

Shed Time in the Warden Garage



This article is based on an email I sent to Geoff Jones on Christmas Day after he sent me the Red Rock write up discussing the various R1 mods he had made. I needed to tell someone!

Thanks for the timely article and amusing read, Geoff. I identify with your radiator travails. I took this week off to deal with various mechanical problems.

Mission 1. The plan was to do the shims at 52,000 (first service as such) on the CBR1000 starting Sunday night after leading the Mirboo North 600 km ride. By 9 pm I had stripped off the plastics, tank, air box, and injectors down to rocker cover. Say it fast and it doesn't sound hard but boy is it fiddly. Next day I still hadn't figured out how to get the rocker cover off – well more explicitly, the throttle bodies to allow the rocker cover to come out the back, but I figured C&C Engineering would do this last bit. So at about 4 pm I set off towing the bike on a trailer up to C&C with the Hyundai for shim only replacement (which turned out to be 8 shims, with 7 inlets tight, and 1 exhaust loose). Except!

While I was talking to Misho on the mobile parked outside Fawcner Cemetery on Sydney Road the Hyundai motor strangely stopped running. The motor would crank over happily enough but not catch. Battery getting stressed, so bonnet up, nothing obvious amiss. Wait. It started 10 minutes later, and I'm none the wiser. This car never breaks down so this is very unusual. Maybe poor fuel?

I continue on and get as far as Sydney Road directly above the above Western Ring Road, 500 metres up the road and the motor stops again with the same symptoms. It's 5pm peak hour traffic, 5 lanes wide, 34 deg., grid lock, trucks galore, dangerous as anything. A quick chat to Misho hoping he is in the area and can give me a tow indicates he is at Berwick or equivalent. Wife Julie is not answering her mobile; she's at a team Christmas Party. No easy options.

Taking my life in my hands, I disconnect the trailer with bike attached and push it across two lanes and park under a convenient shelter. (It was hard enough opening the door into on-coming traffic, let alone working on the trailer disconnection and then moving it.) Car with hazard lights sitting in middle of road, run across three lanes to get to car and push (uphill of course) across two lanes. Normal procedure: stand outside and push driver side car door while steering with left hand trying to see across a lane at a time. Lucky the car is relatively light! The cars and trucks didn't give an inch, though a couple of guys appeared to help push for the last smidge.

Ring Clyde from C&C Engineering and beg favour to pick up bike on back of his ute and continue with valve clearance servicing process. Remarkably he agrees and amazingly a steep concrete ramp

is nearby allowing easy access to the ute tray. The traffic is horrendous – Ring Road grid-locked - so he takes quite a while to come, even from Campbellfield just 5 km up the road. All good.

Car starts of course and the gambler in me decides to risk driving home and so I tootle down Camp Road and Pascoe Vale Road and get home. Phew!

Mission 2: fix Hyundai.

I Google "Hyundai Excel won't start when hot" and get a million hits. Crank angle sensor. Makes sense. The ECU won't provide spark or fuel if it doesn't know where the crank is and it seems like a common fault – like on lots of early model Commodores. More research and then I order via eBay Tuesday night, \$94 delivered, genuine Hyundai part. Impressively, I am informed of transit progress at every stage, from order received, money transferred, picking, and delivered to local distribution warehouse in Tullamarine.

The sensor arrives Thursday at the local post office at 9.06 am. Of course I don't read this email until Thursday night. Install Friday. It bolts low down to the block behind the radiator, front wheel drive, east west motor. Three pin plug and one bolt. Except you can't get to it! 25 bolts later (air box duct, fans, under car stone guards, transmission jigger) and car jacked up high to slide around underneath, 3 hours, installed. No issues so far. Good outcome.

In the meantime the bike is now home, the shim work completed in less than 24 hours. I collected it on the trailer using Julie's Magna.(Or *Bunning's Mobile* as she now calls it.)

Mission 3: Fit new front disks to Magna, 220,000 km, 20 years old, original. I have been putting it off for a year but Ron Johnston suggested it should be straight forward - and it was. Autobarn set for \$83 (eliminates even considering getting them ground at \$25 a throw, especially in the last working week before Christmas) but have to order. Get a second opinion. Heading past Repco on Bells St and dropped in. Yes sir, we have those disks in stock, \$104 takeaway. Done. Fitted, cleaned up pads with rasp. All good.

Mission 4: I was in the process of taking my front CBR white wheel for rolling at Neway Wheel Repairs in West Heidelberg when I went past Repco as noted above. Both rims were dinged on the Melbourne Cup Weekend on the Rosewood to Tumut Road – I didn't see a series of pot holes when in close quarters with Cliff at speed on a fast sweeping left hand bend, which smashed the bike to the other side of the road, dinting both rims. I was able to continue leading and riding through November and December but it was now time to fix.

