

Enslaving towed vehicle brakes to ABS of the towing vehicle; an economical and effective means for enhanced braking.

The article in your last newsletter regarding tests on trailers towed by tractors equipped with ABS was quite interesting and very consistent with work done on ABS when it was first introduced by Ford, based on Kelsey-Hayes produced systems.

At the time, while managing much of the ABS development at Kelsey-Hayes, and in a parallel effort, I put together a special trailer braking system on behalf Ed Hayes, RIP, who was Vice President of Engineering at Kelsey-Hayes. The system was designed to explore means for taking advantage of ABS in a towing vehicle for enhancing the braking of the towed vehicle. Our base hypothesis was that ABS action on the trailer will offer significant benefits.

Using a full size station wagon and acquiring a large camping trailer, we set out to prove our theory. The station wagon was equipped with a custom four wheel ABS based on the Ford system. The trailer had Kelsey-Hayes electric brakes.

We designed the coupling between the vehicles in a manner similar to that used by some large U-Haul type trailer; a coupling which is essentially a “proximity-switch” (one that applies more braking as the vehicles get closer to one another. As the towing vehicle slowed down, the brakes on the trailer were applied. When the towing vehicle ABS started to release, and the towing vehicle started to move away from the trailer, the proximity switch started to release the trailer brake; action that repeated itself to a stop.

Even though our [very positive] tests were based on electrical trailer brakes, there is little or no doubt that the same applies to mechanical, hydraulic, and pneumatic braking systems. Trailer operators who use tractors with ABS should always consider the proximity switch coupling to “slave” the trailer brakes and make trailer braking much safer and stable. The proximity switch coupling practically eliminate jack-knifing, and generally offer the complete advantages of ABS for the “slaved” trailer.

Those interested in additional information, or in means for the implementation of slaved trailer braking systems to the ABS on a towing vehicle, please feel free to contact: Dan Goor, buppahxsci@aol.com; phone: 719-633-6091.