Road Rally 105 – Determining Your Odometer Factor

By Scott Harvey

In *Road Rally 101*, we got you to the end of the odometer calibration zone (OCZ). Hopefully you made a note of the mileage on your vehicle's odometer at the end of the OCZ and wrote that number in the route instructions. What follows is what to do with that information and why.

Let's use an example to help illustrate the value of determining your odometer factor:

- Assume this is the last instruction at the end of the odometer calibration section:

14. | 12.658/ 0.000 | End Odometer Calibration Section at "STOP AHEAD" sign. | CAST 35

- The first portion of this is the instruction number. In this case, it is the 14th instruction. Instructions are almost always numbered and are frequently referred to as **Numbered Route Instruction (or NRI).**
- The next item is the mileage that the Rallymaster measured from the start of the OCZ to the end of it. The second number (0.000, after the slash) indicates that the odometer needs to be re-zeroed to start the next section of the rally. For our purposes, we will refer to mileages in the route instructions as **route mileage**.
- The text or **Instruction** tells you in some detail what to do and what to look for. In this case, it is a sign with the words "STOP AHEAD".
- The last part of this NRI is telling you the average speed to maintain beginning at this point. **CAST** means **Change Average Speed To**. This will be discussed in more detail in a later section.

So what does this mean?

The Rallymaster is giving you enough information to help you figure out how to match your (measured) mileage with the (route) mileage provided in the route instructions. This is critical to staying on-time and getting good scores. For the beginner – this information is more importantly used for just staying on-course. After all, if you are not on the right road – there is no chance you will be on-time. So let's see if we can improve our chances of being close to on-time by remaining on-course.

Here is what should take place after reaching the end of the OCZ:

1. Stop the car at the location described as the end of the odometer calibration section.
2. Record the mileage on your vehicle's trip odometer (you did zero the trip-meter at the start of the calibration zone, right?). Write this number near the mileage in the route instructions for easy reference.
3. If there are other cars stacking-up behind you, they want to set their odometer at the same place that you are currently occupying. Don't panic. Make sure you have written down your odometer reading and verify that it looks to be reasonably close to the route mileage. If it is, then you can re-zero your trip-meter and pull forward a little bit so that you are clear of the marker and yet not so far down the road that you may encounter a checkpoint.
4. If for some reason your mileage is way off that of the route mileage – you may have forgotten to zero the trip-meter or there may be other issues. Maybe you drove off-course for a while and added extra, unwanted, mileage. Whatever the case, you will have to make a decision whether to return to the start of the odometer calibration section and try again - or just reset the trip-meter and take your chances.

5. Let's assume the mileage is close. Now you can calculate your odometer correction factor. This is most commonly referred to as just **the factor**. This is a number (factor) that is used to make your odometer mileage match the route instruction mileage.

We will use the information provided in the example above at NRI 14:

- The route instructions show 12.658 miles at the end of the OCZ (odometer calibration zone)
- Assume your trip-meter shows 12.5 miles.
- You want to determine your **odometer correction factor** (**factor**).
- The equation is, **measured mileage/ route mileage = factor**.
- In this example it is 12.5/12.658 = 0.9875. This factor can now be applied to all the mileages listed in the Route Instructions.
- For example – if an instruction says to turn left at 25.675 miles you can multiply this by the factor and it will show the mileage that will come up on your odometer when you are supposed to make that left hand turn. 25.675 x 0.9875 = 25.35.
- This is important. As you can see – if you are looking for a turn at 25.675 miles and you wait until your odometer shows that mileage, you will have already gone past the point at which you were to turn.
- Conversely, if your odometer mileage is coming up long (higher) compared to the route mileage, your factor will be a number greater than 1.
- If you are not ready to start calculating mileage – you should at the very least – make a note of which way your odometer reading will drift when compared to the route mileage. You should be able to estimate if the turn you are looking for will come up before or after your odometer actually shows that mileage. The closer you can estimate this drift, the better your chances are of staying on-course.

So now you have the basics for determining your odometer calibration factor and hopefully it is fairly clear why you should care about calculating this factor for your vehicle. It is still possible to run a Road Rally and have fun without doing an excessive amount of calculation work. The key is to follow the route as described in the route instructions without missing any turns. By determining your factor – you increase your chances of not missing these turns. Getting off-course, or even worse getting lost, is very frustrating. For this reason, it is best for beginners to concentrate on **course following** more so than worrying about doing a lot of labor-intensive time calculations.

The next section will describe some useful tips on remaining on-course. It is entitled: *Road Rally 110 – Course Following*
Is this the right road?
Stay ahead in the instructions
Communication
Dead ends

Road Rally 115 – It's About Time
How are rallies timed?
When to start the rally
When to leave the end of the odometer calibration zone
Free zones
Transits
When do I start a new leg?

Road Rally 120 – Checkpoints
Checkpoint sign/ air hose
In Time/ Out Time
Leg slip (critique slips)
Out Marker

Road Rally 201 – How to Handle Mistakes
Getting lost
Using T/As
Why is my factor drifting?

Now it is very important to remain on the correct route or the mileage used in the previous examples becomes very difficult to work with, if not useless. If you make a wrong turn and travel for a while before getting back on course you will have extra mileage added on to your odometer. There is a way around this. It just means a little more work with some simple calculations. Instead of **cumulative mileage** (usually the way most RIs are formatted) you will now have to use incremental mileages. This is the mileage between each instruction. If **incremental mileage** is not already provided, you will need to calculate it. Take the mileage from a higher number RI and subtract the next lowest mileage. This is the incremental between those two instructions. You will want to zero the trip-meter at the location of the instruction where you want to begin using incremental mileages and execute the next instruction when you reach that calculated increment. Now that may be simple – you still have to be aware that even the incremental mileage needs to have the previously calculated factor taken into account. Here is an example: NRI 25 says to execute a Left turn at 13.65 miles. The previous instruction (NRI 24) was at mileage 12.44. The incremental is 13.65 – 12.44 = 1.21 miles. Now using the factor calculated previously; 1.21 needs to be multiplied by 0.9875. 1.21 x 0.9875 = 1.19 miles. So now you make the left turn when you get to 1.19 miles on the trip-meter. Your odometer might not be able to resolve such small mileages (0.01) so rounding to 1.2 might be good enough, in this case. In fact, some rally competitors prefer to use incremental mileages throughout the rally because the distance difference between the car's odometer and the mileage given in the instructions do not drift so far apart. It may be worth experimenting wi