A new level of performance

Retrofit means upgrading an existing system with modern components, in order to optimize technical, safety, economical, reliability, and maintenance factors. The ABB retrofit solution covers a migration of components which have been subject to the most wear during the breaker’s years in operation. One of the core circuit breaker components is an operating mechanism. Consequently, a retrofit solution is a cost effective method to upgrade and extend the life of the breaker. The result is a major improvement in reliability, safety, maintenance reduction, and performance - an outstanding way to maximize asset value.

Retrofit benefits

Reliability
- Significant life cycle extension
- Lower maintenance requirements
- Long term availability of spare parts
- Short lead time of spare parts

Technology
- Latest mechanism generation
- Upgrading of technical ratings to current standards
- Type-tested to latest standards

Project Execution
- Short replacement time minimizes outage schedule
- Shorter lead time than new breaker replacement
- Smooth project execution by ABB

Investment
- Fixed capital investment
- Reduction of future maintenance costs
- Warranty for retrofit components

Design and performance
The performance of the circuit breaker will be remarkably increased by migration of the existing mechanism to the latest design. The development, engineering, and production of this retrofit kit is based on the long experience of ABB in the field SF₆ gas circuit breakers. The HMB 8.11 retrofit will extend the life cycle of the highly durable and reliable PA style breaker. The HMB is a virtually maintenance free hydraulic spring operating mechanism.

Application

HMB 8.11 for ABB high voltage SF₆ circuit breakers, type PA 121 - 242 kV 50 - 63 kA manufactured after 1988

HMB 8.11 replaces HKA-12, AHMA-8, or AHMA-11 mechanisms

Main retrofit features
- New HMB 8.11 mechanism
- Quick installation time
- 100% compatible retrofit kit includes:
  - Same breaker mounting location
  - Universal AC/DC pump motor
  - Wiring diagram
  - Mechanism name plate
  - Mechanism wiring harness
  - Counter to count the close operations
  - HMB 8 coupling piece
  - Two HMB-8 instruction books
  - Additional circuit change components
  - Core rebate on reusable AHMA core
  - Credit on reusable HKA pressure switch.
  - One year warranty from date of shipment
Optional features
- Pilot valve with removable coils
- Transformer to boost 208 VAC motor to 240 VAC
- Open operations counter
- Additional circuit with additional components
- MP plugs

Upgrade Advantages of HMB over AHMA & HKA
- AHMA and HKA no longer in production
- Extends circuit breaker life cycle
- Improves circuit breaker reliability
- Abundance of reliable energy
- Sealing system improved
- Maintenance friendly modular design
- Improved motor gear design
- Oil free exchange of coils
- Improved pump element inlet sieve
- Auxiliary switches located on mechanism
- No special tools required for routine maintenance
- No lubricating maintenance required
- Operations counter to count the close operations
- Adjustable speed
- Internal hydraulic damping
- Long term availability of spare parts

Additional ABB services to support mechanism retrofit and breaker upgrade
- Expert Field Service to perform retrofit
- Replacement of all circuit breaker seals & desiccant
- SF₆ gas testing and decomposition analysis
- Replacement or rebuild interrupters on-site or at Service facility
- Strategic & critical spare parts for the entire breaker or fleet
- Fleet or system assessment
- Other (reliability & life extension) options available upon request

Virtually maintenance free - Best practices for extending HMB mechanism operating life

<table>
<thead>
<tr>
<th>Item to Check</th>
<th>Frequency</th>
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<tbody>
<tr>
<td></td>
<td>Yearly</td>
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<tr>
<td>Oil Level</td>
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<tr>
<td>Oil Condition</td>
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<tr>
<td>Carbon Brushes</td>
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<tr>
<td>Motor Commutator</td>
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<tr>
<td>Anti-Condensation Heater</td>
<td>Check</td>
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<tr>
<td>Wiring</td>
<td>---</td>
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<tr>
<td>Terminals</td>
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<tr>
<td>Start Counter</td>
<td>Check</td>
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<tr>
<td>Hardware Tightness</td>
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Upgrade Part Numbers

<table>
<thead>
<tr>
<th>Mechanism Type</th>
<th>Trade-In</th>
<th>New</th>
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<tbody>
<tr>
<td>HMB-8.11</td>
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<tr>
<td>HKA</td>
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Stored Energy Level HMB 8.11
O.C.O. 15 sec. C.O.

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