



For fun, he rides a motorcycle.  
Me, I chase my tail. Life's not fair!

## Next Month

- ▶ Ducati's game-changing Panigale
- ▶ BMW's revised S1000RR
- ▶ Reprogramming EFI-Part IV—The perfect solution

# Motorcycle

## CONSUMER NEWS

43-08

PERIODICALS MAIL

## Marc Parnes Wheel Balancer

IT'S ONLY A few ounces, so what's the big deal? The reason is that the effect of wheel imbalance is magnified by speed. Just an ounce of imbalance that you couldn't even feel at 10 mph can become a ferocious pounding at 60 mph. And if your eyes could focus on the heavy spot on a tire as it turned, you would see it trace a path called a cycloid—a classic bouncing curve—impacting straight down about every six feet—think of a hammer blow, not a gentle bumping—wearing out your tires and suspension prematurely.

Balance weights come in all shapes and sizes, many designed for specific wheel types. A quarter-pound or more may be necessary to balance a big adventure bike tire, for instance, so have a good selection on hand. Note that lead is no longer EPA-legal for balancing weights—too many toxic lead nuggets liberated by potholes are now scattered along America's highways and byways. Balance weights are now typically made from zinc or steel painted to resist rust.

The cheapest way to balance your wheels is to simply elevate them off the ground while eliminating friction to the greatest extent possible, temporarily removing the chain, the speedo drive, any brake drag, etc., so that the wheel revolves as freely as possible on the axle. If this method is allowed by the design of your bike, its wheels may then turn freely enough to get you in the balancing ballpark. But the rubber seals on the wheel bearings will always create some drag, and it's not uncommon to have inaccurate spacing of the wheel bearings create some binding, too.



The large stands that use a pair of knife edge bearings on each side to support standard axles have the problem that their bearings are fully exposed to friction-inducing dirt and corrosion, and since you're using your own axle, you can't be sure it's smooth or straight enough for perfect accuracy. Also, these stands take up a lot of space, which is always at a premium in a home garage.

What you really want in a wheel balancer is an axle that's perfectly machined for finish and straightness mounted in super-precision bearings with non-contact seals. This is exactly what Marc Parnes has built. The axle shaft is tool steel, exactly .500" in diameter according to my micrometer. To precisely engage

the wheel bearings, it uses two snug-fitting CNC-machined 6061-T6 billet cones which lock in place with thumbscrews. The bearings themselves are held in cylindrical billet holders that each have a handy flat for steady support. Simple rubber caps are an elegant solution to keeping all the parts together without adding significant assembly time. The whole unit is a foot long, weighs 1.5 lbs. and is compact enough to wrap in a cloth and pack neatly away in your toolbox, safe from damage.

With the tool fitted to the wheel, all you need are some supports on which to rest each bearing block. Jackstands are handy, but as the photos show, even side chairs will do.

The measure of a good balancer is how long a tire continues to turn after being pushed just a small amount, and Parnes' balancer demonstrates its quality by turning for a long time.

The technique is slow but satisfying: The heavy spot will eventually stop at 6 o'clock, the weights go at 12 and you repeat the process until it doesn't stop in the same place twice. Try holding the weights on with tape until you determine exactly what you need.

We were completely satisfied with Parnes' balancer. It's a thing of beauty, performs perfectly and packs away in a small space. The standard model is \$105, shipping included, but we recommend you check his website for your exact model or call him if you have special needs. As a matter of fact, we have other uses for it, too. Stay tuned.

—Dave Searle

**Marc Parnes Products—**  
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