IEEE Standards Interpretation for IEEE Std C37.60™-1981 IEEE Standard Requirements for Overhead, Pad Mounted, Dry Vault, and Submersible Automatic Circuit Reclosers and Fault Interrupters for AC Systems

8 January 2002

Interpretation Request #1
Topic: Fault Interrupter **Relevant Clause:** 6.3.4.3

An issue arose regarding the requirements, or lack thereof, for fault interrupters after standard operating duty tests. It is unclear whether 6.3.4.3 of IEEE Std C37.60-1981 should apply to fault interrupters. These post-test conditions are very basic to help ensure the integrity of the equipment after fault operating duty tests are performed. It is the technical opinion of the author of this interpretation request that 6.3.4.3 should apply. Clarification of this issue in future revisions of this standard would be beneficial.

Interpretation Response
1. The first, and perhaps most important point, is taken from the second paragraph of Clause 1 - SCOPE. It reads:

"In order to simplify this standard where possible, the term recloser has been substituted for automatic circuit recloser or fault interrupter or both."

The intent of this sentence was to simplify the text of the standard; the effect of the sentence is to make all of the requirements for both reclosers and fault interrupters apply wherever the term recloser is used unless expressly stated otherwise.

2. Subclause 6.3 covers interruption tests. Subclause 6.3.1 covers automatic operation and 6.3.2 covers non-automatic operation. These two terms, automatic and non-automatic, are not to be confused with reclosing and non-reclosing operation.Automatic refers to opening on a predetermined or preprogrammed time-current curve (TCC), while

non-automatic refers to a simple manual open using a manual handle or an operator initiated, shunt-trip device. Note that 6.3.1 (automatic) covers fault currents while 6.3.2 (non-automatic) covers load currents. There is no distinction between a recloser (performing reclosing duty) and a fault interrupter that does not perform reclosing duty. In these two subclauses, the general term recloser is used as noted in the SCOPE to cover both reclosers and fault interrupters.

3. Similarly, 6.3.3 refers to reclosers in the general sense when determining the rated interrupting current.

4. Subclause 6.3.4 outlines the operating duty tests in specific terms. It does not, however, limit the specifics to a reclosing device, implying that the term recloser is used in the general sense. Note that the title of the clause is Operating duty test period. It does not read: Operating duty test for reclosing operation. As such, it should be inferred that the requirements of 6.3.4 apply to both reclosers and fault interrupters. Note also that a reclosing device can be set to lock out after only one interruption, making it effectively a fault interrupter. Conversely, the definition of a Unit Operation includes the final interruption. For a fault interrupter, the first interruption is also the final interruption.

5. Subclause 6.3.5 does introduce the opportunity for differing interpretations that contradict item 4 above. Titled Operating duty test;non-reclosing fault interrupters, it's intent is to require that at least 1/3 of the operations use a CLOSE-OPEN duty with at least one operation achieving maximum offset. The reason for this subclause is to force a test to demonstrate the making current capability noted in 6.5. Otherwise, a fault interrupter could be qualified by performing OPEN interruptions only, and the making, or close and latch capability, would be untested. Subclause 6.3.5 supplements 6.3.4; it does not replace it in the case of the fault interrupter.

In conclusion, a fault interrupter must meet all of the requirements of IEEE Std C37.60-1981 within the capability inherent in the definition of the device. This includes the requirements of 6.3.4.3. The only difference between a (reclosing) recloser and a non-reclosing fault interrupter is that the fault interrupter is an inherent one-shot-to-lock-out device. In all other respects, a fault interrupter that conforms to IEEE C37.60-1981 is identical in performance to a (reclosing) recloser. A careful review of the standard will reveal that there are no significant distinctions between a (reclosing) recloser and a fault interrupter.