

TECHNICAL ARTICLE

Improve Grounding in Gas Ignition Controls

Topic: Random Field Failures

Symptom: Electrical overstress of Ignition Control

Solution: Install reliable ground path to control

Application: Infrared Radiant Heater

SITUATION

A major manufacturer of infrared radiant heaters was experiencing field service calls and warranty claims as a result of random ignition control failures. Although they had standardized on Fenwal Control's 35-62 Dual Direct Spark ignition control, they tested other brands in an attempt to solve this problem but the same field issues occurred.

REQUIREMENT

Radiant heaters are used to keep livestock or other critical items from freezing. Having reliable heaters is cost critical to avoid unnecessary warranty repairs and prevent damage to livestock or products.

RESOLUTION

The Fenwal Controls 35-62 control is mounted to a steel bracket attached to the gas valve. While a grounding wire was installed to this bracket, continuity to the electrode-flame sensor assembly was neither direct nor dependable and could be degraded by corrosion and humidity at the mechanical metal interfaces of the assembly after the unit had been installed for a period of time. With a bad ground, the ignition spark can feed back through the flame sense circuit, destroying components by electrical overstress. Fenwal Controls testing showed this issue could be eliminated with a simple change to the heater's wiring. Installation of a ground wire from the control to the electrode eliminated the problem completely.

CALL ON FENWAL CONTROLS

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ORIGINAL CONFIGURATION

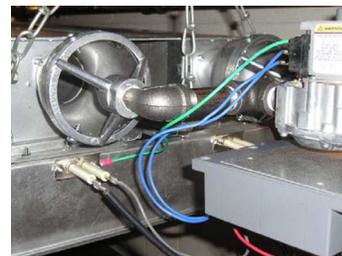


Control mounted and grounded to gas valve only



Electrode-flame sensor assembly grounded to the heater's housing only

SOLUTION



New ground wire connects electrode-flame sensor assembly to gas valve and control



Ground wire placed at critical position to eliminate spark noise and protect flame circuit