WITH VACUUM CIRCUIT BREAKER RETROFIT YOU CAN:

MINIMISE COSTS
REDUCE MAINTENANCE COSTS
• Parts for older oil circuit breakers are now unavailable.
• LMVP vacuum circuit breakers require less maintenance over extended periods of operation.
• There is no oil or gas to handle.
• Large number of fault operations before replacement of vacuum interrupter is necessary.
• If required, the quick change of the vacuum interrupter saves on maintenance costs.

REDUCE INSURANCE RISK
Insurance companies are increasing premiums for clients with oil filled equipment.

LIMIT SWITCHING ERRORS
Retain operator knowledge and limit switching errors by maintaining the same make of switchgear.

MINIMISE SUPPLY DISRUPTION
Retrofit takes much less time than a total switchgear replacement, which minimises supply disruption and ensures minimum revenue loss to supply companies and end-users.

IMPROVE TECHNICAL QUALITY

RETROFIT OIL & SF6 WITH VACUUM
The well proven RPS Switchgear LMVP vacuum circuit breaker is designed to be interchangeable with oil & SF6 circuit breakers.

ENVIRONMENTALLY FRIENDLY
No oil or gas disposal required.

PROVEN MECHANISM
Our RPM type LMVP retrofit circuit breaker utilises our proven design, motor-charged spring operated, mechanism.

EASY PANEL UPGRADE
Existing LMT panels can be easily upgraded with only minor modifications. Retrofitting maximises the use of current installations, with minimised equipment redundancy. Protection and control equipment can be upgraded simultaneously.

IMPROVED RATINGS
Take advantage of higher ratings without having to change the complete switchgear.

IMPROVED CAPACITOR/MOTOR SWITCHING
Vacuum interrupter technology provides improved capacitor and motor switching performance.

SCADA COMPATIBLE
Many control systems are being upgraded. LMT is suitable for remote control and monitoring of switching circuits.

PROMPT DELIVERY
Production is totally in-house at RPS Switchgear, allowing quick response to customer needs.

RPS SWITCHGEAR VACUUM CIRCUIT BREAKER RETROFIT

RPS Switchgear offers a retrofitting service to upgrade your “LM” type panels with the latest fully interchangeable LMVP vacuum circuit breaker. Retrofitting with RPS Switchgear has many advantages over replacing an existing LM switchboard:

COST
Financial savings favour switchboard life extension versus replacement.

AUTOMATION
Upgrade to provide remote control and monitoring or high speed auto-reclose.

HEALTH, SAFETY & ENVIRONMENTAL
Elimination of oil or SF6.

DISRUPTION
Minimal disruption of supply.

PERFORMANCE
Improved performance and reliability.

RATINGS
Both current and fault level rating can be increased.

RPS Switchgear provides a quality, cost effective alternative to increase the life of your existing switchgear with very little or no disruption of supply while the work is being carried out.
VACUUM CIRCUIT BREAKER RETROFIT OPTIONS

DIRECT VCB EXCHANGE
(using existing Secondary Isolating Contacts)

STEP 1
Remove existing Oil Circuit Breaker

STEP 2
Replace with new LMVP Circuit Breaker

OPTIONAL SECONDARY ISOLATING CONTACT TO PLUG AND SOCKET CONVERSION

PLUG AND SOCKET BENEFITS

- Allows circuit breaker operation outside the panel
- Eliminates SIC alignment issues
- Better reliability
- Eliminates / reduces the need for contact maintenance

LM TYPE PRODUCTS

For over 45 years there has been various types of Reyrolle 12kV LM Switchgear products manufactured in several different locations around the world.

Essentially, two generic panel (enclosure) types were manufactured and fitted with an oil, vacuum or SF6 circuit breaker.

Typically, the circuit breaker denotes the overall equipment type:

- **Panel Types**: LMT, LMT2
- **Circuit Breaker Types**: LMT, LMT2, LM, LMVP, LMR and LSR

RPS Switchgear has a retrofit and spares solution for all these products.

However, advice from RPS Switchgear should always be sought to consider the implications of the different panels, circuit breakers and manufacturing variables. In some instances, other components may need to be replaced.

