



Eccentric

Gyro Carless has brewed some bad rad BeeEmms. Here's a blown one to get your blood pressure percolating.

Serious commitment to motorcycling is what Kevin 'Tex' Tehan has. Design drafting by day, Kevin has had a 20 year involvement with bikes and bike politics and even stood for parliament as a candidate for the 'Bikers of Australia Party' in a Victorian State by-election in the early '80s. Unfortunately he lost his deposit but I'm pleased to say that I voted for him on that occasion.

His commitment is reflected in his everyday transportation; this unique turbocharged R100 BMW.

It almost looks like a mildly customised boxer until you notice that extra VDO gauge tastefully mounted above the regular instruments. The turbo installation is so neat that only those with a keen eye for detail would pick it as a really special Turbo BMW, not merely a nice R100 Boxer cafe racer. Very purposeful.

After some persuasion, Kevin bought the bike from Graeme 'Gyro' Carless of Coburg's Ecco Engineering in 1988 after a succession of Triumphs and a stripped Harley Shovelhead dresser. Graeme, a genius with BMWs, built the bike meticulously in the mid '80s. Apart from a few details the BMW is still as it was when Gyro put it together. Even now, nearly a decade later, it is a fabulous looking machine.

The performance offered by this bike must have been absolutely shattering when it was built and is still pretty wild by contemporary standards. On full 12 psi boost the engine produces an estimated 120 bhp and can propel a mere 182 kg (wet) bike at speeds well off the end of the 220 km/h clock...perhaps 260 km/h with this gearing. Imagine that with no fairing!

Gyro is a very large fellow and no doubt required a large boost (the average production Japanese





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turbo sedan runs less than 6 psi) but Kevin has only used full pressure on rare occasions commuting to work on Melbourne's Eastern freeway. He finds the speed of the bike more than ample to deal with errant cars (and motorcycles), Victorian speed cameras not withstanding.

The basis of the motorcycle was a wrecked R90S, but the engine is from a later R100S. The 90S frame was modified, primarily to replace the somewhat marginal bolt-on rear sub-frame of the standard boxer in anticipation of the huge power increases with the turbo kit. Gyro made up a new rear section in chrome-moly which was welded to the frame. The rear Koni suspension units were mounted further forward, along with suspension mounting points consisting of a series of holes to alter the angle of the shocks, similar to Velocette's Venom and Thruxton. The steering head was cut and repositioned to increase trail by 37.5 mm to 127.5 mm in an effort to maximise high speed stability at the anticipated higher (than normal BMW boxer) speeds. Into this frame went the heavily modified engine.

Between the late '70s and early '80s a US company called American Turbo Pak, or ATP, started marketing turbocharger kits for various motorcycles, notably the Z1 Kawasaki and the BMW R100. These kits were based around a Ray-Jay turbine breathing via an early Harley Bendix carburettor and, while sold as a kit, it was hardly a bolt-on affair. Just about everything supplied had to be modified by Gyro in some way. For example, since the turbine occupies the battery's usual spot, a smaller battery was accommodated in the rear seat ducktail.

The general turbo unit itself was a rather agricultural affair, not unexpectedly as it was designed even before the Japanese factories had marketed their own

"I eat those red things two at a time!" Tex's Ecco BMW can give riders of much fancier machinery a serious shock when the flag drops and the bullshit stops.

production turbocharged motorcycles. The ATP kit had the two exhausts collecting on the left, sneaking quite unobtrusively up to the turbine under the rear of the tank, with the waste gate tucked away inside the frame tubes. In fact with the standard BMW carbs gone there is now more room for your shins as the long induction manifolds sweep close to the engine.

The exhaust pipe leads to the left hand turbine, and another fatter one leads out again under the rider's left leg. The Bendix carb faces sideways on the right hand side of the double turbine with a flat pancake air filter. All very neat and effective in theory, but in practice there were problems with the waste-gate and lack of turbo boost. Gyro spent much time modifying the exhaust snail to give optimum response.

The engine itself was also modified to accept the turbo. First, 94 mm (retaining the stock 980 cc) low 7-8:1 compression pistons were installed, since the

bearings, so he fitted a restrictor in the oil line. An indication of the quality of the engine building is that, in his five years of use as regular transport, Kevin has only once had to recondition the heads (new guides, valves reseated) and rebuild the turbo.

On the road, the turbo doesn't begin to operate until 4,000 rpm, where there's a slight lag while it comes on boost. It continues to build up to a peak of 12 psi by which time you're holding on for dear life - with no fairing - at speeds which wouldn't disgrace a contemporary Japanese bike.

The highest possible final drive ratios of 3:1 (33/11) from an R100RS, extensively modified and lightened, have been fitted.

