

CHAPTER 8

GENERATOR PROTECTION PANEL

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1 GENERAL

The Generator Protection Cabinet contains the monitoring systems and relays to detect faults in the generator systems and/or operating conditions across the Generator Circuit-breaker. Detection of a fault by these monitoring systems will, where appropriate, result in:-

- » Tripping of the Generator Circuit-breaker where closed
- » Inhibiting the closure of the Generator Circuit-breaker
- » Instigate a shut-down of the Turbine/Generator Unit

The front panel of this cabinet does not contain any facilities for the Operator. Mounted within the cabinet are the protection modules which will not normally require access after the initial pre-start checks have been carried out.

Test and adjustment facilities are provided for the maintenance personnel and reference should be made to the sub-suppliers documentation inserted in Part 7 of the technical manual for full details of the facilities available.

2 FACILITIES WITHIN THE CABINET

The following facilities are mounted on an inner panel that is accessible by unlatching and swinging out the front panel of the cabinet.

DC/DC CONVERTER

This module, in the top left-hand corner of the inner panel, has a two-pole miniature circuit-breaker type fuse mounted in the front face. The fuse rating is 6 Ampere.

RESET SWITCH

This push-button switch is mounted to the left of the four test modules and is used to reset the systems after carrying-out test procedures or the generation of an alarm.

TEST MODULES

These four Test Modules each have three indicators that will illuminate according to the respective status of the protection relays monitored by that module.

- » Normal This green indicator illuminates when all monitored protection relays are functioning normally.
- » Trip This amber indicator illuminates when a fault alarm has been generated by one or more of the monitored protection relays.
- » Test This red indicator illuminates when the respective key operated switch has been set to the test position.

Mounted in the panel below each test module is a key operated switch. These switches enable the respective module to be switched to the test mode for testing of the protection circuits.

Numbering the test modules from 1 to 4 starting from the left-hand side the modules monitor the following Protection Relays:

Module 1

Generator Differential Relay
Over Voltage Relay
Rotor Earth Fault Relay
Diode Failure Relay
Transformer Buchholz
Excitation Fault
Stator Earth Fault Relay

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Module 2

Minimum reactance Relay
Undervoltage/Overcurrent Relay
Transformer Differential Relay

Module 3

Undervoltage Relay
Negative Phase Sequence Relay (Range II)

Module 4

Common Alarms
External Overcurrent
Reverse Power
Negative Phase Sequence (Range I)