Words and photography by Iain Ayre

STEALTHY SUPRA

This subtle Stateside Supra packs 500bhp from a standard block and turbos – and makes a mean street racer

Stu Hagen had always planned to get 500bhp out of his Supra while keeping its standard block and twin turbos. Now he's just about got there – but he's not showing off about it. This is one subtle Supra.

For Stu, the whole Jap performance thing started in the summer of 2002, when he was invited to attend a road course school– and got hooked. He also invited his son, Marshall, to join in the fun to help him hone his driving skills. Of course, once you've started down that path, you need a serious car to race, don't you?

The pair have since entered 12 sessions of road course racing, in Portland and in Seattle, and they plan to attack Mission Raceway in Vancouver and Thunder Hill and Laguna Seca in California, too.

We caught up with Stu at the Supras Invade Las Vegas meet in, well, you can guess where. Stu explained the whole process of how he got maximum gains from his Supra without spending a small fortune on a big turbo conversion. It's fairly easy to get 500bhp out of an engine with 30psi of turbo boost, but it won't last long. This car is no dyno trailer queen: it's used both on the street and in (legal) road racing, so it has to be reliable and robust.

Stu has done everything right in the engine bay, and has gone back to first principles in the process. For example, the air filter is not in the engine bay, at all – it's been relocated right at the bottom of the car via some custom tubing, where it picks up the coldest, thickest air available. The cooler and denser the air, the more oxygen it holds and the more power it yields.

It was also obvious to Stu that, if only two-thirds of the GReddy intercooler was visible from the front of the car, there wasn't enough air getting to it. So he designed a set of shrouds which direct as much air as possible through the intercooler – and then he fitted an aerofoil to deflect incoming air upwards, as well. These mods don't show up so much on the dyno, where the incoming air is a 30mph breeze from an electric fan but, when the car is charging and some serious air is being rammed through the system, the engine definitely feels stronger. The SP Engineering temperature sensors for the intercooler intake confirm that the car has a lot more cooling than standard.

The dyno shootout at the Supras Invade Las Vegas event was not, however, the right place to achieve big bhp numbers. As it's 3000 feet up in the Nevada desert, there's not much air – and what there is tends to be hot and bone-dry. It's the exact opposite of the cold, moist, oxygen-thick air that gets the best power out of an engine. Stu's numbers at Las Vegas were still respectable, at 473bhp and 511lb ft. However, fortunately, Stu lives in Seattle, where there's no shortage of cold, wet air and his best dyno result here was 491bhp and 543lb ft. Since then, he has had new cams and fans fitted, so he should now get 500 clear horsepower at the wheels.

Even with a full 500bhp, the Supra's engine is designed to remain ultra-usable in traffic. The inlet ports have been slightly opened up and polished to Stage 1 by SHP Racing Heads, and the cam gears are JUN adjustables on HKS cams, so the cam timing is as spot-on as it gets.

The electronics and fuelling are the usual suspects of American tuners. There's an HKS DLI igniter and an SAFC II fuel tuning computer that piggybacks on to the original ECU and allows Stu to adjust the fuel mixture from inside the car. The fuel tuning computer gets its information from an FJO wideband mixture sensor in the exhaust downpipe that provides an accurate and wide-ranging signal to the fuel computer. The turbo boost levels are kept from going suicidally high by a Blitz controller – and the turbos are also protected by a GReddy turbo timer which keeps the engine ticking over for long enough to cool the oil in the turbos.

That magic 500bhp is just the start of Stu's Supra story. The styling is pretty cool.

Compared to some of the glittering show queens at Las Vegas, his car looks understated – rather English, in fact. The bodywork is mostly standard, with just a small drop on the springs (more for centre-of-gravity purposes than looks). This is an Anniversary Supra, featuring an unusual dark metallic green paint scheme. The wheels had to be light and good quality, and had to provide the right balance of tyre sizes – in this case 235/35 front and 275/35 rear. Substantial, but not huge. The wheels also had to look good, so Stu opted for Volk alloys finished in bronze, which look great with that paint.

The deep Wings West lip under the front bumper (painted body colour) makes ground clearance lower than standard. The RMM rear wing may look excessive but, in reality, if it wasn't up in clean airflow, well above the bodywork, it wouldn't do much. At normal road speeds, wings are usually decorative rather than functional, but this car has clocked 148mph on a long straight during a road race – and the extra stability provided by the wing is very welcome.

Twin-turbo Supras are electronically limited to 155mph, but the Supra bunnies in the US know that all you have to do is to pull the fuse on the ABS braking system to get to 175mph. There are rumours of Supras exceeding 200mph, which doesn't surprise us. One thing's for sure: if you get into trouble at 175mph, whether or not the ABS is working will be largely academic. Has Stu pulled his ABS fuse to see how fast the car will go? Not yet, no...

A nice idea is the bumper-mounted video camera, used mostly during road races to sort out what went wrong and what cornering line would have been better. It gives a much more useful (and dramatic) view of the track than the usual in-car camera mounted on an internal crossbar. It's also a lot less incriminating than a clear interior shot of 150mph on the speedo with a 70mph speed limit sign flashing past, not that Stu pushes his luck too much on the Interstate highways, anyway.

Most people miss the reference on the licence plate. It says 2JZ GTE, which is the proper name for the Toyota straight-six engine under the bonnet. Only those in the know ever notice it.

Stu's interior mods are also subtle, and have been kept to what's necessary rather than turning the whole thing into a Christmas tree. The main feature is a neat bolt-on bar going across the cabin behind the seats, which also has brace bars going down to the floor. This provides somewhere to hang racing harnesses and a fire extinguisher, as well as stiffening up the shell. Not as much as a full cage, obviously, but it definitely helps. There are just a couple of extra gauges, the control boxes for the wastegate and fuelling systems and a speed trap radar.

