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1. INTRODUCTION

Voltage control systems are continually operative when in service. Any deviations in accuracy and control will directly effect the customers connected to the controlled power system. The SuperTAPP voltage control system has been designed with reliable voltage control circuitry with continuous separate monitoring of the resultant system voltage including the voltage transformer. Minimal checks can be carried out on the relay during operation to confirm correct operation.

Maintenance of equipment should only be carried out by skilled personnel trained in relay operation and capable of observing all the necessary safety precautions and regulations appropriate to this equipment and also the associated primary plant. Ensure that all test equipment and leads have been correctly maintained and are in good condition.

No specialist test equipment is required.

2. TESTS

As the tests can be best carried out with the transformers on load, care should be taken to ensure that no operation of the tap changers can take place when settings are changed. As settings will be changed for testing purposes, the operational levels should be noted prior to testing.

2.1. Basic Level Set-point

Use a good quality rms measuring voltmeter to measure the incoming voltage transformer level. Reduce the bandwidth control to $\pm 1\%$ and operate the BASIC control to confirm the upper and lower limits are correct.

2.2. Load Drop Compensation (LDC) Set-point

Determine the site load, the LDC control is calibrated for the full site loading (firm capacity). i.e. if a site is half loaded the LDC effect will be halved. Reduce the bandwidth control to $\pm 1\%$, turn the LDC control to zero and adjust the basic setting until the relay UPPER deadband limit is reached. Increase the LDC control until the LOWER band limit is reached. The effective LDC at this point is 2% and can be related to the LDC dial setting to confirm the correct effect. Allowance must be made if the current transformer used for LDC is not rated to the transformer capacity.

2.3. Coupling (circulating current)

With the normal settings applied to the relay the effect of the reactive circulating current correction effect can be checked by operating the transformers to differing tap positions while maintaining the normal power system voltage level, that is tap one unit up and the other down. The unit on the higher tap should tend to tap down, the unit on the lower tap should tend to tap up.

2.4. Timers

Action of the timers can be checked by simple operation of the basic set-point, the timing intervals can be checked to confirm timings.

2.5. Alarms

With the tap changer disabled relay can be to read low voltage and allowed to operate until the alarm indicates.

3. COMPLETION

On completion of tests all settings can be returned to normal.