

SERVICE GENERATOR NO. 1 SECTION NO. 1

Schematic S101 Sh. 1

- ICT1; ICT2 - current transformers 1500A/5A used for metering on sheet 2.
- ICB1 - air circuit breaker, motor operated on stored energy principle. In case of motor failure manual operation possible (see breaker manual).
- Recommended settings:
- | | | |
|---------------------------|---|--------------|
| thermal trip (a-element) | - | 1200A |
| short delay (z-element) | - | 9600A, 500ms |
| instantaneous (n-element) | - | 16800A |
- 1PT1; 1PT2 - potential transformers 600V/150V used for metering on sheet 2.
- ICPT1 - control transformer 460V/120V used for breaker operation.
- 1F8; 1F9 - supplies generator voltage to synchronisation section S105-69.

Schematic S101-SH2

Generator metering:

- 1P1 - ammeter scale 0-1500A red line 1180A
- 1SS1 - ammeter selector switch
- 1P2 - voltmeter scale 0-600V red line 460V
- 1SS2 - voltmeter selector switch
- 1P3 - frequency meter scale 55-65 Hz red line 60 Hz
- 1P4 - kW meter scale 200-0-1000 kW red line 750 kW
- 1P5 - power factor meter scale 0.5-1-0.5
- 1P6 - overcurrent relay set at 1200A. When current reaches 1200A then relay 1P6 trips preferential trip breaker 9CB1), but only in case of this overload lasting at least 6 seconds.

- 1P7 - reverse power relay set at 150A/10 sec.
trips gen breaker on reverse power
- 1P8 - winding temperature indicator
- 1SS3 - selector switch for 1P8 with test position

Schematic S101-Sh. 3

- Line 32-33 - control transformer 1CPT3 supplies voltage circuit of generator breaker. 1P10 stores voltage for undervoltage circuit for 1 sec., so that in case of short voltage dip we have no nuisance tripping.
- 1PB1 - locally trips breaker
- 1R4 - trips breaker on reverse power condition
- DG - trips breaker 30 seconds after completion of synchronisation with shore supply
- SG1 - this contact is open only when synchronisation selector switch 5SS1 is in gen 1 position permitting remote tripping of the breaker
- SO - tripping contact from synch section
- Line 34-35
- 1CB1 - contact 3-4 is closed as long as breaker spring is not charged. It energizes contactor 1C2 which drives charging motor mechanism.
- 1CB1 - contact 8-9 closes when spring is charged giving indication on relay 1R7 and permitting operation of closing solenoid (1CB1 (5-6)) via contact 1R1 (13-14).
- Line 36-37 - relay 1R8 indicates that power from gen is available.
Relay 1R1 operates closing solenoid
Local operation is possible via button 1PB2 but only on condition that main bus is dead (5R1 and 5R2 remain closed).
Remote operation is possible from synchronisation section when SG1 is closed (5SS1 is in position gen 1) and contact SC is closed (synchronisation conditions are met).

Schematic S101-Sh. 4

- Line 42-43 - generator heater is operated if selector switch 1SS11 is in auto-position and contacts 1C2, 1R7 are closed (only when gen power is not available). Heater operation is indicated by 1SL11 pilot light.
- Line 45-46 - 1SL2 and 1SL3 pilot lights indicate status of breaker open and closed respectively. 1SL1 is remote indication from diesel panel showing status of generator.

Schematic S101, Sh. 5

- Line 52 -
- 1RR1 - generator's fine adjustment for automatic voltage regulation. Note that this potentiometer shall not be used during synchronization.
- Line 54 -
- 1SS12 - governor motor controller. Note that this is a master controller and can override automatic synch equipment.
- Line 57 -
- 1R4 - reverse power relay. On reverse power, relay 1P7 closes and 1R8 (power available) closes, this operates 1R4 which seals itself in, giving steady indication via 1SL4 and tripping generator breaker (see Sh 3/32). Circuit can be manually reset with 1PB3.