## **Chronology document**

Beginning in 2014, Gillig made a change in the type of control rods used in the rear suspension of its low floor buses in response to customer feedback on the timeline for pacing the control rods as the bushings became worn in the normal course. The new type of control rods included bushings made of a harder type of rubber which were intended to extend the service life of the control rod. Gillig worked closely with its supplier to design and validate the new bushings in late 2013, prior to introducing them into production.

The updated control rods were used without incident until November 2019, when Gillig was first advised of a failed control rod in a model year 2018 bus. Gillig initiated an investigation in December 2019, along with its suppliers. The investigation included, among other things, an inspection and metallurgical analysis from failed parts, an analysis of road data related to the affected parts, kinematic studies and bus build dates. The investigation progressed through first quarter 2020. Gillig continued to receive sporadic reports involving the performance of the rear suspension control arm all involving buses built between April 2018 and June 2019.

As a proactive measure, Gillig decided to implement into production a rod with reduced bushing stiffness in mid-March 2020, but immediately thereafter, and before the change could be implemented, production was halted for approximately 8 weeks due to the shelter-in-place orders issued by the State of California. When Gillig resumed its operations on May 13, 2020, it implemented the production change, reworked any vehicles that remained at the facility and continued the analysis which indicated an apparent cluster of affected control rods on buses built in late 2018 – to early 2019. Gillig continued the investigation, including a risk analysis related to the condition which indicated that if the rear control rod was prone to failure, there was a high confidence level that the failure would take place prior to 85,000 miles (and with the greatest likelihood occurring between 55,000 – 85,000 miles). Historically the typical duty cycle for transit buses is approximately 50,000 miles per year so that all buses produced prior to February 2018 should have accumulated sufficient miles by this point. Based on the field experience and the analysis to date, on June 5, 2020, Gillig determined the issue may pose an unreasonable risk to safety and decided to conduct a safety recall for control rods included in production buses and control rods used as aftermarket parts. Gillig will submit a separate equipment recall for the aftermarket units.