

HIGHER (INDICATED) REVS, CHEAPLY

By Jim Kerswell

Some people spend several hundred dollars to gain a thousand rpm at the top end by shot peening rods, nitriding cranks, and installing steel main bearing caps. You might be able to achieve the same result, as I did, for virtually nothing by spending a few minutes with pencil and paper. The secret to this incredibly cheap performance gain lies in the fact that we rely almost exclusively upon an electronic instrument to monitor engine condition; the tachometer. This instrument requires periodic checks and calibration. It is fairly easy to estimate what your tach should be reading. Assume that you are traveling 60 mph in fourth gear. This is 5,280 feet per minute. The number of times the rear wheels rotate at this speed must be calculated. This is just the rolling circumference of the tire divided into 5,280. The circumference is 6.28 times the rolling radius. If we assume, for the purpose of illustration, a rolling radius of 1 foot, then the wheel rotates  $5280/6.28 = 840$  times per minute at 60 mph. In fourth gear or whichever gear gives a direct one-to-one drive, the engine speed is reduced only by the differential. Therefore, a differential gear ratio of 3.90, as in some Elans, will mean that the engine is rotating 3.90 times for every rear wheel revolution or  $3.90 \text{ by } 840 = 3,280$  rpm at 60 mph.

If, on performing a similar calculation, you find that your tach does not agree, it is simple and inexpensive to have it recalibrated. You will have to disconnect all the wires and lights from it and remove it from the car. But once out the Nisonger Corporation can recalibrate it in less than a day for a small fee. Remember, Club members get a discount there.