugs on supply wires are tight.
- ☐ Check that all breaker connections are tight and show no signs of overheating.
- ☐ Make sure the panel is clean of debris and spider webs.
- ☐ Check that no open holes are left in the box for rodents or insects to enter.
- ☐ Ensure that no signs of electrical overheating or short circuits or potential for short circuits visible.

#### ☐ Junction Boxes

- ☐ Make sure all junction box connections are terminated with clean connections and show no signs of loose connections or of moisture or dust buildup.
- ☐ Ensure that the box has a protective cover and wires have strain-relief connectors on them to keep them from pulling out of the box if stressed or pulled.

#### ☐ Lighting Boxes and Keyless Sockets

- ☐ Check plastic boxes for any signs of damage or being broken.
- ☐ Ensure excessive dust and moisture are not present in box or on inside surface of socket.
- ☐ Repair any signs of loose connections.
- ☐ If light bulb flickers, replace bulb. If that bulb flickers, replace keyless sockets.

☐ **Motor Connections**

- Check that all motor connections have stress relief connections installed.
- Make sure supply wires are protected from stress and insulation is not compromised.
- Check motor casing to ensure it is grounded and the connection is tight, clean and bonded properly.
- Replace and correct any wires showing cracked insulation, worn spots or damage from rubbing against steel cable, rope or pulleys to prevent any future damage.



*Photo 5: This grower allowed an inexperienced helper to install a new fan circuit and, as a result, nearly burned the building down. Thankfully, we noticed the flame and had access to a fire extinguisher. Photo 6: Not the best repair work we have seen, but the fan works now.*

☐ **Romex Connections**

- Inspect Romex wires for short-circuit and rodent damage. If all connections are not protected inside a junction box of some type, correct.

☐ **Cord Runs and Connections**

- If a poultry house has runs of flexible power cables throughout the house that are adjacent to moving cables, protect these wires from being damaged by steel cable, pulleys and other moving parts.

☐ **Convenience Outlets and Equipment Outlets**

- The days of allowing open electrical boxes are long over. A lot of water and dust move through a modern poultry house, and a grower must do everything reasonably possible to protect the electrical system from moisture, dirt and damage. It only takes one short circuit to start a fire and one loose connection to electrocute a worker or yourself.

☐ **Main House Disconnect**

- Some houses have an electrical disconnect that may be a simple knife switch, fused connection or breaker inside. Inspect these connections and wires to make sure all are clean and tight and the switch is in good working order. Neutral and ground bars and connections must be landed in the proper place and bonded tightly.

☐ **Generator Shed and Main Electrical Entrance Components** – Please hire a professional to service backup generators, transfer switches, main disconnects and house disconnects.

- Have spare parts on hand and a serious backup plan, and practice it often.
- Document all services and repairs that have been made to this equipment.



**Bottom line:** Any type of electrical failure can pose a threat to a poultry farmer and his/her livelihood. Springtime preparation may help prevent real problems down the road. Whether the farm is new or old, we find problems are sometimes hidden and unexpected until reality hits.

**Example:** Grower A spends \$1,500 on an electrical inspection that includes several repairs to some major electrical components on a farm, and he/she has no electrical issues in 2021. Grower B had a run of bad luck due to a blown disconnect fuse going to one house. He does not have spare fuses on the farm. He does get an alarm but loses the entire house of birds at near market age. He loses 19,000 birds at nine pounds on average with a yield of \$0.06/lb. That equals \$10,260 in lost income alone. Do not be like Grower B.

Good luck from the National Poultry Technology Center.

For more information, download our Poultry Toolkit smart-phone app, visit our website at [www.poultryhouse.com](http://www.poultryhouse.com), or contact any of our team members.

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*Photo 7: This generator battery is in serious need of cleaning and testing. Can you identify the problem? Photo 8: Each house disconnect will have a breaker or fuse to protect the wires and equipment on the load side. Inspect and clean all these fuses. Can you identify the problem?*

