

Double the Speed Limit With No Seat Belts!

by Chuck Wills

I've been known to do some crazy things in my life, most of them automotive in nature. This time was no exception. Imagine 115mph in a Miata, top down, with no seat belt and the hoop propped open. Sound crazy? After driving like this for a while, I switched to the passenger seat to ride shotgun while Shane piloted the car. Am I nuts?!? Yup, but not for the reasons you are thinking. There was actually very little drama in this exercise. No cops, no traffic, and we didn't even get cold, all thanks to the warm comfort of the dynamometer facility at a company called Race2Win on the west side of Indy.

A dynamometer (known as a "dyno") is a device that measures the power a car produces. The machine consists of a large drum, about 6' in diameter weighing 2550 lbs, which is mounted horizontally in a large platform. The car is lifted onto this platform, then rolled back so the rear wheels are resting on this giant drum. The drum acts like a rolling road so that the car may be operated at speed in a stationary position. Just strap the car on, fire it up and run it through the gears at full throttle. There are electric motors that provide resistance on the drum to simulate actual driving conditions. A variety of sensors are provided to monitor the car and its torque output, including rpm, fuel mixture, exhaust temperature, even friction and wind resistance are taken into consideration. In short, all of these factors are used along with the acceleration rate of the drum to determine how much torque and horse power your car puts down to the pavement. A dyno gives power "at the wheels", not "at the engine".

So what's the difference between "wheel" and "engine" measurements? Big difference. It takes power to spin your flywheel, the gears in the transmission, the driveshaft, differential and wheels. These rotating components "soak up" some of the power generated by the engine. Even though our little cars are quite efficient, it has been documented that it takes 26hp to spin our drive train at maximum speed (7000 engine rpm). So, if your engine makes 140hp, your rear wheel power will be shown as 114hp. The rest of the power is soaked up by those spinning components. Some people worry that dyno tuning is hard on the car. It's no more stressful than opening the car up when pulling on to the highway. The Miata could happily sit and do this all day long!

The dyno is an excellent tool for tuning Miatas for peak power and efficiency. Because it's a controlled environment, we can make small changes to the fuel mixture or ignition timing and instantly see the results in the power output and fuel consumption. While the average driver may have little need for this information, racers and modified street cars require this information to make sure their car is operating within its most efficient range and not too close to the ragged edge of disaster. With just a few small adjustments, we have been able to gain small increments like 5hp on stock cars and up to 50hp on modified cars. It may sound like magic, because it is! It's the magic of science!

Our last turbo car project started with 135hp, which is fairly weak for a big turbo installation. After a few hours of dyno tuning, we recorded an all time record of 313hp at the wheels (339hp at the engine). That's not bad for a days work. With the dyno tuning the car runs at its peak efficiency and fuel economy, yet produces massive power when the throttle is cracked open. Without proper tools for tuning, we would be guessing at the car setup, leaving us with poor power, high fuel consumption and bad driveability. The other perk is that we get to drive the car at triple digit speeds and not get in trouble with local law enforcement!



A Miata gets ready to make a run on the dyno.

Miatas At The Biltmore

The Ridgerunner Miata Club, based in Asheville, North Carolina, invites all Miata lovers to join them for three fun-filled days in their Miata playground. Some of the best Miata roads in the country are in their backyard, from the Blue Ridge Parkway to Deals Gap. Tours of the famous Biltmore Estate plus self guided tours of the area will be available. Registration closes February 9, so if you're interested, you had better act fast!

For more information about this event, visit <http://www.ridgerunnermiata.com/Biltmore.htm>.

Lotus Club Schedules Track Day At Putnam

The second annual St. Louis Area Lotus Lovers and Lotus Ltd. track day at Putnam Park Raceway (www.PutnamPark.com) in Mt. Meridian, IN has been scheduled for Monday, June 21st. (The day after the US Grand Prix in Indy.) This track day is open to all cars which pass tech inspection.

The price is \$225 for Lotus Ltd. members and \$235 for non-members.

If you have questions or would like a registration form, contact Mark Pfeffer at (314) 889-0572 or email Mark at Feffman@Yahoo.com.