



TECH



*MetalCat catalytic converters have proper serial numbers, making them ADR compliant*

# Project

# R32

Story and photos by Ben Ellis

# Part 9

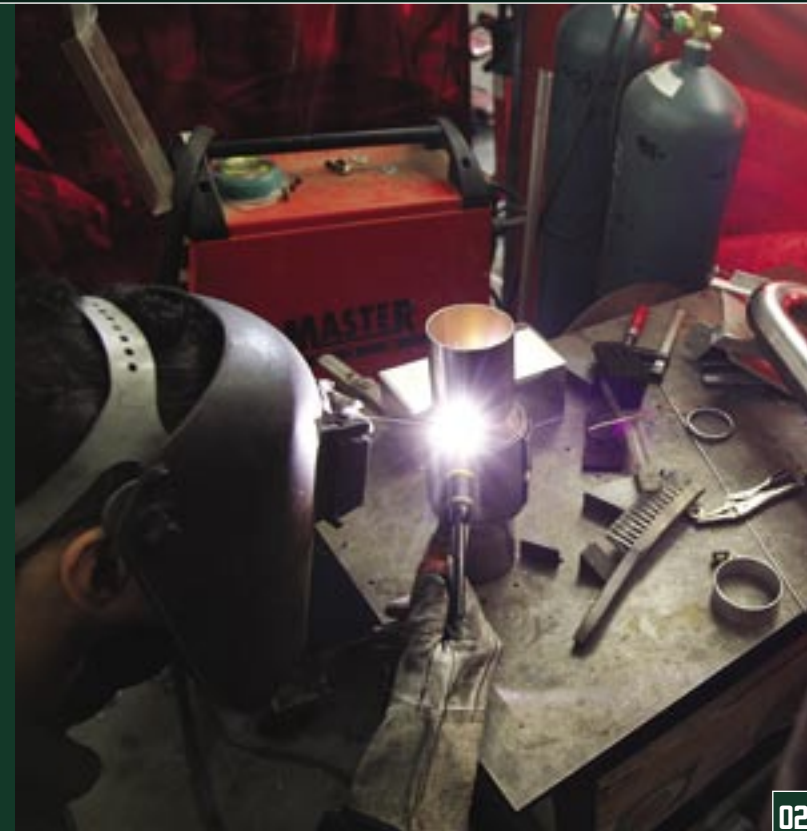
We're still chasing the cause of our sagging boost, but the answer may be very simple

Last issue we tuned up the RB24 engine and found a strong increase in midrange torque, giving us a much wider usable power band. The cam timing was adjusted to make the most torque possible, which would flatten the top-end power somewhat, but the strange situation was a drop-off in boost.



01

1) The MetalCat comes with reducers, but as this one had 2.5in reducers, Rocco's cut them off at the right point to weld on 3in pipes



02



04



03



05

2) Jim made short work of the new flanges  
 3) The GT-R cat was in quite decent condition, but it is only a conventional core design  
 4) The MetalCat core is spiral-wound, with visibly larger passages for the exhaust gas to flow through  
 5) Nissan coils are very good, but 16-year-old coils like these can start to break down at high revs, particularly in a high-boost application





06



07

With the bleed valve untouched, the car holds a steady 14–15psi, but when we try to increase boost, it only picks up in the midrange and drops off to 14psi again after 6000rpm.

Our first thought was that having the wastegate plumbed back into the exhaust was causing too much backpressure. We didn't want to go back to having an open gate, so we thought we'd try a different catalytic converter.

MetalCat supplied us one of its latest cats, which use a 4in 200-cell all-metal core. We got Jim Tamburello from Rocco's to weld up the flanges for it, but unfortunately when tested on the dyno we still had the same boost problem, so there was no change in the power output. We're sure the cat does flow better, but we'll have to find the true source of the boost problem before we can test the MetalCat properly against the old GT-R cat.

While we were at Croydon Racing Developments, however, we decided to try out a set of Splitfire coils. These are very popular in big-horsepower GT-Rs, as often when the ignition starts to break down under high boost, changing to these coils will solve the problem. We've never seen them tested on a milder application like ours, however, so we asked Carl, the one-gloved wonder, to pop them in. This is so easy we could have done it ourselves, but we love watching Carl work.



08

- 6) The Splitfire ignition coils are available to suit all twin-cam RB engines
- 7) The coils bolt onto the standard mounts, so it's very easy to swap them over
- 8) Carl is the Michael Jackson of the tuning world, always wearing one glove at a time





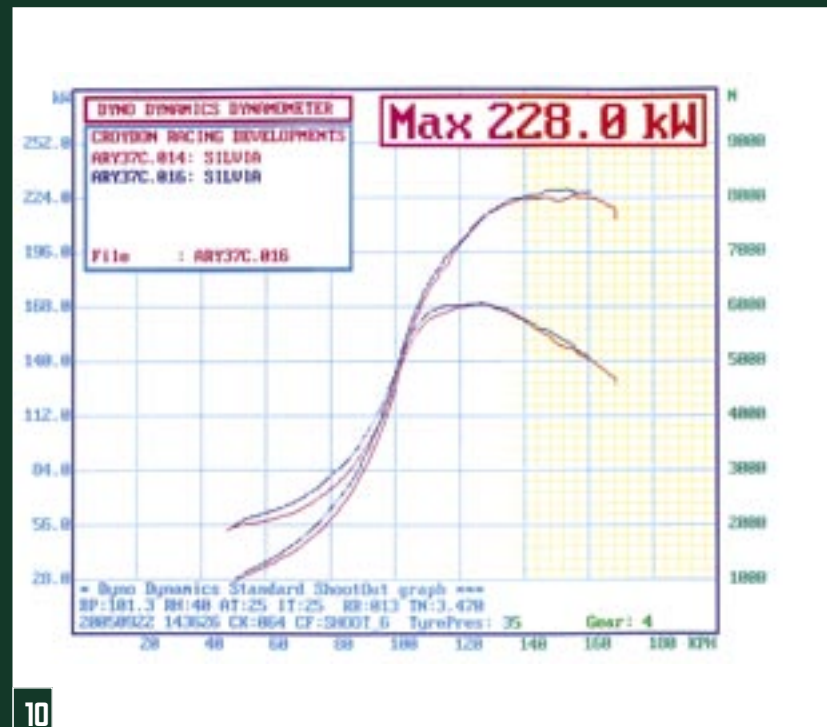
09

The improvement was quite consistent over several runs, with better torque at low revs, around 3–4kW more top-end power on all runs and a smoother curve overall. For such an easy and quick modification, this was a very good result.

Still, we're left with the issue of the boost dropping off. It may be the case that we've already reached the limit of the turbocharger, but before we try an alternative turbo, we're going to fit up a proper electronic boost controller. Our ultimate goal was only 260kW at the wheels from this engine, so we're not very far away. If we can avoid changing the turbo we certainly will, but then again, a more modern turbo could improve the boost response too. We'll just have to see how the budget is going next month.



9) We've lost count of the dymo runs we've done at Croydon Racing Developments  
10) The blue line shows the result of the Splitfire coils, tested at 15psi. Bottom end torque has improved, while the top end is cleaner and shows nearly a 4kW gain. We would expect an even better gain at higher boost



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