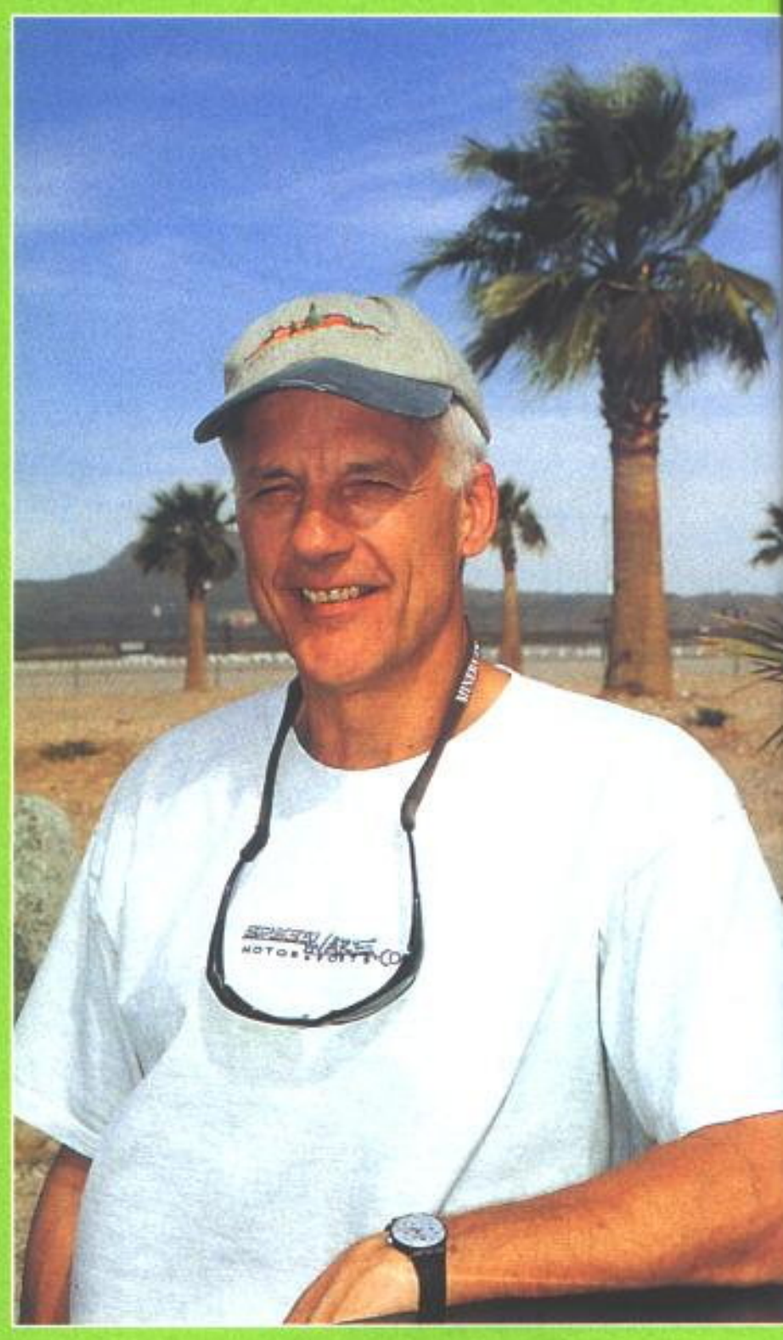
Overall, we'd say that it's rather nice to see a car so understated, especially from the USA: sometimes it's cool to speak softly and carry a big stick. ●

Specification

Stu Hagen's 1997 Toyota Supra Twin Turbo Anniversary

Engine	2JZ GTE 3.0-litre six-cylinder, standard twin turbos and bottom end, Stage 1 JDM ported and polished head, JUN adjustable cam gears, HKS 264 cams, ported and polished intake piping, HKS DLI Twin Power Igniter, A'PEXi Super AFC II fuel tuning, Blitz SBiC boost controller and Power Meter, SP Engineering interior intake temp sensors, GReddy turbo timer, VPC, FJO wideband fuel control, O2 sensor in RMM downpipe, Blitz Nür-Spec exhaust, Fluidyne radiator, Flex-a-Lite fans, GReddy front-mount intercooler with custom shrouding and airfoil deflector, drop-down custom air filter
Performance	Max power: 491bhp at the wheels Max torque: 543lb ft at the wheels Standing quarter-mile: 11.90 seconds at 125mph
Transmission	Standard six-speed manual gearbox, segmented lightweight 16lb flywheel with six-puck clutch
Suspension	Tein HA adjustable coilovers, lowered 20mm, TRD anti-roll bars
Brakes	Standard discs with stainless steel lines, Panther Plus race front pads
Wheels & Tyres	Volk SE37K Bronze alloys, 8.5 x 18 front and 9 x 18 rear, with Bridgestone Potenza SO3 tyres, 255/35 front, 275/35 rear
Exterior	Wings West front lip, painted to match body, RMM rear wing with carbon crosspiece, video camera in bumper
Interior	Defi oil temp and boost gauges, TRS steering wheel, Sparco harness bar between B-posts, standard seat belts plus harness, Valentine One radar detector, Blinder laser jammer

Subtle looks are welcome. Lots of nice touches abound, including a video camera in the front bumper to review cornering lines. Owner Stu Hagen is a keen road racer



Contacts

Bodykitshop.co.uk (0870 199 6843) is the official European distributor of Wings West Aerodynamics. Please quote *Japanese Performance* when calling