

Engineered Solutions – From Concept to Completion

Re-Engineering of 'Voyager' Toilet Flush Valves

Following service introduction, passengers using Class 220 'Voyager' and Class 221 'Super Voyager' trains regularly reported defective toilets. These problems negatively affected the passenger experience on these trains, resulted in additional maintenance and consequently reduced service availability for units in these fleets.



Working with Bombardier Transportation, Flowonics Limited undertook a full review of the Controlled Emission Toilet (CET) installation designs on these units. This detailed review quickly identified a common failure mechanism, arising from the design of a critical component within the system.

Flowonics engineers found that one of the flush valves fitted in the CET system was failing to operate correctly and as a result was regularly sticking. The root cause for this was found to arise from differential rates of expansion between critical components within the valve. This enabled an engineering solution to be identified and redesigned valves using new components to be successfully trialled in service. Flowonics then supplied redesigned components, together with other fittings in kit form to support the modification of all CET installations on the Class 220 and Class 221 units. This modification was also implemented on similar systems fitted to the Class 222 'Meridian' fleet.

The ability to quickly evaluate the CET system components, to identify the root causes of the reported problem and to develop effective solutions demonstrates the application of Flowonics' expertise in providing Engineered Solutions for the rail industry.

For further information regarding this and other Flowonics solutions, please contact:

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