The gearbox is essentially a four speed R75 type, chosen for its widely spaced ratios which allow the engine to load up sufficiently in the higher rev range to get the turbo working.

With years of experience trying to eliminate faults in BMW gearboxes, Gyro has made modifications to the shift mechanism, gear selection cam and the dogs on the gears to obtain a much quicker shift than is usual with BMWs. The clutch is another Gyro special, with increased surface area rather than just extra strong double springs to reduce clutch slip. Unfortunately, that also makes it difficult to use and the rider needs a left hand of godzilla strength.

Wider rear rubber was needed to handle all this power, so the entire motor and gearbox unit was shifted 22 mm to the right in the frame and an older and narrower type of rear tail shaft was fitted. This meant that a fatter - but modest by today's standards - 130/80-18 Avon Super Venom could be fitted. Restricted tyre choice is one of the limitations imposed by the BMW driveshaft arrangement. The rear end modifications mean the wheelbase is a little shorter.

The wheels are Ecco's own; three spoke at the front and four spoke at the rear with magnesium disc carriers and standard BMW early '80s-type single-



A lot of work went into finding optimum length for the exhaust snail, and keeping the zorsts out of the way. The result is a clean and purposeful layout that looks like a factory special rather than a radical performance machine. The boost gauge lets the rider know when he's about to go ballistic.

turbo brings compression up to around 12:1 even with modest boost pressures. A camshaft reground by Wades to Gyro's specifications gives much less overlap; only 45 degrees.

In deference to anticipated higher than usual combustion temperatures, Gyro installed Nimonic 90 stainless steel valves, manufactured his own pushrods and used valve springs from a BMW Formula Two racing engine. All this is ignited by twin plug heads and points ignition (which can be changed to electronic quite easily). Although a mixture of one part methanol to three parts super is recommended, Tex reckons it works fine on super and is very rideable on the street.

Turbos generate a lot of heat and place extra stress on the lubrication system, so a litre larger sump extension was supplied with the kit. Also, as the turbocharger itself spins upwards of 100,000 rpm Gyro felt the standard oil pressure of 75 psi was somewhat on the high side for the unit's shell main





piston floating calipers. Braking performance must be pretty marginal at the speeds this motorcycle is capable of, as they were hardly state of the art in their day. The standard rear drum has been replaced by an Ecco disc conversion, also with a magnesium disc carrier, and the machining and modifications to the rear drive shaft unit are superb.

Up front the notoriously flimsy standard boxer triple clamps have been replaced with Ecco chrome-moly items. A neat finishing touch is the Triumph headlight retained by Dunstall clamps in true British cafe racer tradition.

So what's it like to own and ride such a radical and unique motorcycle?

Kevin Tehan has no idea of his accumulated mileage but does maintain that while it is reliable, it does require a higher than usual level of maintenance. It has an appetite for batteries since cold Melbourne mornings tend to drain the life out of the small unit. Coupled with a sensitivity to ambient temperature (it doesn't like the cold), starting can pose problems, but there can't be many of this type of specialised bike being used as everyday transportation.

So, where does Kevin Tehan go from here?

He could always stand for the upper house of parliament, but in the meantime he feels like a change of motorcycle. Regrettably, the Beemer is up for sale at around \$12,000 (03 345 4885 bus hours) to make way for something more sedate - another Harley maybe.

Tex's Ecco BM Turbo would have to be one of the quickest BMWs in the country, and one of the most unique. It is a superbly well-sorted machine and an incredible buzz to ride.

It also smashes a hole eight feet wide in the stereotyped image of the BMW twin as a staid gentleman's tourer. We like it a lot.

ENGINE AND TRANSMISSION

Base motor	BMW R100S
Capacity	980 cc
Crankshaft	BMW/Ecco
Pistons	BMW 7.8:1
Camshaft	Wade (Ecco specs)
Pushrods	Ecco Engineering
Valves	Nimonic 90 stainless steel
Ignition	Points/twin plug heads
Induction	ATP turbocharger (max boost 12 psi)
Carburettor	Bendix
Clutch	Ecco Engineering
Gearbox	Much modified four-speed R75
Final drive	Early BMW shaft; R100RS diff
Builder	Graeme Carless, Ecco Engineering

FRAME, BRAKES AND PAINT

Chassis	BMW R90S; Ecco sub-frame; increased trail
Forks	####? ?##?! in
Shocks	Ecco triple clamps
Brakes	####? ?###!; Ecco adjustable mounts
Wheels	BMW on Ecco magnesium mounts
Tyres	Ecco Engineering (18 inch)
Paint	Avon Super Venom
	No idea