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**TESTED**

Words: Dav  
Photos: Michael Whitestone

# TT RS Intercoolers

The TT RS has huge tuning potential. Here, we look at whether an uprated intercooler can help it perform better



## ■ THE CAR

As no off-the-shelf intercoolers were currently available for the TT RS, owner Jason McGhie contacted Forge Motorsport to see if they'd be up for fabricating one. Forge reckoned they could get decent gains by increasing the size and efficiency of the unit and used Jason's TT as a development car. They claim their unit is less restrictive as it has 12 percent more surface area and 112 percent more volume. The 2.5ltr, 5-cylinder turbo lump has a lot of potential, and this car already has a Revo Stage 2 remap, full Milltek turbo-back exhaust and panel filter, which are claimed to give around 400bhp – the kind of figures that make an uprated intercooler a very wise addition.




## ■ THE TEST

Pretty simple really. We took the TT to our local dyno, Powerstation, to get some base power figures with the OEM intercooler. We then returned to Forge Motorsport, where the uprated unit was fitted, before driving back to the dyno to test the results. We also spent time on a variety of roads with each setup to compare how the car felt in the real world, rather than rely purely on dyno readouts. We used Shell V-Power and the power runs were done at the same dyno within hours of each other to ensure accurate results.

**H**eat is the enemy of any turbocharged car, so keeping charge temps down is one of the most important considerations, especially if the engine's been tuned. Cool air has a higher percentage of oxygen than an equivalent volume of warm air, and as we all know, the more air and fuel you can get into an engine, the greater the potential power will be. So in theory, using a larger, more

efficient intercooler should reduce inlet temps, improve reliability and increase power.

Back in Issue 159 we saw great gains on a Subaru Impreza STi by replacing the top-mounted intercooler with a more efficient front-mounted unit. The question is, can decent gains be found on a car that already has a decent-sized front-mounted intercooler?

One way to find out... 

**Above** Uprated Forge intercooler is offered up to the TT RS

# THE FITTING



To be fair, there isn't an awful lot to fitting the new intercooler, but it does involve removing the front bumper, lights and all of the assorted pipework. The Forge unit fitted perfectly, which is testament to how well they engineer their products, and the whole job took two hours. It's certainly something that could be done yourself, although as with everything, if you're not 100 percent sure, it's best to leave it to a pro tuner.

Above Fitting the new intercooler took two hours

Below Forge i/c is much thicker than OEM unit



# TEST 1

## OEM TT RS intercooler

This TT RS already had an ECU remap and full exhaust system including downpipe, so we were expecting a lot more than the 335bhp and 332lb/ft standard figures. The OEM intercooler actually looks pretty decent – it's front-mounted and is a good size, so we thought it could be a struggle to improve upon. Certainly, on the road the car felt very responsive and lively, with minimal lag and lots of mid-range punch. Having said that, once the standard intercooler came off, it was clear to see how much larger the Forge unit was in comparison (560x150x150mm versus

535x140x80mm). It was noticeably thicker, which in theory should translate to better cooling ability. Once on the rollers, the TT made 402bhp and 380lb/ft, and the all-important inlet temp was measured at 70°C. With base figures sorted, we drove back to Forge's HQ to get the updated intercooler fitted.

