

# Cable Lore

## The Track Record

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by Power Cable Engineering and Research

**ANACONDA** 

Anaconda first began manufacturing insulated power cables in 1929, and since that time, our track record for predicting power cable longevity has been excellent. However, this record is not a result of quality manufacturing alone. Four key disciplines bear directly on cable life.

**Laboratory Testing** This function develops the best cable concept for a specific environment, and recommends the most resistant materials available for the application.

**Systems Design** This centers on choosing and sizing appropriate cables, providing necessary protective devices, and insuring that the circuitry provided is within cable design limits.

**Manufacturing** The responsibility here is obvious, and proper performance can be determined very quickly. Initial and short range test properties can be easily measured and compared with design or specification requirements. Substandard products can be quickly eliminated, and only statistically marginal amounts would elude detection with proper quality control procedures.

**Shipping and Installing** Once the cable passes quality control and is loaded for shipment, the manufacturer loses direct control over the product. The manufacturer must depend on the shipper and installer to follow industry-accepted handling and installation practices designed to prevent damage to cables.

Anaconda's strict production procedures, combined with appropriate laboratory testing and design applications, and proper shipping and installation practices, have resulted in a superior product. Right now, the odds are very favorable that the majority of Anaconda power cables produced since 1929 are still in service.

### Causes of Cable Failure

A survey conducted in 1976 revealed that the vast majority of cable failures resulted not from manufacturing errors, but from post-production conditions:

- More than 90 percent of the replaced cables were physically damaged before, during or after installation.
- For the remaining 8-10 percent, the attributable causes for failure included:

**Technical Incompatibility** - Cable may not have been the best available for the specific application.

**Emergency Conditions** - Cable exposed to emergency conditions which exceeded design limits of tolerance.

**Insulation Failure** - Extruded components failed to resist the application environment.

**Electrical System Peculiarities** - Aberrations in electrical system caused failure.

**Manufacturing Error** - Poorly manufactured product.

**Unknown Causes** - Cable failed for undetermined reasons.

Cables today are frequently exposed over a period of time to environmental or electrical conditions other than originally anticipated. Obviously, it's quite difficult to predict cable longevity in these instances, especially if the cables or the application environments are relatively new and don't have an established track record.

But purchasers of these cables still want and deserve the assurance of safe and reliable power transmission, and this is one reason why our new and improved methods of accelerated testing are so important.

**Steve Bunish**