

## From The Bench by David Hartman

I ran this article a number of year's ago during my last stint as Editor. I dug it out to run again, since there are new members in the Club and many have completed, or are going to complete, their cars. I borrowed this from another web site, so if you spot any errors in the math, let me know so I can correct them for MY records.

Ever wonder what your speedometer will read now that you've finished this pride and joy that you've slaved over? Will it be close? Well, here's a way to figure the theoretical speed your car will be traveling and give you an idea how accurate your speedo is. Remember, your speed is affected when you change the overall diameter of your tires at any time, even by wear.

### GEARING CALCULATIONS

$1000 / (\text{gear ratio} \times \text{differential ratio}) = \text{number of revolutions of rear wheel's per 1,000 RPM.}$

$\text{Wheel diameter (in yards)} \times \text{TT (3.142)} = \text{movement of car per revolution of rear wheel.}$

$(\text{number of revolutions of rear wheels per 1,000 RPM} \times \text{movement per revolution of rear wheel}) / 1760 \text{ (number of yards per mile)} = \text{movement of car per 1,000 RPM (= Movement per minute)}$

$\text{Movement of car per 1,000 RPM} \times 60 \text{ (to convert to MPH)} = \text{MPH per 1,000 RPM}$

### EXAMPLE

If we assume a rear wheel diameter of 26 inches, and a 5 speed gearbox which has a 0.82 fifth gear, and a 3.44:1 differential ratio, we get the following;

$1000 / (0.82 \text{ <fifth gear ratio>} \times 3.44 \text{ <differential ratio>}) = 354 \text{ <wheel revolutions per 1,000 RPM>}$

$26 \text{ <diameter of wheel in inches>} / 36 \text{ <convert to yards>} \times \text{TT}(3.142) = 2.27 \text{ <yards per revolution of wheel>}$

$(354 \text{ <wheel revolutions per 1,000 RPM>} \times 2.27 \text{ <yards per revolution of rear wheel>}) / 1,760 \text{ <yards per mile>} = 0.453 \text{ <miles per 1,000 RPM>}$

$0.453 \text{ <miles per 1,000 RPM>} \times 60 = 27.4 \text{ MPH per 1,000 RPM}$

At 6,000 RPM, this gives a theoretical speed of 165 MPH.