



COOL AIR KEEPS IMPREZA HOT

The ultimate Subaru road car relies on the ultimate heat shield coating to sharpen its performance edge

Litchfield's Impreza Type 25 is designed to be the ultimate hot Subaru, using superb design and attention to detail to lift it above outstanding competitors. Based on the already quick Japanese-only Spec C car, it features a more powerful, 2.5 litre engine co-developed with Cosworth. This produces 415bhp, rather than around 300 on the 'standard' car, but it also generates more heat.

"This can be a problem because of the way Subaru engine bays are laid out," explains managing director Iain Litchfield. *"The intercooler sits on top of the engine, rather than down at the front by the radiator. This is fine when you're driving along but if you sit in traffic it doesn't get the air flow needed to keep it cool."*

An intercooler is a heat exchanger that cools the air compressed by the turbo before it enters the engine. Cooler air is denser, so packs more oxygen into the cylinders, producing more power. However, the intercooler's effectiveness is determined by the difference in temperature between air passing through it and the air around it. On the Subaru this is a particular challenge because the up-pipe that brings

hot exhaust gases to power the turbo and the down-pipe that takes them away are both routed directly beneath the intercooler.

To resolve this, Litchfield, having heard about its work on World Rally Championship cars, turned to Zircotec.

The company's plasma-sprayed ceramic coating is proven at the highest levels of motorsport, with five grand prix teams amongst customers for the high-tech thermal barrier. Durability is exceptionally high offering tremendous potential for fast road car applications.

For the Litchfield Type 25 both the up and down-pipes were coated. This prevents the exhausts transferring heat to the intercooler, keeping the charge cool and improving the car's performance. It also increases the engine's responsiveness. Litchfield explains: *"The more heat and energy you can keep in the system, the faster the turbo will spool up. We're finding it's bringing the turbo up to speed 300 or 400 rpm sooner, which you can really feel in the crispness of the throttle response. It's little details like this that make a big difference."*

The up-pipe has been coated with Zircotec's ceramic thermal barrier.



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