Trent said it would be ready next day – and it was. And perfect with only the slightest sign of blow torch heat on the inside of the rim meaning no painting required. Cheap at \$60 – cash. Put the tyre back on, return Misho his spare front wheel – I needed something to allow the bike to be pushed around when the shims were being attended to. Thanks Misho.

Mission 5: Put the bike back together, ready for Porepunkah Christmas Camp. All done except fairings but it won't start. Cranks like crazy but doesn't fire. Certain element of déjà vu creeping in to the equation. Car battery in parallel makes no difference. Can only have left a plug off, and there are a lot of them with 4 primary and 4 secondary injectors to manage. Tank off reveals dangling plug with only 50 mm slack but nowhere to put it! I must have stared at it for 20 minutes, went and had lunch, came back and still couldn't find a home for it. Dig deeper and discover it's the idle control valve plug which plugs into the airbox just behind the main big fat black wiring loom that comes up behind the airbox, for those home CBR mechanics. No wonder I couldn't see it. Alas, still no go! Pull apart again and check everything. No good.

Getting desperate. Give up, put on trailer and take it back to Clyde at C&C Engineering, Monday 24th Dec., Christmas Eve. Arrive 1 pm with tools and a cut lunch. I know how this is going to go.

Before I get the bike in the door Clyde says throttle position sensor (TPS) and mode valve (senses air pressure in air box) are swapped. He's right. Every plug on the Honda is a different configuration (number of pins, colour, shape, connection method – kind of annoying, but fool proof) except these two which are identical! (Think that is bad? Apparently BMW S1000Rs plugs are all the same configuration - and all black!) Still no go! Though the motor kicked promisingly - once. Clyde suggested motor flooded and plugs need to be removed and dried. Gulp.

Getting serious now. Bike put up on hydraulic bike stand for easy access. Before I had been working on it on the shop floor while Clyde continued making V8 Supercar fuel filler parts on his CNC CAD lathe and just kept a watching eye out.

Tank up, remove thermal blanket, disconnect wiring loom, remove airbox (eg 10 screws), remove airfilter and airbox fairing snorkels, throttle body trumpets, air box bottom with various short and tight hoses, rocker cover anti-pollution breather valves and another black thin rubber thermal blanket above the rocker cover - just to get at the plugs. Removed, sand blasted for good measure – looked perfect and reinstalled everything and tested. No change. Back to first principles.

Spark? Managed to remove #4 plug via frame hole without pulling it all apart again. Shorted against frame. Has spark. Looks good. Assume others okay.

Fuel pressure? Installed fuel pressure gauge between tank and injectors. Has plenty of pressure.

Injectors firing? Connected all wiring up but airbox removed, injectors in free space. Watch for injectors spraying mist. Try not to burn the place down. Yep, all good.

Error messages on instrument display? Installed a Honda, brand new, still in the packet, special part, links plug and read the diagnostic flashes giving 1-2-29 equals Idle Actuation Control Valve error - stored in memory. It remembers the plug not installed previously so no real issue. Clear memory – a convoluted process in itself. No errors. (I know about these IACV valves because I replaced one on Julie's Magna when the idle speed started behaving erratically a couple of years ago.)

Throttle position sensor? Accidentally swapping the plug connectors may have damaged the TPS which is an integral part of the throttle bodies (read expensive) and very bad and quite common given the identical plugs as described above. Fire up the 286 C&C workshop computer and get the test resistances and voltages of 5V DC and something like 200kohm fully closed and 1.5 MegOhm when fully open from the electronic workshop manual. Tests perfectly. A relief.

Getting desperate. Got spark, got fuel, no errors. 4pm Christmas Eve. Due at Julie's family Christmas dinner at 5.30 pm. I'm going to be late ...

Compression test. Everything off again. Compression reads very low - 50 psi. Should be closer to 200 psi. Bike will never start. Getting somewhere?

Timing? Afterall, the only thing changed was the valve clearances and the timing chain may have jumped a tooth or two in the process, given that the cams have to come out to get access to the buckets and then the shims underneath. Not likely, but possible. Craig (Clyde's son) who does the customer bike servicing was called and he confirmed he cable tied the cam chain to the cam sprockets to prevent just this scenario and double checked the timing afterwards. He is very meticulous and careful. No choice. Have to check.

