Hood-Patterson & Dewar Electrical Engineering and Testing Fall

Testing Times

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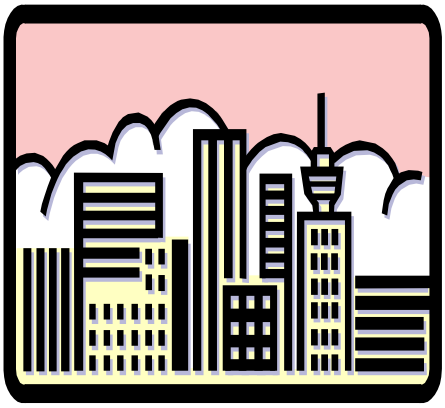
What and When to test?

After reading the last Testing Times issue entitled "It's working, why test?", you became convinced that you needed to perform preventive maintenance testing on electrical distribution system. Your next questions are "How do I know what to test?" and "How often do I test?". While these appear to be simple questions, the answers, unfortunately, are not easy. In this issue, we will give you some guidelines and references for determining the answers.

First, why do these questions not have simple answers? There are many reasons. For many facilities, their electrical equipment may

- be of different ages
- be in different environments
- have different duty cycles
- be from different manufacturers
- be different in criticality and required reliability
- have missing Operation and Maintenance manuals

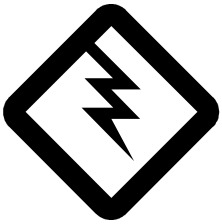
The first place to start in determining required maintenance is usually the Operation and Maintenance manuals from the equipment manufacturer. As mentioned above, often these manuals are missing or you have many different ones for each type of equipment and manufacturer. For a large facility, locating and assimilating these manuals can be an overwhelming task.



Because of the differences from one facility to the next (and even within a facility), there is no simple formula for applying maintenance testing

If you don't have access to these manuals (or even if you do), an excellent reference is NFPA 70B Recommended Practice for Electrical Equipment Maintenance 1998 Edition. This is a little known but highly valuable reference for maintenance testing. It covers in detail why to test, what to test, how to test and when to test. It is available from the NFPA at www.nfpa.org.

The next consideration is to determine the criticality of each piece of your equipment. According to NFPA 70B, "equipment (electrical or otherwise) is considered critical if its failure to operate normally and under complete control will cause a serious threat to people, property, or the product". In a perfect world, all equipment would be 100% reliable, but in reality since this is not possible, you must make decisions about where to spend your time and maintenance money. Determining the importance of each piece of



News you can use!

Contest

We have our third contest winner! In our last *Testing Times* issue, we continued a contest where you, our readers, give us questions or suggestions for topics you would like to see addressed in future

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Other important factors include determining the current condition of the equipment, the operating enviroment, and the load condition. The worse the current equipment condition, the more maintence required. The operating environment factors include air quality (dust, moisture, vapors, etc), ambient temperature, and humidity. Excesses is any of these conditions increases the maintenance needs and frequency.

The table at right provides industry accepted guidelines for maintenance testing. Please remember these ranges are general and need to be tailored to your site based on criteria discussed above.

Equipment	Frequency
Protective Relays	1 – 3 years
MV Breakers	1 – 3 years
Switchboards	6 months – 3 years
BP Switches	6 months – 2 years
480V Breakers	1 – 3 years
Ground Fault	1 – 3 years
Infrared Survey	1 – 2 years

The maintenance question has a complex answer, but with homework and guidance from your electrical testing firm, you can get the answer you need for your electrical maintenance requirements. ❖

(Contest, Continued from page 1)

issues. Our latest winner is Mr. Sham Pendharkar , P.E. at the Hartsfield Atlanta International Airport. He posed the topic we address in this issue "What do I test and when?" As promised, Mr. Pendharkar is receiving a $25.00 gift certificate.

Many readers have told us they use the *Testing Times* to help them educate their managers, customers, and clients about different electrical issues. The more input you give us, the better we can serve your needs. Send us a suggestion for a topic that you would like to see covered. You will need to be specific, i.e., pose a question or describe a situation that you would like addressed. Winners will receive a gift certificate for $25.00. See below for details on how to respond. ❖

Note from the Editor

Thanks to all who have responded to our newsletter topic contest. We will keep your questions on file and if we use your suggestion, we will send you a gift certificate for $25.00 and mention you in our newsletter. This contest is open-ended. If you have a topic suggestion, please fax this page with your topic to Lyn Cosby @ (404) 299-3534 or e-mail Lcosby@hoodpd.com.

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