

## Secondary Capacitive Current Cancellation

### Application Overview

When **AC high voltage testing**, most loads appear **capacitive**, with capacitive current and little resistive current measured, unlike DC testing where the **resistance** of the load mostly determines the current draw. AC testing is normally performed on a pass/fail basis, commonly known as an AC Voltage Withstand test. The item holds the test voltage of fails, whereas a DC test is normally a diagnostic type test where the leakage current readings vs. the voltage applied are measured, recorded, and interpreted.

However, there are times when testing with AC voltage, it is desirable to measure only the **resistive leakage current** of the test object rather than the combined capacitive AC currents and the resistive leakage current. To do this under AC voltage conditions, the capacitive component of the combined current must be eliminated to read only the resistive current.

### Excerpts from Panel Control Description

#### Secondary Capacitive Current Cancel

The SECONDARY CAPACITIVE CURRENT CANCEL compensation potentiometer is used to cancel capacitive load currents, leaving only the resistive component of the signal. The line signal is sampled, and a phase-shifted signal is inverted and summed with the load current signal into an OP AMP input. The resulting output, when adjusted to minimum, represents the resistive current in the load. When in the OFF position the capacitive cancel has no effect on the load signal.

### Operating the Equipment

The potentiometer control can be adjusted for minimum capacitive current reading on the current meter. The resulting minimized reading represents only the resistive leakage current flowing in the load. This reading will not contain current flow through the load nor any current due to capacitive losses caused by the test setup. The use of this feature is not specified in any ANSI test, but for diagnostic purposes the number can be recorded and referenced for trending information.

