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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. Voltage Voltage Monitor Levels (RTMU only)

Use a good quality rms measuring voltmeter to measure the incoming voltage transformer level. Move High monitor level control until High Indication, move High monitor level control until Low Indication. Check that the two settings are within 1/2% of the measured voltage

2.2. Difference (RTMU only)

The correct operation of the voltage difference detector can be confirmed by removal of the VT fuse which does not supply the RVM relay. In this case the voltage monitor will block any raise control signals.

- Set basic control to force Runaway Prevention RVM relay to raise voltage
- Confirm 'raise' control signals are blocked

2.3. Runaway Prevention

2.3.1. Checking for Normal Operation.

- Operate the tap changer in the raise direction and observe the normal correct operation of tap changer. Immediately the "in Progress" LED goes off, operate the tap change once more in the same direction and again observe correct operation.
- Repeat for the lower direction.

2.3.2. Checking for Lockout.

- Carry out a raise operation but this time simulate a potential runaway condition by permanently energising the "raise" or "lower" contacts or, alternatively, repeated operation

of the tap change control switch. The Runaway Prevention Unit should lock out soon after the first complete tap change operation, depending upon the tap change operating time.

- Repeat for the lower direction.

For very fast tap change mechanisms more than one tap change operation may occur before the lockout operates. In this case great care should be exercised if the test is carried out with the transformer on load.

2.4. Alarms

Operate a tap changer to lockout and check operation of alarm contacts after 15 minutes.

3. COMPLETION

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