

# How to Run the odo Leg

By Harvey Cain

It's a given that your stock odometer is a relatively precise measuring device, but not necessarily an accurate one. Precision and accuracy are not the same thing. A clock that gains exactly one minute every hour is precise, but not accurate. An odometer, although it purports to show how far the car travels, really only counts the revolutions of the cars wheels through an electronic/cable take off from the transmission, or via a cable off the wheel. There will always be a difference between your odometer and the rallymaster's.

If no steps are taken to compensate for the differences between odometers, rallies would be won (all else being equal) by the crew with the odometer that most closely matches the rallyemaster's. That's why all rallies begin with an odo check.

Here's how it works. The odo check is about 10 miles in length. You zero your trip odo at the START. Following the route instructions, you drive the course to the end of the check, stop, and with care, read your odometer. With a little practice, you can read it to the nearest hundredth (0.01) of a mile. Write down the reading!

Let's assume your odo reads 10.14 miles at the end of 10.00 official miles. Your odo is therefore 1.4% slow. Why "slow," when it registers more than the official mileage? Because, over-registration, if not corrected, will make you late! At the point where your odo reads 10.00 miles you were short of the official 10 mile mark by 14 hundredths of a mile, and therefore running behind time. At 30 mph, this distance takes about 17 seconds to cover. Conversely, if the odo reads short, you'll be early.

If as above, your odo is 1.4% slow, how do you use this info to determine correction factors? I say factors, because the first will enable you to convert your odo miles to official miles, and the second will let you convert official miles to odo miles so that at any point you're given the official distance, you can convert it to your odo. The third will allow you to modify the assigned speed to compensate for the time error due to the difference between your odo and the rallymaster's.

The factor for converting your miles to official miles is obtained by dividing the rallymaster official odo distance by your odos indicated distance. If your odo reads 10.14 miles at the end of an official 10.00-mile odo check, divide 10.00 by 10.14 and you have a factor of 0.986. Any distance registered by your odo in this rally, when multiplied by 0.986, will give you the equivalent official distance.

The factor for converting official miles to indicated miles is derived the opposite way by dividing your odo distance by the official distance. Divide 10.14 indicated miles by 10.00 official miles and you get a factor of 1.014. Any official mileage then given, multiplied by 1.014, will give you your odo reading when you cross that point. The difference may seem negligible, but the effect is cumulative—the longer you drive, the larger the error becomes.

The third factor, to correct your average speed is the same as for converting official miles to indicated miles: odo distance divided by official distance, or  $10.14 \div 10.00 = 1.014$ . Since it runs long, if you run on your odo at the assigned average speeds, you will be late at the checkpoints. You should, therefore, adopt a slightly higher speed to compensate. If the stated speed is 45 mph, you must multiply it by 1.014, and drive at a corrected speed of 45.63, or say, 46-mph.