

Words: Rich/Stav Photos: Dav/Chris Wallbank

Tested: Engine Remaps

Remapping cars is big business, with some companies claiming huge power gains. To see what is really achievable, we took two popular systems, one petrol, one diesel, and put them to the test...

For many people, the prospect of 'instant' power from a remap is very attractive. And with spectacular claims from some companies who offer simple plug-and-play systems, we thought we'd put two to the test. We're only dealing with turbocharged cars as the gains are much more significant than normally aspirated cars. We took our Audi TT to respected VAG tuners Awesome GTi and our diesel Auris SR180 to Tunit. Read on to find out how we got on...



Toyota Auris SR180



CHIP METHODS

Standard cars run a middle-of-the-road engine map. This means it's a compromise between performance, driveability and economy. As such, engines like the petrol 20v turbo TT lump are able to produce more power, if a new map is downloaded. The new map alters the fuelling, boost pressure and ignition timing to increase performance.

Remaps can be plug-and-play, which means a laptop plugs into the OBD (On Board Diagnostic) port and simply downloads the new software; or a new chip can be fitted to the original ECU. The Tunit box fitted to the diesel Auris works slightly differently to the two 'chipping' methods mentioned above, by interfacing with the fuel injectors. It also allows fine tuning for optimum results, whereas an off-the-shelf remap (as with the TT) cannot be altered. The APR unit on the TT however can be switched between several maps, depending on quality of fuel etc.



Audi TT



Toyota Auris SR180



Although our Auris is a reasonably quick car as standard, we thought there would be someone able to remap the 2.2ltr turbo diesel engine. The problem was that the car is so new that very little in the way of mods was available.

One company that was completely on the ball, though, were Chorley based diesel tuners, Tunit, who were able to modify our Auris with ease. Their systems interface with the car's injection system, which surprisingly is somewhat universal in the diesel world, with half a dozen different systems covering 90 percent of the worlds modern diesel engines. This means Tunit are very likely to have a plug-and-play system for your car before anybody else.

STANDARD

With the car literally only a few months old and with under 2,000 miles on the clock, the car recorded less than the factory figures on its initial run, giving 163bhp and 281lbft. This is common on new engines which often don't give maximum power until they have done many more miles.

The standard powerband was also very small with it being over 150bhp

for only around 1,000rpm and over 250lb ft for not much more, making driving the car to its maximum capabilities a little tricky.



REMAP

Fitting is incredibly easy, with an electronic plug needing to be disconnected and reconnected either end of the factory quality Tunit subloom, which has the compact Tunit module branching off from that.

The modules can be fitted by anyone within minutes for immediate gains, but are also adjustable to gain the most performance with either the inbuilt dial on the module, or by plugging the system into a laptop and changing the parameters while on a rolling road, which is exactly what we did on the day.

Once the Tunit was installed things changed massively, with the bhp jumping by over 10bhp and the torque over 50lb ft just by plugging in an unmodified Tunit system.

The power and torque delivery wasn't very smooth at the top end of the rev range though, and peak power dropped off very quickly too. But after some tweaks with the unit's adjuster along with a few parameter changes on the laptop, things were much improved.

The final figures we settled with were 190.5bhp and 346lb ft, a healthy increase of 27bhp and 65lb ft on the peak figures, all with no increase in boost pressure.



CONCLUSION

Although the peak power gains, like the TT were not massive, the Auris was also transformed by the remap. Maybe more important than the new found power level is the huge extension to the powerband, It's now above 250lb ft and for around twice as long as before, and over 150bhp from just over 2,000rpm right until the 5,000rpm red line.

ROAD PERFORMANCE

On the road the car was much more responsive, with great performance at any revs, and the massive torque makes overtaking a breeze. It made coming out of slow corners far easier due to increased response, meaning you no longer have to put your foot down early and predict when the boost comes in, and the extra

RPM	Power BHP Before	Power BHP After	Power Change BHP
1500	42	45	3
2000	98	115	17
2500	133	163	30
3000	150	184	34
3500	160	188	28
4000	152	179	27
4500	146	163	17
5000	100	132	32

RPM	Torque LB/FT Before	Torque LB/FT After	Torque Change LB/FT
1500	150	160	10
2000	255	305	50
2500	280	345	65
3000	265	320	55
3500	238	280	42
4000	200	235	35
4500	170	190	20
5000	100	140	40

