



Swiss railway company chooses Eaton power units for high-speed train upgrade

Location:

Berne, Switzerland

Segment:

Railroad

Challenge:

Provide a replacement hydraulic system solution that is the same package size as 15-year-old circuitry.

Solution:

Eaton® hydraulic power units.

Results:

Train downtime due to hydraulic system failures and their associated maintenance requirements has been eliminated.

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Eaton's capability to design a total hydraulic system solution around an outdated, competitive framework and deliver it within four months was instrumental in SBB's selection of Eaton products.

Background

Switzerland's national railway company, SBB CFF FFS, is getting people where they need to be on time, thanks to Eaton components.

SBB's high-speed tilting train is bulleting between cities at speeds over 150 mph with the aid of nine muscular hydraulic power units supplied by Eaton in Pessano, Italy. The power units, which contain Vickers® PVM piston pumps, slip-in cartridge valves, screw-in cartridge valves, servo valves and Eaton filtration products, control the train's rotation functions.

The high-speed train, however, hasn't always been highly reliable for the Berne, Switzerland-based railway company.

Challenge

When underpowered and unreliable hydraulic system circuitry began to cause train shutdowns, SBB knew it was time to upgrade the 15-year-old competitive products. With no time to waste, the company contacted Eaton—the current hydraulics supplier for the train manufacturer—and other hydraulic component manufacturers for hydraulic system bids.

Eaton Application & Commercial Engineering (ACE) personnel learned that the replacement hydraulic system needed to be the same package size as the previous system, a tall order indeed.

"We traditionally work with train manufacturers to adapt our proven power unit architecture to the space, interfaces and performance



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needs of each specific train," said Eaton's Alessandro Piccolini, industrial application manager.

"In this case, we needed to develop a highly reliable solution entirely around an outdated, competitive framework and deliver it within a short timeframe."

Solution

With parameters in hand, ACE members designed a "dummy" power unit prototype to verify connection

positions. Their next step was to build in the same hydraulic circuitry as systems currently supplied to the train OEM.

"We used the same pump and valves, but in a totally re-engineered layout with newly positioned hydraulic and electric connections so that it was 100 percent interchangeable with the previous power unit," Piccolini said.

The system's performance during fit and functionality

testing and the fact that Eaton could deliver the nine-power-unit package in four months—not 12 months required by the competition—prompted SBB to award the business to Eaton.

Results

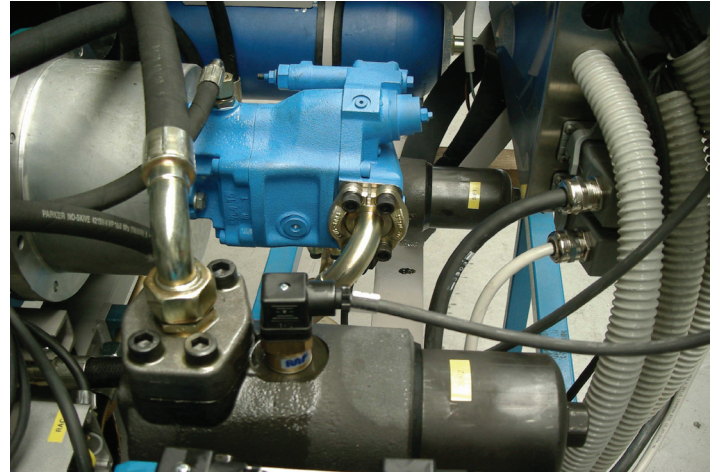
Eaton supplied the total hydraulic system package to SBB in November 2011, and the Eaton-equipped train was up and running by year-end. The Eaton system has increased the train's efficiency by eliminating downtime

due to hydraulic system failures and their associated maintenance requirements.

"Eaton's experience with high-speed tilting trains, which includes hundreds of working systems in the field, was a key factor in winning the new business," said Eaton's Astrid Mozes, president, Hydraulics—Europe, Middle East and Africa. "The business will position Eaton for future train upgrades around the world that contain a highly technical value proposition."



Eaton hydraulic power units are helping SBB's high-speed tilting train to be on schedule, day after day.



Eaton ACE personnel designed a hydraulic power unit to fit the envelope of a 15-year competitive system that was underpowered and unreliable.

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