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## **“Zafety Lug Locks” Durability Testing**

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Report No.:	09-015-R6749 2 Page, 8 Figures
Proposal No.:	09-015-6749
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## 1.0 INTRODUCTION

This report details the work carried out at the request of Tafcan Consulting Ltd. (Tafcan), by Exova in order to assess the durability performance of "Zafety Lug Locks".

In order to complete this project, Tafcan provided Exova with twenty Zafety Lug Locks to be installed on a 40-ft Transit Bus undergoing durability testing on Exova's 6-Post Tire Coupled Road Simulator. Tafcan installed 5 Zafety Lug Locks on each of the four wheels on the bus. The bus was then subjected to 207,906 simulated durability miles on the road simulator. Observations were recorded throughout testing. No issues were noted.

## 2.0 PROCEDURE

Upon delivery, the test samples were inspected and allocated Sample Numbers 2009-15-0053-A through 2009-15-0053-T.

The twenty Zafety Lug Locks were installed by Tafcan personnel on the 40-ft Transit Bus undergoing durability testing at the Exova facility in Mississauga. Pre test photographs of each wheel on the bus with the Zafety Lug Locks installed can be found in Figures 1-4.


The transit bus was installed on Exova's 6-Post Heavy Duty Road Simulator as part of 500,000 mile Design Life Validation Test (DLVT). Hydraulic actuators were used to excite each of the wheels on the bus using an accelerated durability drive file based on acquired road load acceleration data. The Transit Bus was subjected to a total of 207,906 simulated durability miles with the Zafety Lug Locks installed. This was done over a 7 week time period.

## 3.0 RESULTS


Durability testing on the samples began on August 21, 2009. The 40-ft Transit Bus completed 207,906 simulated durability miles with the Zafety Lug Locks installed on October 8, 2009. No issues were noted for the duration of the test.

Post test photographs of each wheel on the bus with the Zafety Lug locks installed can be found in Figures 5-8.

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**Figures**

(4 Pages)