By this time an interested observer, Graeme, had become intimately involved. He worked for Honda racing for 20 years and is retired now but continues to race privately – a pro-stock CBR1000! He visits Clyde to chew the fat. Clyde managed the engine development/service aspect for Honda Racing Australia for many years, probably for Graeme. Graeme watched for the first couple of hours, not saying much but gradually found himself on the spanners going like crazy, showing me a number of tricks – like you don't have to remove the airbox snorkels, or more critically, the rocker covers also comes out the front with careful jiggling. (I never managed it at home.) And Craig always take it out the back – requiring throttle body removal to avoid disconnecting the throttle cables!

Coolant drained, radiator off, rocker cover off, 14 mm socket on the crank and check the timing marks on the cam inlet and exhaust sprockets, itself a trick with the inlet punch mark visible in one direction and the exhaust only visible in the opposite. All good! Now what? Up to 4 hours non-stop with two helpers.

Check valve clearances. Could have put the wrong size shims in holding the valves open. Re-check all valve clearances. All within spec as per original work order. Excellent.

Check valve actuation and piston condition. Low compression is potentially nasty so out with the next special tool, a battery operated fibre optic camera which is inserted down the plug hole and inlet manifolds to watch the valves open and close as the crank is turned, Clyde on the camera, Graeme on the crank, Ben observing, learning. Piston tops and valve stems look dirty but no holes in the piston. (Phew!) Dirty but probably okay.

So the bike motor has absolutely nothing technically wrong except low compression. Clyde wants to pull the engine apart and replace the rings, reseal valves, and chase the low compression. I want to go for a ride in two days time for 7 days straight. It doesn't feel right as bike had full power prior to this adventure. Its late – approaching 6pm. We decide to use the MotoGP style petrol driven starter wheel to drive the bike rear wheel (instead of the battery) and get some serious oomph happening with motor semi apart and just confirm spark and fuel and watch. I suggest we put the bike completely back together and if we are really, really lucky it will start, seeing that there is nothing wrong with it! So it's Ben and Graeme going like Trojans on the spanners, and Clyde standing around drip feeding coolant into the radiator, bored and frustrated, yet mildly bemused by the intellectual challenge.

Moment of truth. First gear, to turn bike motor over fast to overcome the slipper clutch (?), and let the clutch lever out. Amazingly the bike fires up! With a slightly noisy cam chain on the overrun. Which I can live with – again. Thanks Clyde and my new best friend Graeme – he just doesn't know it yet.

The bike probably would have started 5 hours earlier using the petrol starter motor – if we had wised up. The only rational theory as to why it didn't start with the heavy duty battery in parallel (and why the compression test was so low) is that the standard battery is very weak and actually loaded up the external battery (which we changed to another at some point) such that it was unable to spin the motor fast enough to raise the compression. Or maybe carbon had dislodged and was holding the valves open? Flaky theories but no other explanations spring to mind at this point.

I am forever indebted to Clyde at C&C Engineering for all manner of reasons – emergency bike retrieval at extremely short notice for starters; availability – he works 6 days a week at a minimum and is usually there after hours anyway; methodical and calm delivery of knowledge and experience; high level of tolerance to the social misfits of this world – pretty much all motorcycle riders; and he charges a very reasonable price. Those five hours – we stopped in the middle for coffee and packed lunch (yep, I knew) to ponder and plan the attack – cost only \$200, “We'll talk about it when you get back from your holiday”, half of which he gave to Graeme! You couldn't meet a better bloke. Home by 6.45 pm making Xmas with the in-laws at 7.30 pm (late of course).

Christmas Day saw the fairings back on and a shakedown test ride slowly down the freeway and over the Bolte Bridge and back at 4 pm for 11 am Club Xmas camp departure the next morning. The bike ran faultlessly over the next 7 days with excellent economy (one day ride saw 331 km out of the tank, Andrew), though the clutch cable finally gave up the ghost and has since been replaced. Peter Stevens has genuine Honda cables for only \$20 each. At that price I didn't even consider the Internet and ordered two! Even the parts salesman was incredulous but no amount of checking could increase the price. Go and get a spare now!

I also fitted the original my undented rear standard white wheel with a new tyre so now the bike has two round wheels prior to leading last Sunday's Mt Baw Baw bash (not sure why I bothered given the state of the road) I also purchased a new visor for Christmas after 55,000 km.

I was like a kid in a candy shop with non-thumping wheels, a mint clear visor, new tyres, rotated front pads (the leading edge (the lower side) wears much quicker than the trailing edge, so swapping half way extends pad life by 25% or more) and a smooth and light clutch cable – and it can be rerouted a less stressful way across the top of the rocker cover. Not around it. The bike felt like a 250, the controls and handling was so light and nimble.

Just got to sort the cam-chain tensioner issue - before Tassy. A mechanical screw and locknut type may be the go – if it will fit.

Lucky I recently realised I like working with mechanical stuff – up to a point.

Ben Warden