

MODIFICATIONS OF PFEIFER'S BIRD-CONTROL APPARATUS¹

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ABSTRACT

Pfeifer's bird-control apparatus was modified and tested in 1967. Several safety features were incorporated. Also, an industrial timer was added as an interrupter to break the circuit from a high voltage transformer at regular, short intervals providing the arcing and snapping needed in a dry climate.

Additional index words: bird-control, grain damage, electrical apparatus.

BIRD damage to cereal plots from sparrows, black-birds, and starlings has been serious at the Snake River Conservation Research Center, especially when the plots were isolated from grain fields. In 1966, an electrified bird perch, as described by Pfeifer,^(3,4) was constructed and used. It consisted of two electrified wires spaced 2-1/4 inches apart and strung at 10-14 feet in height near the perimeters of the plots. Control was not complete at low humidity because insufficient air ionization prevented electrical arcing between the perch wires, giving the effect of inadequate voltage. The system, as modified and tested in 1967, gave complete bird-damage control as Pfeifer obtained under his conditions, and had many added safety features. According to Dalziel's⁽⁵⁾ study the perch line current was comparatively safe.

Figure 1 shows the schematic wiring diagram of the 1967 modification considered most effective. The industrial timer is used as an interrupter to electrify the perch every 10 sec for a 5-sec duration. The relay, resistors and capacitors suppress inductance buildup and protect the interrupter points from sparking. Fuses not only protect the unit, but also provide safety to humans who might somehow short the perch wires. As another safety feature, barbed wire was coiled around the line poles to discourage anyone from climbing them. One 15,000-volt transformer was sufficient with the construction described.

In operation, electrical discharge caused a snapping sound at the beginning of the 5-second "on" period of a cycle. On quiet days it was audible about one-half mile away. When the senior author accidentally

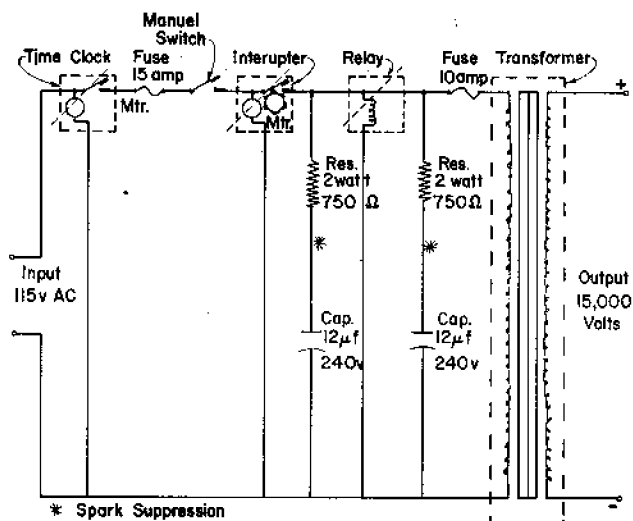


Fig. 1. Schematic wiring diagram.

Materials Used

- 1 — 15,000-volt neon sign transformer with 60-MA rating
- 1 — SPST relay 115 AC coil, contact 10 amps @ 115 volts, 60 cycles
- 2 — Capacitors 12 μ F, 240 volts
- 2 — Resistors 2-watt, 750 ohms
- 1 — Interrupter 115 volts AC, 60 cycles, 5 watts
- 1 — Time-clock 115 volts AC, 60 cycles, 1875 watts
- 2 — In line fuse cases 120 volts AC
- 2 — Fuses 120 volts AC (1) 10 amp and (1) 15 amp
- 1 — Manual switch
- No. 18 galvanized wire for the perch
- Wire holders (electric fence insulators wp #22)
- Wire clamps
- High voltage signs
- Wire spacers (made up of 1" \times 4" double strength glass)
- Barbed wire
- 1 — Shelter which houses the electric components, size 24L \times 11W \times 24H (inches)

shorted the wires by hand, the intensity of shock was similar to that experienced from the jolt of an automobile spark plug wire. The short 5-second "off" period did not allow many birds time to light on the perch. Those that would light during the "off" period apparently had more chance of escaping death as they were well settled when the "on" cycle began and could jump upward and fly away rather than short the two wires and be electrocuted.

This modification of Pfeifer's bird-control apparatus provided economical and complete control of bird damage to grain in a dry climate.

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³ Pfeifer, R. P. 1956. A bird-control apparatus for experiment plots. *Agron. J.* 48:139-141.

⁴ ———. 1957. Improvements in the bird-control apparatus for experiment plots. *Agron. J.* 49:338.

⁵ Dalziel, C. F. 1960. Threshold 60-cycle fibrillating currents. *AIEE Transactions Part III* 79:667-673.