Product Data

RESTRICTED TO SQUARE D PERSONNEL

Subject: **VACUUM TYPE CIRCUIT BREAKERS — Solenarc® Switchgear — Competitive Cross Reference**

General Electric Type "V-B" breaker
Westinghouse "DVP"
Siemens/Allis Chalmers "FCV" 15 kV only
Gould (ITE) "HKV" 15 kV only

All of the above except General Electric replaced their air magnetic interrupters with vacuum bottles. Thus, their vacuum breakers will interchange with their air magnetic breakers. They all still produce air magnetic breakers. However, General Electric took this opportunity to redesign their metal-clad switchgear for the first time since 1928.

Some of the advantages of vacuum circuit interruption are:

a) High speed interruption
b) Quiet operation
c) Light weight
d) Reduced maintenance
e) Fewer operating parts
f) Longer contact life

The one highly discussed characteristic of vacuum interruption is the forcing of a premature current zero by chopping. This briefly causes a high transient recovery voltage which could exceed the BIL of the connected equipment.

General Electric "Power/Vac" lists three chief benefits to the metal-clad user.

1) Two-tier breaker stacking
2) Modular construction
3) Pre-engineered protection, instrumentation and control packages

A very limited space between the breaker front panel and the outer front door of the cell is used for relays and instruments which can be door mounted. If a larger quantity is required (particularly required by most utilities) the upper level of the cell cannot be used for a second breaker. However, for industrial applications this "2 high" capability certainly gives a big advantage to General Electric.

General Electric has finally given up on the proverbial tulip type (primary) main contacts. They now use self-aligning multiple copper fingers. They also use this new type on their secondary contacts.

Two current transformers per phase can be accomodated on both the line and load side of the breaker. These current transformers are accessible from the front only after the removal of the shutter barriers.

It is necessary to use a racking crank to move the breaker between the connected and disconnected positions.

All in all they have done quite a job. However, care should be used as their standards do not always comply with the customer needs.

J.T.

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