PEAK POWER	402bhp
PEAK TORQUE	380lb/ft
PEAK INLET CHARGE TEMP	70°C

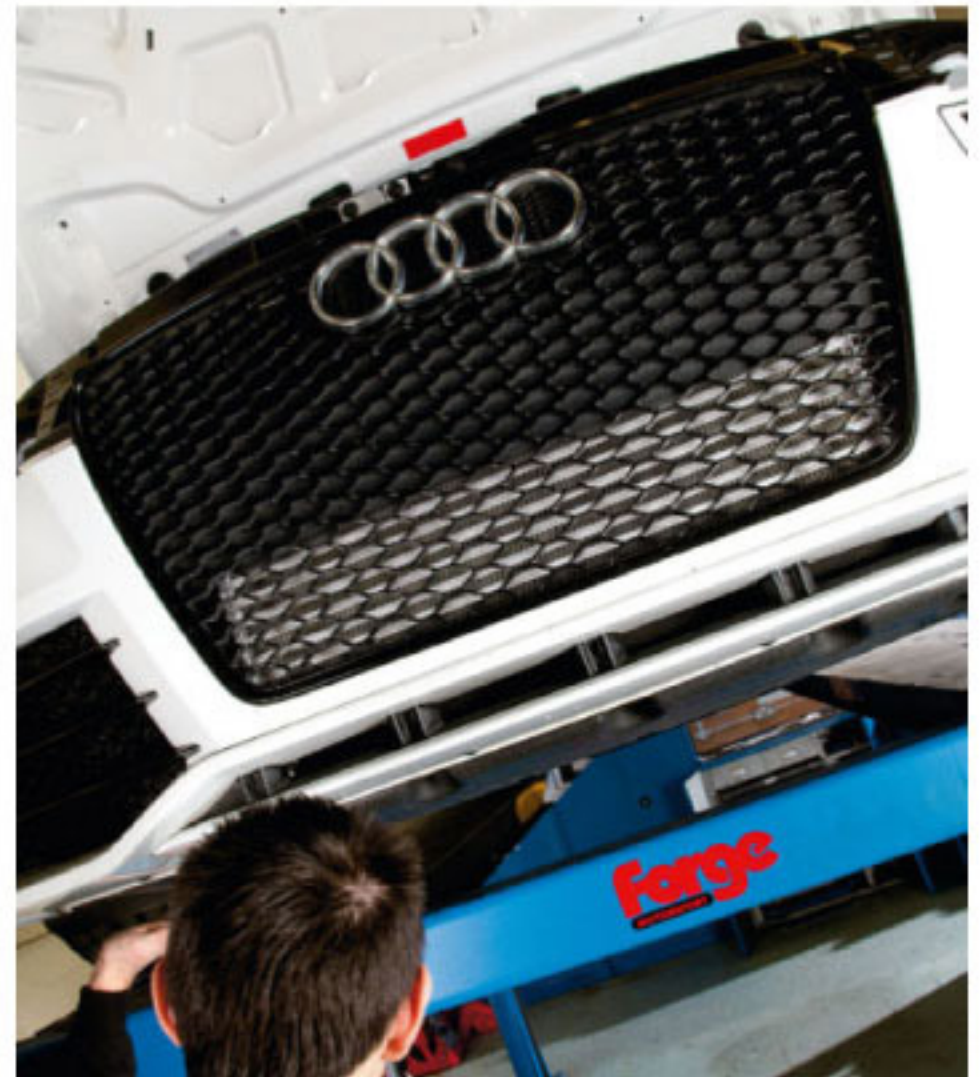


**TEST 2****Forge TT RS intercooler**

**W**ith the Forge intercooler fitted, we drove back to the dyno and immediately noticed a difference. You know how sometimes on a cold morning your car feels like it's got more power? Well, it was like that – without the coldness! The turbo felt like it spooled up quicker and it sounded nicer, too. It's always possible that a car feels different because you know something's been fitted, but we still expected to see power gains on the rollers. We weren't disappointed. Peak power had risen to 418bhp – a healthy increase of 16bhp. Peak torque was

up to 390lbft – again, a decent 10lb/ft increase. More importantly, inlet temps had dropped from a peak figure of 70°C to a far more efficient 56°C, which is great news for any turbo car, especially if you're considering running higher boost and more power. Very impressive results overall.

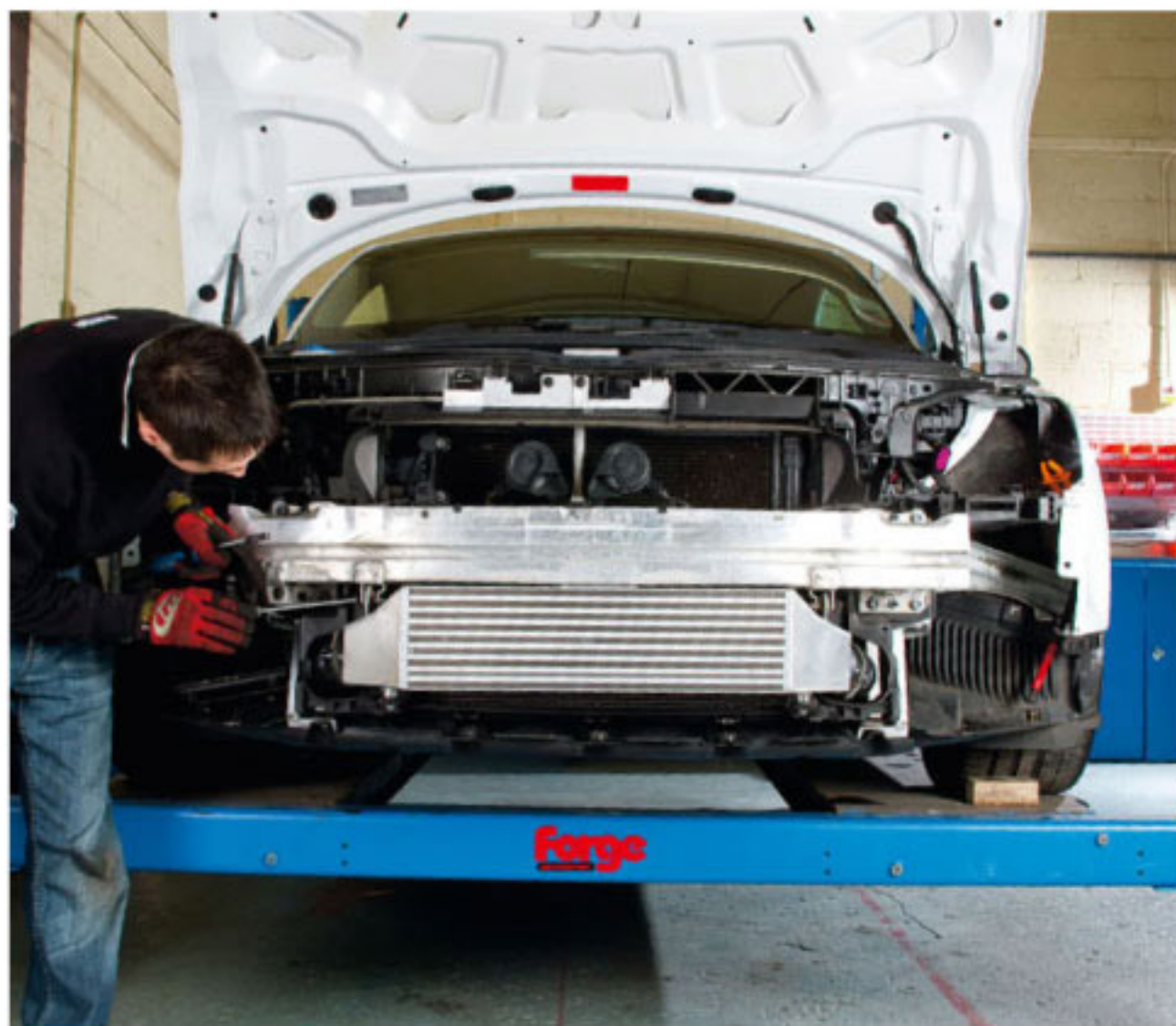
<b>PEAK POWER</b>	418bhp
<b>PEAK TORQUE</b>	390lb/ft
<b>PEAK INLET CHARGE TEMP</b>	56°C



