

EFFECTS OF NON-LINEAR BURDENS ON CCVT'S

Caution must be used when applying non-linear (or magnetic) burdens with CVT's. The effect of a non-linear burden on the CVT is to cause harmonics in the output voltage and current which, in turn, may cause variation in ratio and phase-angle errors, as well as increasing the voltage across the protective device. During momentary over-voltage conditions, the non-linear burden may cause gap flashover and thereby, interfere with the operation of the relaying system.

Most relays, synchrosopes, voltmeters, and other generally used instruments are essentially linear burdens up to twice normal voltage. Burdens with closed magnetic circuits, such as auxiliary potential transformers or isolation transformers, may not have linear characteristics over the entire voltage range. If such devices are used in the secondary circuits, these should be selected so that the iron core is operated at not more than one-half the flux density required to reach the knee of the magnetization curve. For example, it is desirable to use a 230:230 volt auxiliary potential transformer in the 115-volt circuit instead of one having a 115:115 volt rating. The same precaution should be taken for relay coils.