Could be 50 mph Could be 60 mph

Venturi

55 mph

Ultronsic Flow Measurement

Could be 55.1 mph

55.0 mph

Could be 54. 9 mph

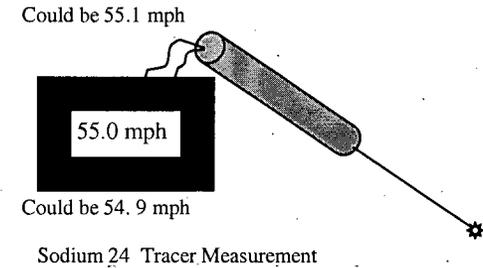Sodium 24 Tracer Measurement

8-1

If the Old Gear Speedometer has a claimed accuracy of +/- 5.0 miles/hour, you could be going as high as 60 mph or as low as 50 mph when the needle was on the 55mph mark.

New Digital Speedometer has a claimed accuracy of +/- 1.0 mph, so you will have by technology, a more accurate way of measuring speed.

Electronic Laser Beam Speedometer Calibrated laboratory accuracy to +/- 0.1 mph

Let's say that when you are out on the highway with your 55 Chevy and although you're doing 55mph, everyone's passing you. You decide to buy a new digital speedometer because it's a more accurate of measuring your automobile. When you buy the new Digi Speedo it states that it's calibrated to +/- 1 mph, but the manufacturer suggests that you perform an independent calibration against a known accurate instrument before you hook it up to use.

If you are now going to establish and utilize a correction factor (baseline) between the two speedometers in your car, you must first hire a pace car with the most accurate speedometer available(Electronic Laser Beam (ELB), accurate to +/- 0.1 mile), to provide you with an accuracy standard. Your car and the pace car must then travel down the road, side by side with the pace car establishing the most accurate speed reading at 55mph.

In this particular test, and when the driver of the pace car signals to you that he is at 55 mph, you look at the Old Gear Speedometer and find that it's reading 59 mph while your new Digital Speedometer is reading 54 mph. The correction factor between the Digital and the Electronic Laser Beam speedometer is 54/55 = 0.982. Your old speedometer in relationship to the ELB Speedometer is 59/55 = 1.072. This then means that to interpret between the old and new in relation to the most accurate ELB, whatever the old gear speedo reads, must be multiplied by 0.982/1.072 =0.916 to equal a digital speedometer readout that's calibrated to the pace car.

So now when your old gear speedometer is reading 59 mph, you multiply this value by 0.916 and get 54 mph which is what your digital speedometer will read if you are going exactly 55 mph, in accordance with the ELB Speedometer (+/- 0.1mph).

This is then how one would establish a baseline between instrument of varying accuracy and how to interpret between them.