Below Yes, there is a diesel turbo engine under all that plastic

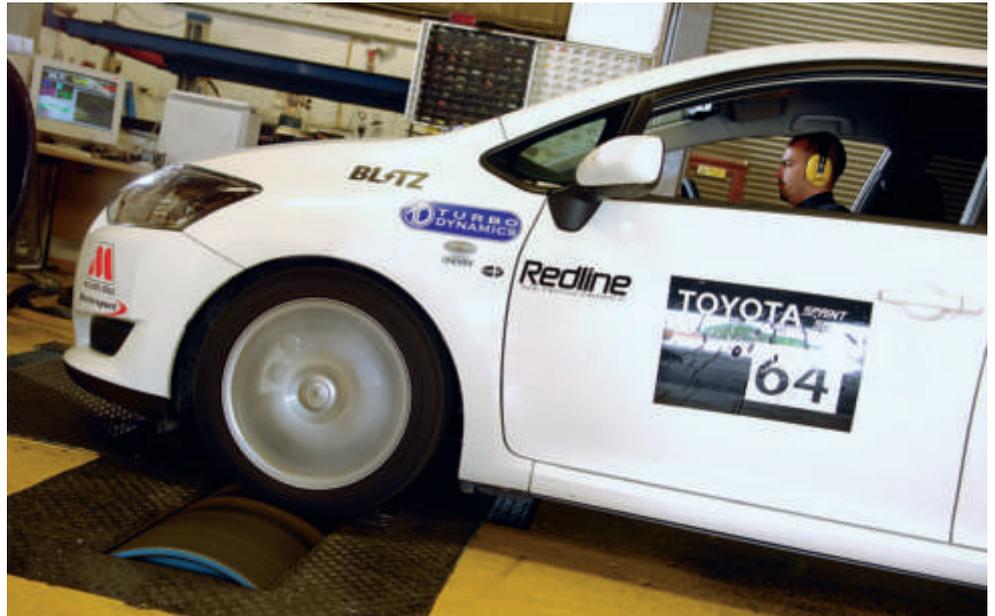




straight line speed is obvious.

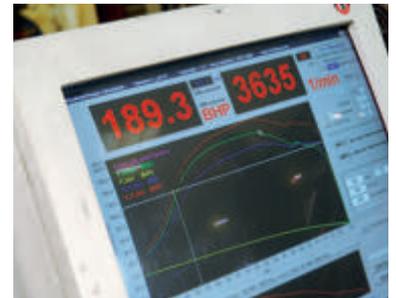
PERFORMANCE TESTING

We strapped the Datron timing gear to the Auris and ran the car five times from 0-100mph as standard, and again with the Tunit installed,



Speed (mph)	Standard (sec)	Tunit equipped (sec)
0-30	2.983	2.824
0-60	7.778	7.371
0-100	22.276	20.706
Quarter mile	16.152sec@85.51mph	15.907sec@90.63mph

Above Rolling road allows the user to see the exact results of whatever changes they make



Right 189bhp at 3,600rpm makes for a nice and lively drive



Left Tunit box plugs in under the bonnet and takes just five minutes

and these were the results... As you can see, the car is already faster than the 8.1 0-60 dash that Toyota claim, but now it is almost half a second faster again, despite increased wheelspin due to the extra torque. With track tyres the 0-60 time should easily dip in to the 6's.

The acceleration was faster at all speeds, but the Tunit really made itself known at higher speeds, with the car reaching speeds above 90mph around sec quicker than

standard, and 5mph more over the quarter mile.

Although you can't see by the table above, due to the wider powerband the performance times with the Tunit installed were much more consistent, making for a much faster overall drive.

Overall we are over the moon with the newfound performance Tunit has given us, and cant recommend it enough. Now we just need to be able to transfer all the new performance

FINAL THOUGHT

There are lots of companies offering remaps, from large outfits with dynos, to mobile guys with laptops who will come to your house. In our experience, established outfits with full diagnostic facilities are a safer bet as they can actually test what gains the remap has given. They'll be able to tell you if something else is wrong (like there was with our TT), rather than simply chuck a remap on which could make things worse. The other thing to bear in mind is peak power figures don't tell the whole story. While big peak increases sound fantastic, especially for under £400, in our experience this rarely happens. There are many variables that can affect your car (cat/s, faults, age, fuel etc) and there aren't many cars which are likely to get big peak power gains with no problems. If you go into it expecting loads more peak power, you may be disappointed. But if you go in looking for more torque and increased driveability, then you'll be pleasantly surprised.

CONTACTS

Many thanks to Jim, Paul, Geoff and the guys at Awesome for getting the TT up to scratch before the testing could start.

- Awesome GTI 0161 776 0777 www.awesome-gti.co.uk
- Tunit 0845 838 1405 www.tunit.co.uk