Operational Noise (Humming) in Electrical Distribution Equipment

Retain for future use.

INTRODUCTION

Some operational noise and/or humming in electrical equipment can be expected. If the noise is louder or otherwise different from one component to another, investigation is recommended.

TROUBLESHOOTING

If excessive noise is detected, inspect the equipment for the following:

- Loose bolts, current transformer mounting, doors, covers and similar parts can resonate with the normal 60-cycle hum and cause excessive noise/humming.
- Extra hardware laying in equipment channels and similar type areas can cause excessive noise/humming.
- Open current transformers or improper wiring can cause excessive noise/humming.

OPERATIONS

If the equipment inspection does not identify the cause, there are internal components inside the circuit breaker that can affect the noise generated while the circuit breaker is carrying current.

The tolerances of parts inside the circuit breaker can allow slight movements caused by the magnetic fields and other forces inside the circuit breaker. The movement of these parts can resonate at 60 Hertz causing various amounts of noise and humming.

Some circuit breakers or installations have higher levels of operational noise/humming due to the tolerances between parts.

During the last 10–15 years, Square D has investigated several instances of reported excessive noise/humming. In most of these instances, loose hardware, wiring, and current transformers have been found to be the cause. In the few instances that this was not the case, the circuit breakers were evaluated and found to have acceptable performance and service life.

CONCLUSION

No evidence has been found to indicate that operational noise/humming is detrimental to the performance or service life of the circuit breaker.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.