

# ON THE RIGHT TRACK

It may look pure JDM, but this supercharged S2000 was built right here in the UK by Dixon Motorsports

Words Dan Goodyer Photos Matt Richardson



Everyone has their own idea of motoring nirvana. That special blend of parts that will set your car aside from the rest. But whatever kind of project you're taking on, doing things in the right order is as important as picking the right parts, and this 400bhp Honda S2000 is a great example of what can happen when you do.

Two years ago, the car's owner, Jack Song, asked his good friend Dixon Cheng to come with him to a

trackday. Both of them drove the car and Dixon, a two-time Time Attack champion, gave Jack advice on his driving technique. Dixon adds, "It's common for our customers to purchase upgrades and then ask me to advise them at a trackday. I get real satisfaction from helping drivers get the most from their car, especially after we have provided improvements. Even without upgrades, tuition makes you a faster, safer driver."

**Above** The many aero additions all bring proven gains on track

**Right** CT-Engineering supercharger is key to the car's power

That trackday had a profound effect on Jack. As an Assistant Director at Ealing Studios, he doesn't have much free time to work on his car. So, he discussed some options with Dixon and came up with a plan. The aim was to optimise the car for trackdays without compromising its comfort for road use, which meant retaining things like the full interior trim and air con.

Of course, the first move was to extract more power from the engine,

**AT A GLANCE...**

Supercharged 405bhp Honda S2000 with properly sorted suspension, carbon brakes and Yokohama A048 semi-slicks

**Spec:** F20C engine with CT-Engineering supercharger conversion by Dixon Motorsport, AEM EMS mapped by Artech Tuning, Dixcel carbon brakes, Carbonetic LSD, Buddy Club wheels, coilovers, bodykit and wing, Spoon diffuser

**Power:** Was 235bhp Now 405bhp

**Torque:** Was 130lb/ft Now 250lb/ft

**We like:** Suspension, tyres and brakes were sorted first and only then did DMS add more power and an aero package



right? Wrong! Dixon explains, "If you want to go quickly round a track, the first thing you want to do is maximise grip and achieve good balance." Sure, it now makes 405bhp, but starting out, bigger gains could be had by tweaking the tyres, suspension and brakes first.

The first round of tuning involved fitting lightweight Buddy Club wheels with Yokohama tyres, bigger brakes and a host of new suspension upgrades. Every part

was specified by Dixon based on his racing experience. Take the brakes, for example: the original calipers are still being used. Dixon agrees that more or larger pistons would be better, but as he explains, ultimately the battle is with heat, and the carbon Dixcel FCR discs and carbon Type-Z pads take care of that.

Dixon adds, "Carbon compound doesn't store any heat, which benefits ball joints and other components. Everything lasts



longer. Temperature control is the most difficult thing to do right on a track car, and excess heat usually results in something breaking.” The Type-Z pads not only stop the car well, but also work from zero degrees, so they meet the project’s criteria of everyday usability.

For over a year, Dixon and Jack went to various trackdays, sharing the driving and then heading straight to the workshop to change

## “The Spoon rear diffuser is worth a second at Brands”

the alignment. Every trackday meant more data for the guys – data they could use effectively thanks to Dixon Motorsport’s Hunter HawkEye laser alignment system. This system is so accurate that many race teams and high-end manufacturers use it on their vehicles. It allowed Dixon to dial in toe, camber and castor in conjunction with tyre pressure adjustments to tweak the car precisely to suit Jack’s driving style. The setup is constantly changing and the gains in both performance and driving pleasure that come from this personalisation process, which the guys are still going through after the best part of 20 trackdays, are very often underestimated.

Eventually, the guys decided that the car was dialled-in well enough for some more power. While this ultimately changed some of the alignment settings, they already had an effective base to work from. Extracting power from N/A engines usually involves increasing compression, gas-flowing cylinder heads and even individual throttle bodies. While there’s nothing wrong with this – indeed, there’s an undoubted grin factor involved in driving a car with a screaming, high-revving engine – Dixon convinced Jack that a supercharger was the way to go. Not only was forced induction arguably an easier and cheaper route, it had a trump card. It would combat what is the S2000’s Achilles’ heel: a lack of torque.

Dixon Motorsport are now the official UK dealer and installer for CT-Engineering centrifugal superchargers. The kit is designed and built at the CT premises near Sacramento, California and comprises a full bolt-on conversion with supercharger, injectors, fuel pressure regulator and integrated chargecooler. Combined with a Buddy Club and 5Zigen exhaust, plus the optional smaller pulley to

jump boost from 7psi to 11psi, the power delivery has been transformed and peak power has jumped from 235bhp to 405bhp. The torque has also been boosted greatly, going from 130lb/ft to 250lb/ft.

Dixon explains, “Where you would normally wait for the revs to rise or drop down a gear, now, you don’t have to. There’s torque you can really feel from as low as 1000rpm. On the track, it means you can push out of

corners faster and it’s much nicer to drive on the road, too.”

At this point, it’s worth noting the assistance of Dixon’s friends over at Artech Tuning in Guildford, Surrey. Romain at Artech mapped the car using an AEM EMS, and the result of these companies working together is pretty impressive. So impressive, in fact, that Dixon has decided to



405bhp S2000

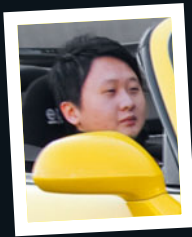


405bhp  
SUPERCHARGED  
S2K



#### ENGINE

Amazingly, the 405bhp F20C engine remains unopened, despite its high compression ratio of 11.5:1. The traditional thinking is that forced induction kills high-compression engines, but with careful mapping and extra cooling the engine remains completely reliable. Dixon Motorsport supplied and fitted the CT-Engineering supercharger conversion, featuring 550cc injectors, integrated chargecooler and the optional smaller pulley for 11psi boost (over the standard 7psi). A Mocal 19-row oil cooler has proved sufficient for keeping the engine temperature safe, while Artech Tuning carried out an AEM EMS installation and mapped the car to its current 405bhp output. That's a lot of power in a lightweight two-seater on semi-slick tyres...



