

Two Dozen Tech Tips

Simple and effective tricks and tips.

By Julian Edgar



If you live in a country susceptible to insect swarms, be careful after you drive through a swarm that you don't fry your engine (from rocketing coolant temps) or detonate a turbo engine to death (from rocketing intake air temps!).



When boosting the power of an EFI engine, make sure that the fuel pump is up to the new power demands. This fuel flow meter goes into the return line to the tank. No fuel flow = not a big enough pump!



Just look at the tortuous flow path that exhaust gases have through a reverse flow ('turbo') muffler. Yup, you're right - this type of muffler doesn't flow well - especially when compared with a straight-thru design!



Factory knock sensors are notorious for false alarming, causing the engine to go into limp-home mode. There's not a lot you can do about it, unless you decide to lose the knock sensing function. Then you can retain the wired-in sensor, but not have it actually mounted on the block...

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Cheap and easy - get a temp indication of engine, gearbox and diff temps with some temp sensing stick-on labels. We've also seen them on airboxes and intake manifolds! They're available from large machinery workshops.



You might be paying big bucks, but the extractor manifolds made by the major Japanese companies for their turbo engines are second to none in quality. This is the manifold to put a single (very large!) turbo onto a Skyline GT-R engine.



An upgrade to braking performance is as easy as installing some brake ducts. Cutting a hole in the disc backing plate and aiming the duct at the disc from a distance is easy and avoids

some clearance problems. Course, you don't need to make the duct **this** big.....



A front-mount intercooler will always be better for cooling than one stuffed under the bonnet, especially in stop-start conditions. This is an APEXi kit for the Impreza WRX.



Some long runner factory intake manifolds are quite restrictive. This one from a Holden V8 works better if the tight intake nose is removed and a free-er flowing intake welded to it.



Want to see what difference disabling a dual-length intake manifold makes to performance? It's easy. Just pull off (and then plug) the vacuum line going to the actuator.

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Drive the car and feel the difference!



Insulating the return pipe from an intercooler is easy, cheap - and makes a difference to power. Here aluminium tape has been used. You can also wrap the pipe in fibreglass mat first to make an even better insulator.



Five gas analysis done by a competent operator on the dyno will tell you a helluva lot about your car. Unlike an oxygen air/fuel ratio probe, misses can also be detected when the operator is looking at all of the gas emissions.



Removing the mesh from each end of a hotwire airflow meter will improve its flow. Costs you nothing, too! However, make sure that the

Big is good, too.

airfilter is always up to scratch as the meter's then more vulnerable to damage.



Another no-cost modification: tyre pressures. Altering front or rear (or both) tyre pressure by 4 or 5 psi can make a staggering change to car handling. Generally you go up over the maker's recommendation.



If your EFI car runs an ultra-expensive factory fuel filter, replace it with a large multi-use fuel filter. It will work just as well and cost perhaps only 1/5th as much as the genuine item.



Cold air engine intakes work! This bike has them as standard, and they're easily fabricated for a car using plastic hardware store pipe and fittings.

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The closer that tweeters are to ear level, the better. Mounting tweeters on the door sills is easy and puts them at a good level. Put the crossover inside the door.



Running dual large throttles operated in sequence (and these **are** sequential; look at the linkage really closely!) lets your engine breathe a heap of air while still retaining good throttle control.



To avoid marking soft items in the vice (or vice!), place some aluminium protectors in the jaws. These have been easily cut from alloy angle, bought from a scrap yard for peanuts.



The size of the dump pipe out of the turbo is important to getting good response and power. You can run dual pipes (the extra one for the wastegate) or a single large pipe. Big is good!

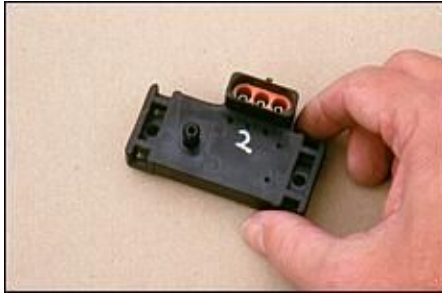


A bolt-on upgrade. Discs like these work with the standard calipers and pads, meaning that fitting is dead-easy. They look good through your alloys as well!



If you run an extra injector, don't mount it on the plenum like this. Instead, it should be placed before the plenum, so that the fuel gets mixed with the air going to all cylinders, not just a couple....

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These GM-Delco MAP sensors are available for naturally aspirated engines ("1 Bar"), for 14.5 psi boost ("2 Bar") and for 30 psi boost ("3 Bar"). Some people try to run a naturally aspirated MAP sensor on aftermarket blown and turbo cars. Don't.



Weight distribution can be used to tweak the handling. In a nose-heavy car one easy (partial) remedy is to put the battery in the boot.

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