The Effects of Wheel Bearing Greases on Rotational Motion

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The goal of this project is to apply different greases to go-kart wheel bearings and compare the work needed to move the go kart. The work values can establish a relationship between the grease and gas mileage of a car. It was thought that the multipurpose grease would reduce the friction in the wheel bearings the most due to its composition of multiple components for different purposes, such as steering linkage and the chassis. For example, one component may reduce the friction in the system, while another may keep the grease fluid. A start and finish line were drawn, and the tire pressure in the go-kart tires was checked. For each test, the wheel bearing shields were removed, and the wheel bearings were cleaned using an air compressor and brake cleaner. Then, the appropriate grease and amount was applied to the wheel bearing. Next, the kart was reassembled, and a fish scale was attached to the roll-cage of the go-kart. For testing, the kart was given an initial force with approximately zero degrees with respect to the horizontal, and the average force required to move the kart from the starting to finish point was recorded. From there, work done for each grease was calculated. The data identifies that the synthetic grease was the most effective in the system. The conclusion proved the hypothesis to be incorrect. Analyzing the data reveals that the lithium and multipurpose greases would result in a less desirable gas mileage of a car if used. Perhaps the multipurpose did not function the most effectively because it had too many components. Research will be continued to reinforce the results.

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