Braker Box

Collision Reconstruction Tools

August 2016 Issue 2

Calibrating the Drag Sled (operator)

The drag sled is a very accurate and effective tool for the collision analyst who knows how to use it. In order to become proficient at using the drag sled each operator should "calibrate" their technique. This requires a simple series of tests that will not only verify their technique but will also provide valuable background for court purposes when giving expert testimony.

The first step in calibrating your technique is to set up a vehicle with a shot marker or calibrated accelerometer (such as a Vericom). A standard skid test should then be performed at least twice with results within 5% of each other to ensure accuracy. The lowest of the two measurements is then used as your drag factor calibrated reference.

Once you have your data, you are ready to start your test pulls with the drag sled on the same surface you used in the skid test. Attach your scale to the drag sled and pull in a steady motion in a level plane with the surface. Watch the front edge of the sled to make sure it stays parallel to the road surface and doesn't rock up or down. If it does, adjust your pulling angle until it moves smoothly ahead without any change in pitch.

Once you feel comfortable pulling the sled, take the measurement from the scale when you get a good steady reading. Do a minimum of ten test pulls to make sure you get consistent values. Now make your drag coefficient calculation using the average test pull result and compare it to the skid test. Strive to duplicate dynamic test results. When you are able to approximate dynamic test results, you're calibrated!

If the results do not approximate dynamic numbers, you need to adjust your technique. Try adjusting your pulling angle slightly or adjusting the speed you pull the sled. When you get new readings and can duplicate the readings in successive pulls, do your calculations again to see if you've improved your technique. Testing should be conducted at every opportunity, on various road surfaces and in different weather conditions.