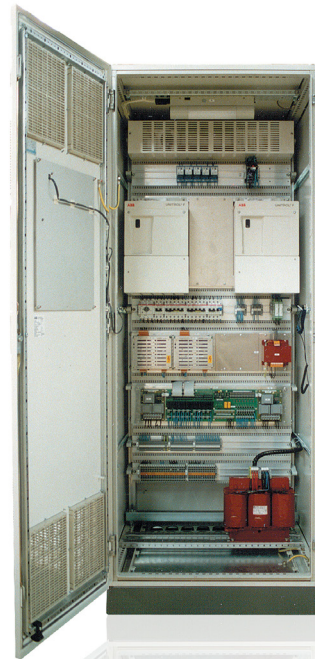# UNITROL® F Performance Review
Maximizing your operating time

UNITROL F is in the limited phase of its life cycle. ABB's UNITROL Performance Review assesses the condition of all excitation system key components and ensures a further reliable and safe operation of your equipment.

UNITROL F excitation system

Key elements of the Performance Review

Performance improvement
The Performance Review includes preventive maintenance on all elements of an excitation system that might suffer from ageing effects. In addition, ABB assess a future spare parts strategy to increase the reliability of a system.

Operational efficiency
ABB tests all critical protection devices and system settings under various operating conditions to ensure correct and safe operation.

Lifecycle management
Based on the test results, ABB provides proposals for upgrades- and modernization solutions for hardware and software in order to extend the lifetime of your system.

The Performance Review helps minimize the failure rate of components, thereby avoiding loss of production. The review is based on ABB's vast experience that has been captured within the Product Life Cycle Management model for the entire UNITROL product family. As such, ABB evaluates the status of the life cycle of your asset to provide an optimized operation strategy.

Benefits
– Increased reliability
– Minimized risk of unexpected downtime
– Ensured correct and safe operation
– Lifetime extension of your equipment

Performance Review scope of supply

A standard UNITROL F Performance Review and an estimation of time includes:
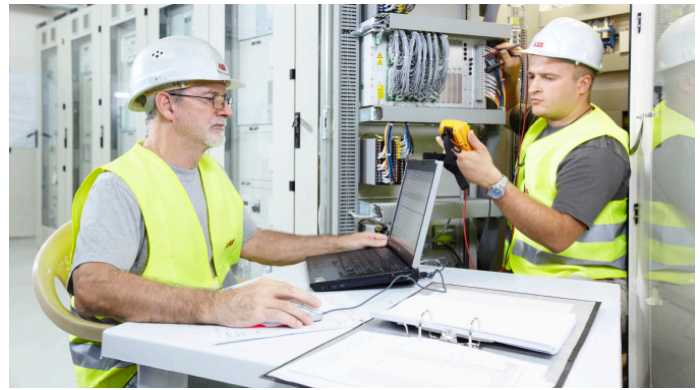
Tests with running machine (full load) before shut down (approx. 4 h*)

1. Check actual values (voltage regulator/Ug/Ig/If/Uf)
2. Check follow-up control
3. Excitation transformer (check for abnormal noise)
4. Converter (current sharing)
5. Check of shunt supply (converter supply)
6. Check of light and signal lamps

Tests with standing machine (approx. 2,5 days*)

1. Cleaning of all cubicles
2. Isolation test of AC- and DC-circuit (Megger-test)
3. Visual check of all components (boards, relays, MCBs, converters, heat sinks, etc.) for corrosion, damages and overheating
4. Check control relays for operation and contact resistance (replace if needed)
5. Visual check of terminals
6. Mechanical check/cleaning of field breaker and field flashing breaker
7. Check external auxiliary supplies AC and DC
8. Functional check of control
   – Control of field breaker, field flashing contactor, etc.
   – Control from local panel
   – Interface digital I/O signals
   – Fieldbus (if available)
   – Programming of transducers
   – Interface analog I/O signals
   – Protection and trip circuits
9. Check spare parts (if available)
10. Check of cooling fans
    – Clearance, noise level
    – Compare slow-down time
    – Change of cooling fans when needed
11. Measuring of field resistance
12. Characteristic $Ue = f(Uc)$ (optional)
13. Transformer temperature monitoring
14. Ground fault relay UNS3020 or Bender (if available)
15. Other protection relays (if available)

Tests with machine and excitation in operation (approx. 1 day*)

1. Machine no-load
   – Field flashing and excitation start
   – De-excitation
   – Set point range
   – Reference value step
   – Follow-up control
   – Change over between channel 1 and 2 and between auto and manual mode
   – Ground fault relay (if available)
2. Pro memoria: synchronization
3. Machine on-load
   – Field current limiter
   – P/Q limiter
   – Stator current limiter (over-excited and under-excited)
   – Follow-up control
   – Channel changeover
   – Imposed regulator (Cosp or Q-regulator if implemented)
   – Ground fault relay (if available)
   – Diverse measuring and project specific functions

*Time estimation varies depending on size/complexity of the system and on availability of machine and surrounding systems. It can be reduced if service is provided on more than one system.

For more information please contact:

ABB Switzerland Ltd.
Austrasse
5300 Turgi/Switzerland
Tel: +41 (0)58 589 34 34
E-mail: unitrol.supportline@ch.abb.com

www.abb.com/powerelectronics