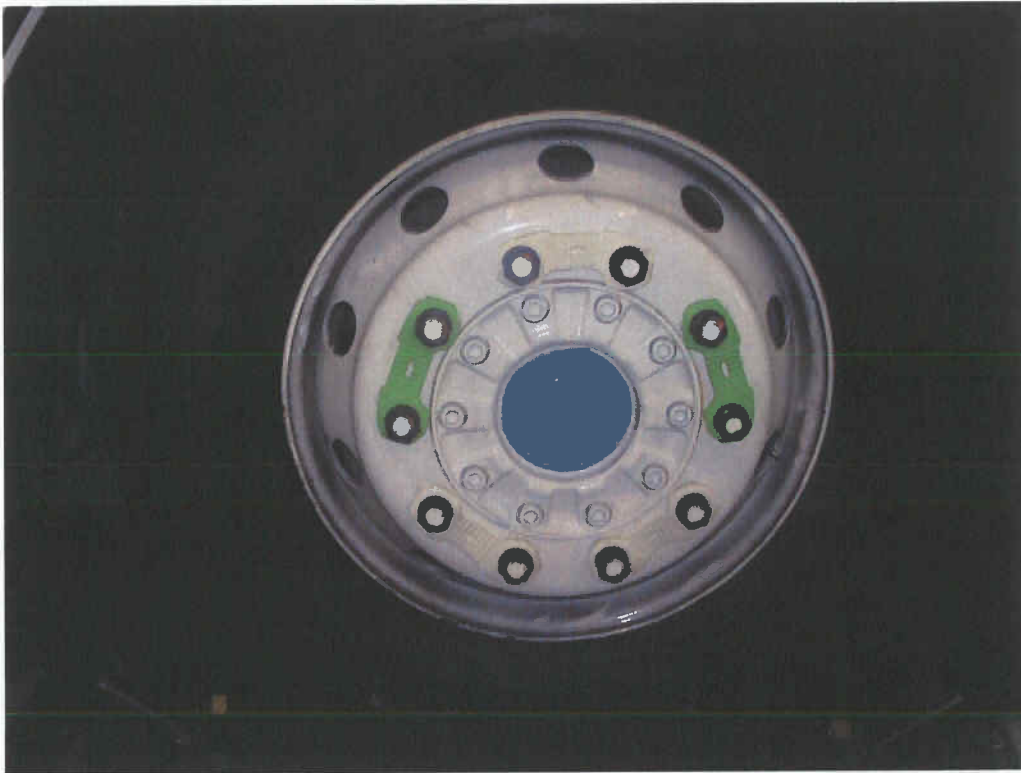


Figure 1: Pre Test – Front Roadside Wheel



Figure 2: Pre Test – Front Curbside Wheel

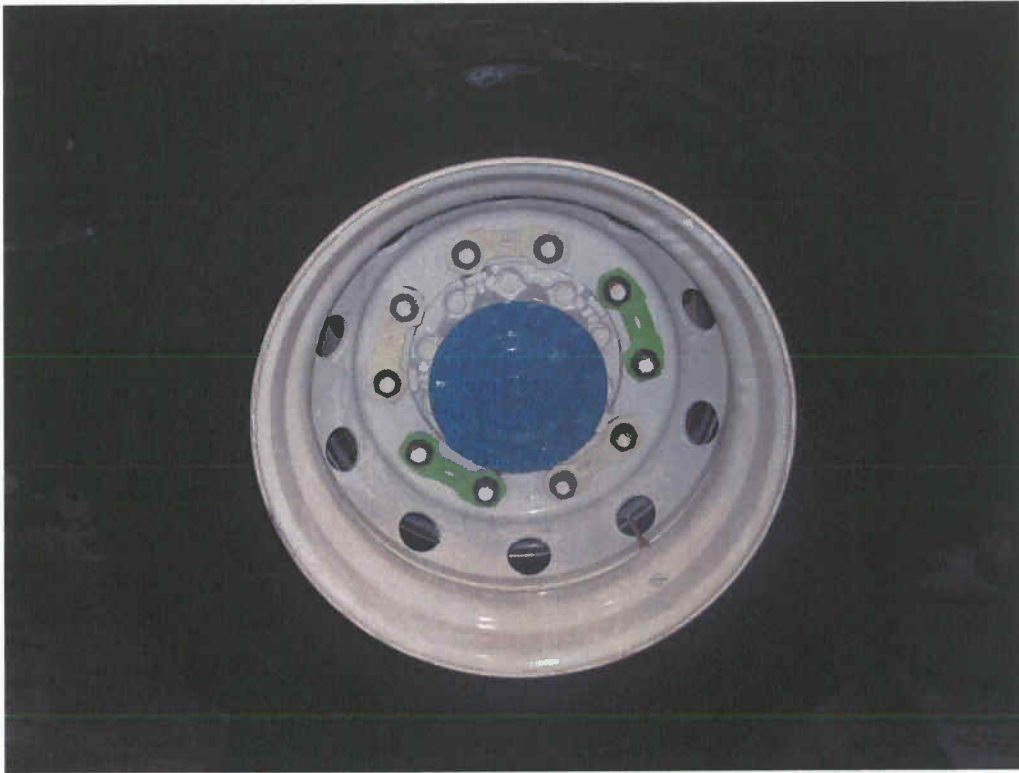


Figure 3: Pre Test – Rear Roadside Wheel



Figure 4: Pre Test – Rear Curbside Wheel



