

**Since 1980, Zeefax has built an enviable reputation on its ability to provide excellent and reliable electrical and mechanical engineering services and solutions to the Drilling industry.**

### SCR System Health Check

**The Zeefax SCR System Health Check avoids down time and ensures rig systems remain operational and reliable.**

The time to find out if your system is reliable is when operations are quiet – not during critical well operations. The Zeefax SCR System Health Check is designed to identify potential weaknesses and either repair or replace immediately, or mitigate against these until a repair or replacement can be effected.

Zeefax will propose a scope of work to be completed in an agreed timescale. The programme will be designed so that the work can be suspended at any time to allow operations to resume until an opportunity arises to complete, which means disruption is absolutely minimised.



### Special Requirements

Zeefax understands that each rig has different circumstances and different requirements. Our engineers are able to tailor a maintenance schedule to suit any installation or operational constraints. Where special equipment is required, such as secondary injection test equipment for testing circuit breakers, Zeefax will arrange to have the equipment on site, and our technician will be competent in its use.

### Expert SCR Bridge Health Check

For reliable operation the contact between the SCR devices and the heatsinks must be as good as possible but over time, and especially in offshore installations, corrosion may attack the interface between the SCR device plating and the aluminium heatsink. If corrosion is present it takes an expert to decide if refurbishment is required because as long as the damage is minimal and the two elements remain undisturbed the mutual corrosion may still maintain a good contact.



As part of the health check our engineer will do a sample inspection of the heatsinks and recommend a course of action based on experience and knowledge.

### Timescale

The time to complete depends on the availability of equipment and amount of disruption to the programme, but as a general rule the time to complete a health check can be estimated as follows: allow one half day for each Generator and SCR section plus one half day per assignment. For example a 4 SCR, 4 Generator system with 2 Mud Pumps, DWA, DWB and Rotary Table = 2 + 2 + 2.5 = 6.5 days.

## Typical Scope of Work

A comprehensive health check would include the following:

### ▪ Generator Sections

- General clean and check tightness of terminations
- Circuit breaker – secondary injection (optional), settings, contact wear
- Governor control – running milliamps, actuator adjustment, regulation and control
- Check pulse pick-up waveform and clean and adjust as required
- Exciter control – exciter current waveform, voltage regulation and control
- Load sharing – KVAR and KW load sharing between engines and generators
- Check AC module protections: UV, loss of pulses, reverse power
- Check operation of synchroscope, synch check relay, dead bus override, lamps and meters

### ▪ SCR Sections

- General clean and check tightness of terminations
- Circuit breaker – secondary injection (optional), settings, contact wear
- Contactors check tips for signs of burning or arcing
- Check blowers run freely and without vibration and delivers expected airflow
- Clean and/or replace filters
- Check bridge ferrites or reactors and snubber circuits for damage or scorching
- Sample SCR heatsinks to check for pitting or corrosion (may require further deferred action)
- Ensure SCR firing is correct and check firing pulse waveforms
- Check current waveform for signs of faulty SCRs
- Confirm DC Module current limits and check calibration of SCR ammeter and voltmeter
- Check fuse microswitch and bridge overtemperature trips and logic indicator display
- Check operation of Sprocket Slip protection (series motor systems)
- Ensure SCR assignments operate correctly and contactors operate freely
- Check signal levels arriving at the DC Module are adequate and there is no significant voltage drop from the Drillers Console

### ▪ Auxiliary Circuits

- Verify operation of Power Limit circuit and calibrate
- Check Ground Fault detector circuit and calibrate
- Check Surge Suppression unit is in circuit and functioning
- Check HOS battery charger circuit is operating at the correct voltage and calibrate.
- Ensure HOS batteries are healthy
- Ensure DC motor blowers and auxiliary starter operate correctly and interlocks and alarms all function as expected

### ▪ Field Supplies

- Check diodes and transformers for signs of damage or scorching
- Check field supply waveform is correct with no missing pulses
- Confirm and adjust field current as required
- Check operation of field loss relay
- Confirm operation and adjust Mud Pump load sharing

### ▪ Drillers Console and Foot Throttle

- General clean and check tightness of terminations
- Check all potentiometers for signs of damage or wear and smooth operation.
- Check the Drillers Console PCB and components for signs of damage or scorching
- Adjust and verify the operation of hand throttle microswitches
- Calibrate the RT Torque (current) meter and power limit indicator
- Check the operation of all lamps and replace blown bulbs
- Check the operation of all pushbuttons and switches
- Verify purging system and alarm
- Check the Foot Throttle for correct operation and adjust as required

**CONTACT US TODAY TO DISCUSS YOUR REQUIREMENTS**

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