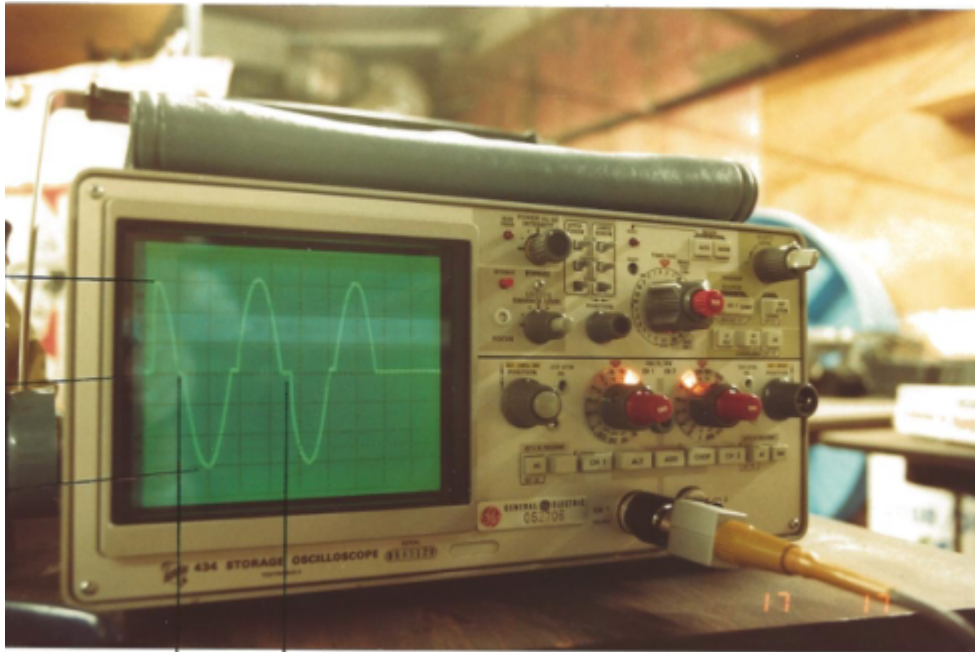


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SHORT CIRCUIT FIRE PROTECTOR: (Revised): This newsletter discussed my early research into means of preventing short circuit arcing fires, and my patent applications. U. S. Patent Numbers 4858054 and 5519046 were granted, but later I found better and cheaper ways for circuit breakers to be improved. Arcing Fault Circuit Interrupters (AFCI's) are circuit breakers which were invented circa 1997 and became code in 2002. In my opinion, as they are phased into new construction and installed in every circuit breaker, AFCI's will prevent roughly 20% of all fires in North America.

These theories and research are described in better detail on the video “AFCI Seminar” on my website. Click on “Convincing the Circuit Breaker Industry” on the home page. Pertinent publications may also be read on the CV on this website.



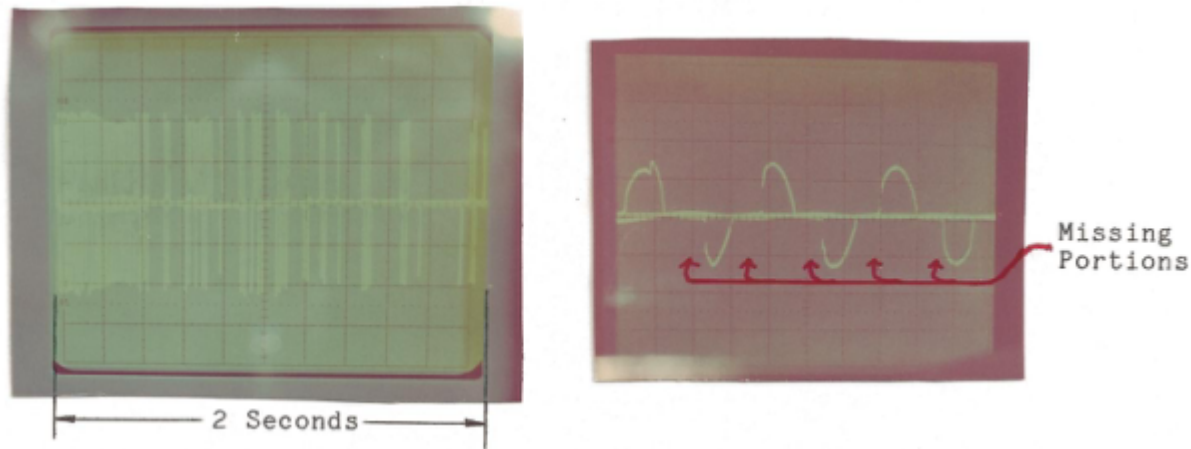
OSCILLOSCOPE USED TO MEASURE CURRENT WAVEFORMS.

The oscilloscope shows what a typical sine wave waveform looks like when there is no short circuit. The photographs on the next page show how arcing affects the sine wave. It is these changes which the computer chip in the AFCI recognizes and trips quickly to disconnect the circuit.

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The left photo above shows the very compressed sine wave and how whole portions of the sine wave are missing when an arc occurs. The right photo shows missing portions of individual sine waves, which also occur. A very sophisticated pattern recognition program in the AFCI's microprocessor constantly monitors the sine wave waveform to look for changes such as these.

This newsletter and these photographs were first published in 1985.

Sincerely,

Frederick F. Franklin, P.E.
Forensic Engineer