

So you still want more power in your Miata?

Last month I touched on putting a V-8 Motor in a Miata. The reader was interested in more power, and the sound of a throaty V-8 as he was driving. (I'd like that too!) Reading below you will see 2 other, less invasive, and less expensive methods of getting more power out of your favorite car.

Before you do anything, you must decide what you expect from the outcome, and what the intended USE will be. Do you want a monster Miata for straight line acceleration? Do you want a Track or Autocross car, or do you just want a High Performance Street car? Will your focus be on only straight line acceleration, or only high performance cornering, or sporty street driving along with some high performance cornering. Once you can answer these questions, read below for some options.

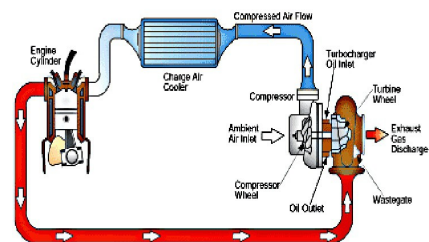
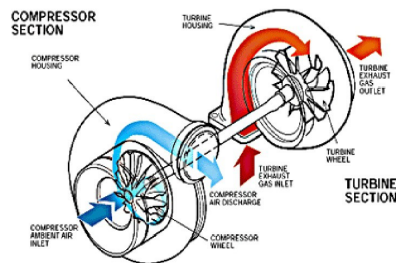
Note the Miata is purpose built car, and fairly well balanced between power, cornering and some comfort. It is very easy to change one thing, and totally screw up the balance making the car overall worse off than it was. I have found this out the hard way myself.

As alternates to a V8 conversion, both a Supercharger and a Turbocharger are available for all year Miatas (except the new 2016, for now). I know you can get 240 hp with the 1.8, as I will never forget the "white knuckle" ride I had in the 1995, 1.8L with a Turbocharger on. Newer model years with the better motors, heads and cams will easily do this plus. Adding Forced Induction is more of an "add-on" project rather than an entire conversion. It is easier, cheaper, & less added weight.

A Supercharger gives you smooth and even extra power all thru the power range. It has the extra torque and hp from idle to max power. Think of it as an air compressor bolted to the motor and driven by the serpentine belt that already drives the alternator, etc. This "blower" unit is constantly pressurizing the air/fuel charge going into the motor, throttled by the throttle plate, so you can have the feeling of more power all of the time. From idle to full throttle. The small drawback is that it also takes power from the motor to drive it, but the return of extra power can be very high. The nice thing to note with a Supercharger is the extra power is there all of the time. This is great for street and daily driving.

Driving a car with a Turbocharger kind of resembles driving the old muscle cars. It has normal power for normal driving. Then you push down hard on the gas, the extra exhaust starts the turbo spinning, and then you get the increased extra power, just slightly delayed. This kind of resembles when the 2 back barrels of a 4 barrel carburetor kick in at full throttle. The Turbo blower itself is bolted in line of the exhaust system with a special exhaust manifold and mid pipe going back to the muffler. No fan belt drives it, so it does not take away much motor horsepower to operate it. But to really get it to kick in you have to put your foot into the gas pedal to get the turbo spinning. This is the delay felt with a turbocharger, slight but noticeable. A good example of this set up is the 2004 MazdaSpeed Miata.

The first picture is a supercharger which bolts onto the motor in place of the intake manifold. The drive belt pulley is on the front. Air is pulled in the front opening and pushed directly into the motor, very compact. The second picture is of a Turbocharger opened up to show the parts. The 3rd picture is of a complete Turbo system. You can see the hot exhaust gasses go to and spin the turbo. The turbo then compresses the air, sends the hot compressed air thru an "Intercooler" (air cooler), then into the motor.



In my humble opinion, I always felt the Turbocharger was better for all out performance like track or racing where you are at higher RPMs most of the time, and the Supercharger was better for street driving, as you can benefit from it at lower rpm and throttle settings. The extra torque and power is always available with a Supercharger without going to high RPMs. But both types work well for both uses. One benefit from going Forced Induction over a V8 is you are not adding any real weight to the front end. Until you feel a need, you can get away with the suspension in the car. If you drive sensibly most of the time, you can use the tires you have, then later put a little wider tire on the existing 4 wheels if needed.

I mentioned before where you needed a new computer to operate the V-8 motor. As you add a Supercharger or Turbocharger to your existing NA or NB Miata, you will need to do something to meet the additional fuel and ignition requirements for the added air supplied from the Turbo or Supercharger. The easiest way is to add a programmable "add on piggyback" computer because the OEM computer in the NA and NB is not programmable. Then you can have this programmed to work together with the OEM computer and the forced induction. The OEM Computer will then handle the more mundane operation of the motor, while the Piggyback unit works to keep motor operating while in the high performance mode. Flyin Miata can set you up with the right piggy back unit when you buy the Super or Turbo charger kit. Note this type set up will still pass state emissions tests.

The NC and ND Miatas already have a Computer that can have the Operating Tune revised to help the motor get full power from the addition of a Supercharger or Turbocharger. Because of this, you do not have to buy the aftermarket "piggyback" unit. After you add the forced induction unit of your choice, you can have the OEM computer program tuned to handle needs of the new set-up.

As I had previously mentioned, I have seen 240 rear wheel horsepower in a NA, and over 300 rear wheel horsepower in a NC Miata. So now you know more power is available for the cost of the upgrade. If you want to do this, and do not want to do it yourself, I would suggest you contact Brady's High Performance Services in Willow Street, PA, (717) 327-4336. He is a high performance guru, and does top quality work. Several of us club members have used his shop on a regular basis. He is very capable of doing the mechanical installations, and precision 4-wheel alignments.

If you decide that you really want to add forced induction to your Miata, I suggest you first call Flyin' Miata or Goodwin Racing and talk to them (Or Both). They will get you off on the right start. And as always, I am happy to help with answers to questions. If I don't know the answer, I will find out. Plus I can always use ideas for new Tech Talk articles!

Zoom, Zoom!
Bill Latsha