

0-6707-S: Compare Trailer-Mounted Attenuators vs. Truck-Mounted Attenuators Protection for Workers

Background

Truck-mounted attenuators have been in use by transportation agencies for many years. More recently, manufacturers have transferred the energy-absorbing technologies of their truck-mounted attenuators (Figure 1) to trailer-mounted versions (Figure 2). Although many truck-mounted and trailer-mounted attenuators have been accepted for use on the National Highway System, their required testing focused primarily on their structural adequacy, occupant risk for the impacting vehicle, and post-impact vehicular response. For workers that may be located near the attenuators when an impact occurs, the level of protection provided has not been compared. The purpose of this research was to compare truck-mounted and trailer-mounted attenuators in terms of worker safety.

What the Researchers Did

To accomplish the research objective, the researchers tabulated impact testing data obtained from the Federal Highway Administration (FHWA) acceptance letters and mobile attenuator manufacturers. Key measures

of effectiveness were identified for quantifying worker safety, including occupant impact velocity, roll-ahead distance, and post-impact vehicle trajectory.



Figure 1. Truck-Mounted Attenuator in the Corpus Christi District.

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What They Found

In terms of crash performance, the researchers found no differences between truck-mounted and trailer-mounted attenuators. The researchers also found that the safety of workers is improved when the heaviest recommended support vehicle is used because this results in reduced accelerations to the support truck driver and shorter roll-ahead distances.



Figure 2. Trailer-Mounted Attenuator in the Waco District.

What This Means

Based on these findings, the researchers recommend that the Texas Department of Transportation (TxDOT) maintain the existing mobile attenuator support vehicle weight requirement of $20,000 \pm 1,000$ lb. In addition, the researchers recommend that TxDOT continue to maintain a minimum 30 ft buffer space during operations that utilize mobile attenuators, regardless of attenuator type.

For More Information

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