

LION: Modernisation of the Re 420 locomotive.

SBB Passenger Division Operating –
your partner for refit operations.



SBB Passenger Division Operating. Modernised locomotives for the Zurich S-Bahn.

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As part of the modernisation of the Zurich S-Bahn (the “LION” project), 30 Re 420 locomotives are getting a refit. In order for first generation S-Bahn trains (double-deck multiple units) to meet the needs of disabled passengers, SBB are replacing the intermediate cars currently in use with new low-floor double-deck coaches. After the older 2nd class intermediate cars have been modernised, they will run during peak hours in combination with two similarly upgraded Re 420 locomotives.

For rush hour on the Zurich S-Bahn, SBB require trains with maximum transport capacity. The refit of first generation double-deck multiple units will see the 2nd class intermediate cars currently in use being replaced with new, low-floor ones. Between 2011 and 2015, SBB will obtain 13 trains to be used during peak hours, each consisting of two Re 420 all-purpose locomotives and 6 to 10 double-deck coaches. To this end, the Re 420 locomotives, which are around 40 years old, are in urgent need of a major overhaul and extensive changes.

Our solution.

Overhauling the old instead of purchasing new. Even after it has been modernised, the Re 420 will remain an all-purpose locomotive. In particular, it may be deployed in push-pull trains with multiple-unit control or in multiple traction with classic locomotives. Overhauling a standard locomotive from existing Swiss-approved series production allows vehicles to be used for an extra 20 years at less than a third of the current cost price for a new series locomotive. The work is undertaken at the Bellinzona depot, at the same time as the next major overhaul.

How you benefit.

Our broad experience in heavy maintenance, along with a continuous improvement process, enables us to optimise our services in terms of costs and turnaround times. Thanks to our expertise in refitting projects, we can extend the life of your vehicles.

Why choose Operating as a partner?

- In-depth expertise in the planning and management of refit projects
- Professional staff with extensive experience in the upgrading and modernisation of rolling stock
- ISO 9001 quality management system certification
- ISO 14001 environmental management system certification
- OHSAS 18001 occupational health and safety management system certification
- ISO 31000 and ONR 49001 risk management system certification
- ISO 3834-2/EN 15085-2 welding certification
- EN 473/ISO 9712 non-destructive testing certification
- Regular internal audits carried out by our specialised Risk, Quality and Safety unit
- Regular external audits carried out by the Swiss Association for Quality and Management Systems (SQS) and the Federal Office of Transport (FOT)



Refit Tm IV. Our full service portfolio at a glance.

Overhaul, value maintenance and retrofitting.

- Restructuring the Re 420 and maintaining its value in order to safeguard operations over the next 20 years
- New multiple unit control type Vst 6c for peak-time double-deck trains
- Integration of all systems for emergency braking (tunnel safety)
- Integrating a customer information system and video surveillance, including implementing interfaces with the operating terminal in the Re 420
- Overhaul of the main components and systems
- Replacing all electrical cabling so that high-voltage and control currents may be used
- Replacing the speed measuring system with integrated safety systems and trip data recording
- Retrofitting the compressor unit with an air dryer and an automatic water and oil separator
- Electropneumatic brakes to control the intermediate coaches and locomotives
- Increasing the comfort (electric windscreen wiper motors, driver's seat with air suspension, armrests and headrests, improved acoustic insulation in the cabs, new guide for improved condition of the side windows)
- Improving operating safety by retrofitting a rear-view mirror on the driver's side
- Equipping cabs with display and operating consoles (in part)
- Replacing the front lighting with modern LED lighting
- Fitting an operating terminal for the customer information system
- Repainting with a new design
- Providing all control functions for double-deck coaches, in particular brake control, door control, emergency brake request, and monitoring and fault indicators for technical systems
- Handbrake monitoring system with a mobiliser
- New wide, trapezoidal buffers with Nylatron plate on one side
- New pantographs with breakage and impact protection
- New efficient battery charger



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