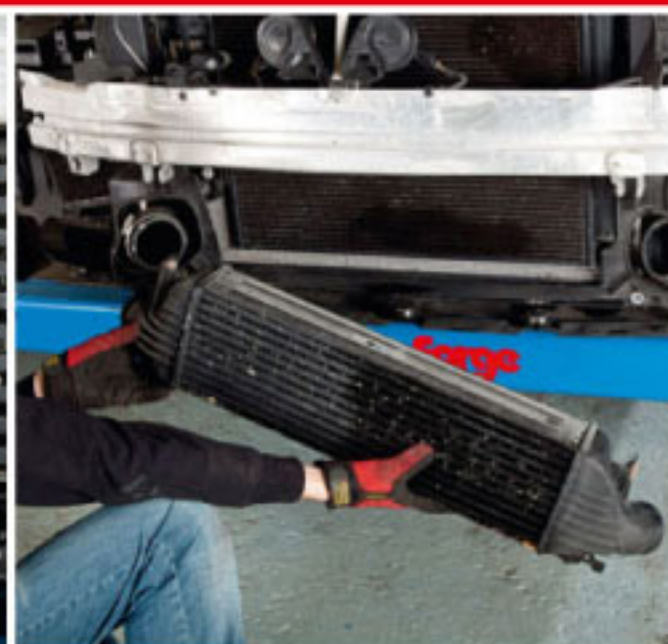
**Above** Forge's new intercooler fits the TT RS perfectly



**Below** Dyno run confirmed the improvement



“The inlet temp dropped to a far more efficient 56°C”



# CONCLUSION

**W**e knew all about the potential for an uprated intercooler to increase performance, but until you actually test something, you can never say 100 percent for sure whether it will work on a particular car. But in this case the results speak for themselves.

Peak power gains of 16bhp and 10lb/ft are very impressive, proving

that the Forge intercooler makes the most of the Revo Stage 2 remap and Milltek exhaust. And the drop in charge temps of 14°C is very good news for both performance and reliability, especially if you're planning further engine upgrades.

At £741, the well-made Forge unit is good value considering the range of benefits it gives. And don't forget, the further you go with

**Below** Difference was felt on the road as well as the dyno

a turbocharged car, the greater effect an uprated intercooler will have as you battle to keep charge temps down. Finally, if, like us, you're not lucky enough to own a TT RS – don't worry – the same basic theory applies to pretty much every forced induction car out there. Get the cooling right and you'll be well on your way to a powerful, reliable engine. *Redline*



## Owner's view

"All I can say is wow! Why didn't I do this sooner? The intercooler does everything Forge promised and more. I wasn't expecting the difference to be anywhere as big as it is. The car is just so much quicker. It pulls harder, holds power better, is more responsive and feels more urgent. Definitely the best power upgrade for the TT RS after the remap."



TT RS owner Jason McGfife was delighted with the results



### Cheers to

▶ Forge Motorsport  
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▶ Powerstation  
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