RPS SWITCHGEAR LIMITED

Manufactures and supplies a range of medium voltage electrical distribution and circuit breaker switchgear. The family includes motor starters, switch disconnectors and combination switch fuse units.

RPS Switchgear, manufactured in Petone, New Zealand, is tested for full compliance with relevant British, Australian and IEC Standards. The switchgear is marketed in Australia, New Zealand, Europe, Africa, South East Asia, Hong Kong and China through local offices, agents and licensees.

In addition, RPS Switchgear, as the distribution specialist, complements its manufacturing operations with a complete range of customer services including product development, design, installation and maintenance servicing, throughout the Asia-Pacific region.

QUALITY: Over 45 years of ongoing product development experience.

RELIABILITY: RPS Switchgear equipment has an in service life of over 20 years. The ease of maintenance of this equipment is highly valued by operators around the world.

FLEXIBILITY: Simple modular robust construction.

SAFETY: Proven current carrying and vacuum interrupter technology provides peace of mind for operator safety.
ARC DOOR

Existing switchboards have no internal arc withstand, human presence in front of the live switchboard is unavoidable.

Safety for operators, staff and visitors in front of the existing switchboard is achievable, and racking through a closed arc-proof door is essential.

Benefits of retrofitting an arc proof door:
- Provides safety for staff
- Includes racking through closed door
- Quick installation
- Can be fitted to LMT1 and LMT2
- Strengthens the front of the switchboard
- Allows the breaker to be in Busbar earth position with the door closed
- Tested to IEC62271-200 for 25ka for 1s

END BLAST SHEETS

Blast sheets can also be added for added safety.
- End blasts sheets will provide operators with safety from internal arc flash incidents from the sides of the switchboard

REMOTE OPERATION

Remote switching permits operation of the circuit breaker away from the substation at a safe distance. Direct operation of the switchgear is one of the most frequent exercises that exposes an operator to risk.

Circuit breakers can be opened and closed from a remote location, removing the operator outside the area of risk.

Remote switching provides a safer operating environment for personnel through the proven method of adding distance between the operator and the risk at the switchgear site.

Two options are available:

OPTION 1 – Remote Control Panel
- Dedicated control for each panel.
- One set of trip and close operations with key to determine panel.

OPTION 2 – Remote Control Pendant
- Lead length: 10m, 15m or request.
- Plugs into panel to be operated.
RAPID ARC FLASH DETECTION

Rapid arc flash detection and protection offer very fast and reliable interruption of an arc fault by tripping the upstream supply of energy to the faulted compartment.

With a well-designed rapid arc flash system in place, an arc fault event can be interrupted in as little as 40-50ms compared to a full second without.

BENEFITS:
- Protects the switchgear
- Enhanced operator protection and safety
- Scalable, further arc sensors can be added in stages
- Minimises the amount of energy released

CURRENT TRANSFORMER

Replace the existing cast resin Current Transformer with slip-over type:
- Includes new Current Transformer orifice bushings and Current Transformer bushings
- Improved future protection flexibility
- Live line indication and phasing available
- Slip-over Current Transformer retrofit kit for LMT
- Assembled, jigged and poured in the factory
- Available in tre-foil or standard to suit both 400A/800A and 1200A panels
- Cable ends of Current Transformer bushings will match existing cable terminations

CONTROL CUBICLE

Option for replacement of the instrument cubicle, supplied pre-fitted, wired and tested to minimise site work and time as well as:
- New cubicle will reduce drilling and cutting on site
- Standardise switchboard arrangement
- Easy option to achieve control, metering and protection to latest standard
- Prewired control cubicle dramatically reduces time onsite
VOLTAGE TRANSFORMER

RPS manufacture & supply a direct replacement truck (A) for the existing Reyrolle LMT Voltage Transformer’s and the fixed portion (B):

- Isolating and engaging the Voltage Transformer through the instrument cubicle is available for the new Voltage Transformer arrangement.

CABLE BOX

Convert existing cast iron pitch-filled box to air termination cable box.

SUMMARY OF SOLUTIONS

SAFETY RETROFITS,

A  Arc door retrofit including deflector plate
B  End blast sheet

UPGRADES & LIFE EXTENSION,

C  Current transformer replacement
D  Cable box retrofit
E  Replacement of Voltage Transformer’s
F  Control cubicle upgrade
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