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16. Abstract

As part of a field operational test, 96 drivers were lent instrumented vehicles for approximately 26 days. During this time, a variety of measures regarding vehicle use were recorded, including windshield wiper use, wiper setting adjustments, and headway time margin to preceding vehicles. Windshield wiper activity was examined in detail in order to provide data regarding the naturalistic use of windshield wiper systems. The results have implications for the design and durability of windshield wipers, wiper motors, windshields, and glazing treatments (such as hydrophobic coatings).

Overall, windshield wipers were used 8.6% of the time the vehicles were being operated. Across all conditions, the slowest intermittent setting was the most frequently used—whereas the fastest continuous setting was used the least. When ambient lighting diminished, a shift towards higher wiper speeds was observed. Average headway time margin and range increased, and speed decreased, when windshield wipers were engaged. Middle-aged drivers used wipers more often than either their younger or older counterparts. Finally, older females used their wipers the least amongst female drivers, while male drivers used wipers fairly uniformly across age groups.

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