“Where before you dropped a gear, there’s now strong torque from as low as 1000rpm”

**Name** Dixon Cheng **Occupation** MD of Dixon Motorsport **Why didn’t you go for more power first?** “If you want to go quickly round a track, the first thing you want to do is maximise grip and achieve good balance” **How would you describe the end result?** “Like a go-kart, but with more power”

sell his Integra DC2 racecar, which has brought him Time Attack and Nippon Challenge success, and start an S2000 project for himself!

Pointing to a 125cc, two-stroke Tony Kart in the corner of his workshop, Dixon says, “It’s just like that, but with more power! The balance is exceptional, the car is so connected with the driver.” Dixon goes on to enthuse about listening to the whine of the supercharger and the stainless-steel exhaust rising up to a 9,000rpm wail. He continues, “You still get the VTEC kick, but the torque is completely different – you don’t have to wait for it to come on cam.” It sounds intoxicating. Especially considering the chassis tweaks meant that the supercharger power was immediately effective. The addition of a lightweight, 1.5-way Carbonetic LSD fitted in the rear axle made things even better.

You’ll notice that we haven’t got to the bodywork yet. Although Jack is so particular about his car that he once spent the best part of a week deciding where one sticker was going to go, the aero package is there purely for function, not form. A brief grass-tracking moment at Brands Hatch was enough to convince Jack that the car needed more downforce. So, while the combination of Buddy



**Above** All the comforts of the standard interior have been retained

**Below** Despite extensive track setup, it can still be enjoyed on the road

Club front bumper, sidskirts and J’s Racing rear bumper appeal to many, it’s the rear wing and diffuser that please Jack and Dixon the most.

Apparently, the Spoon rear diffuser, which goes back all the way under the rear axle, lowered the car’s lap time at Brands Hatch by a second. Unofficially, the car currently circulates the

Brands Indy circuit in 54 seconds, just over a second slower than Dixon’s Integra race car, and the S2000 still has air con, full interior and a full-size battery. Pretty amazing stuff. Best of all, because Jack decided not to compromise the car too much, it can still be enjoyed on the road. And for us, that’s what tuning is all about. **Redline**





## ■ BRAKES

"One of the biggest battles on a track car is heat management, and the brakes are a vital consideration," explains Dixon. The factory calipers were considered sufficient, but the discs, pads, lines and fluid have all been replaced. Dixcel carbon FCR discs and Type-Z pads absorb very little heat, making them bite consistently. HEL braided lines supply the stoppers with Castrol SRF Dot 4 fluid, which has a very high boiling point. Dixon Motorsport manufacture HEL braided lines, and Dixon says they're vital in keeping the pedal firm and consistent. If you're a trackday addict or considering taking your S2000 to the Ring, this is the setup you need.



## Spec Honda S2000

### ■ Engine

2ltr, 16v, 4-cylinder VTEC F20C engine, CT-Engineering supercharger, CT-Engineering chargecooler with separate radiator, CT-Engineering carbon airbox, Buddy Club exhaust manifold, 5Zigen twin-exit stainless-steel exhaust system with Buddy Club de-cat pipe, Mocal 19-row oil cooler, Samco hose kit, AEM EMS mapped by Artech Tuning

### ■ Transmission

OEM 6-speed manual gearbox, Exedy carbon single-plate clutch, J's Racing driveshaft spacer

### ■ Brakes

Dixcel carbon FCR grooved brake discs with factory calipers, Dixcel Type-Z brake pads, braided HEL brake lines, Castrol SRF Dot 4 brake fluid

### ■ Suspension

Buddy Club N+ coilovers with rose-jointed top mounts, full polybush kit, Hardrace bump-steer kit, Hardrace rose-jointed rear toe arms, Mugen compliance front lower arm bush

### ■ Wheels & Tyres

(f) 8x17in Buddy Club SF with 235/45x17 Yokohama A048 tyres (r) 8.5x17in Buddy Club SF wheels with 255/40x17 Yokohama A048 tyres

### ■ Exterior

Buddy Club carbon-fibre bonnet, Buddy Club front bumper, Buddy Club side skirts, J's Racing rear bumper, Spoon carbon-fibre rear diffuser

### ■ Interior

Sparco Pro2000 driver's bucket seat, original black leather passenger seat, Momo steering wheel, Skunk2 gear knob, Defi oil pressure gauge, Defi oil temperature gauge

### ■ Cheers to

Dixon Motorsport 01322 435330  
www.dmxracingltd.co.uk, Artech Tuning 07949 362535 www.artech-tuning.co.uk

## ■ SUSPENSION

To complement the sticky rubber, a host of suspension parts were added to the S2000. Damping is taken care of by adjustable Buddy Club coilovers, but the rest of the suspension work is at least as important. Every rubber bush has been replaced with a polybush item, giving less flex, which means the chassis feels firmer and responds quicker. Also worth noting are the Hardrace bump-steer kit and Mugen front lower arm bushes. The bump-steer kit essentially consists of lower arm spacers, which are vital for keeping the car settled over high kerbs. The front lower arm bushes see the most load, so Dixon has gone for Mugen items here. Again, this decision is based on the good results he has had with these products in his DC2 racecar.