Figure 5: Post Test – Front Roadside Wheel

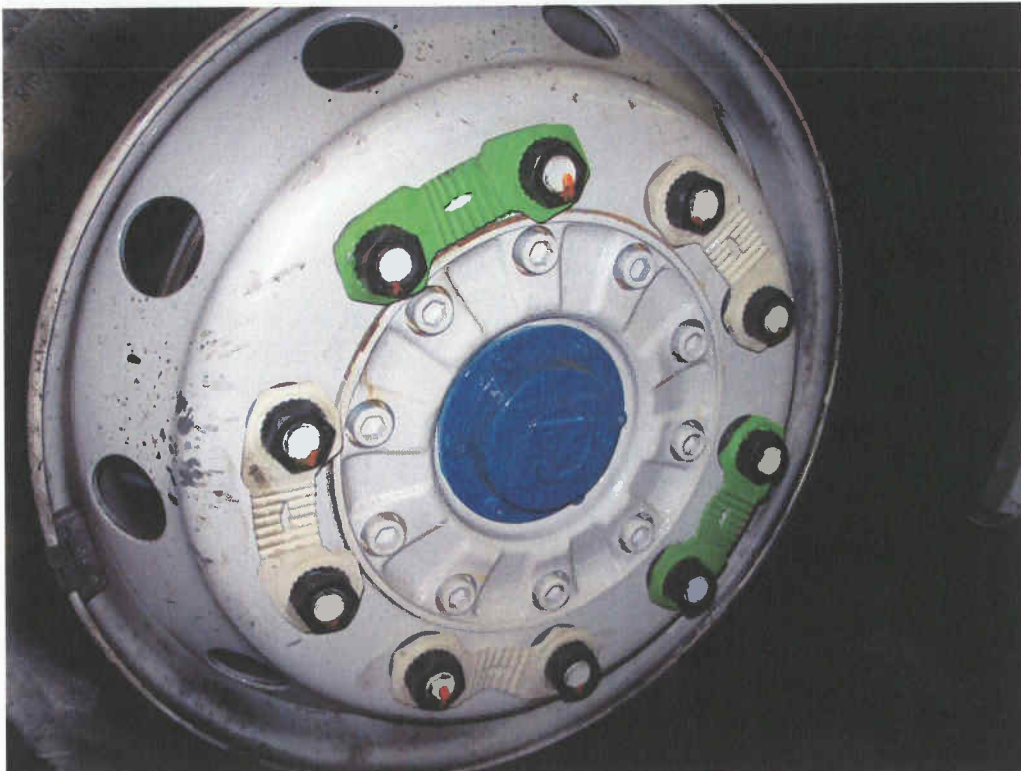


Figure 6: Post Test – Front Curbside Wheel

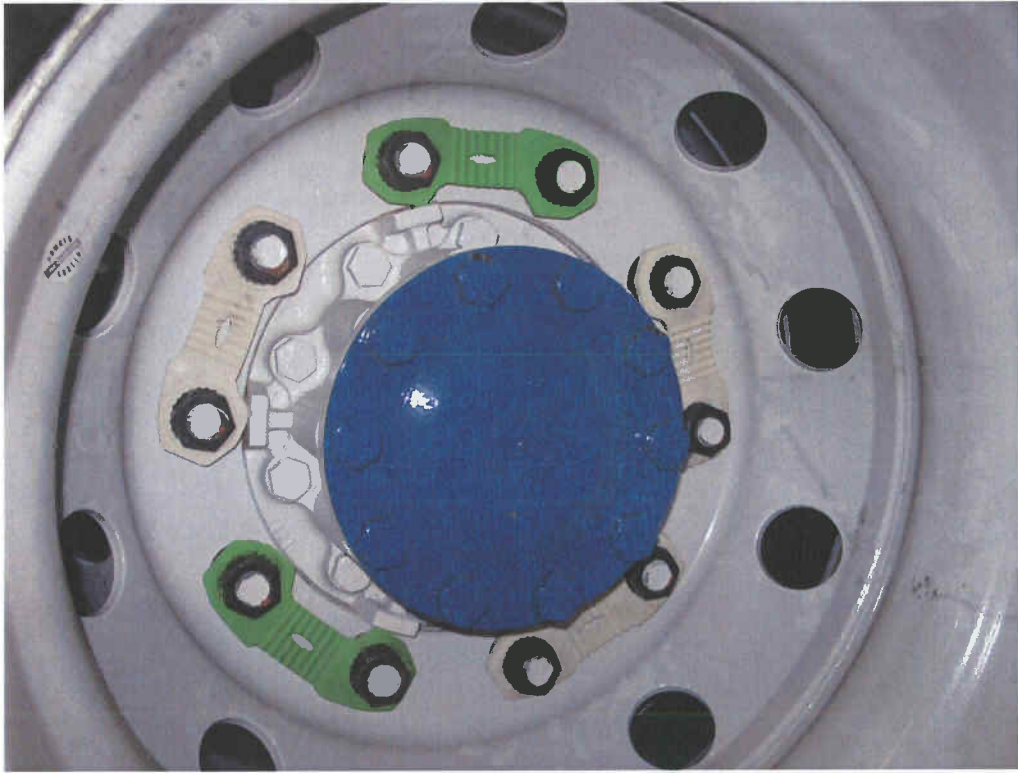


Figure 7: Post Test – Rear Roadside Wheel



Figure 8: Post Test – Rear Curbside Wheel