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1 LUXON TURBINES **BOLT-ON POWER**

Overlander has been under the bonnets of three turboed Toyota diesels. The HiLux and Land Cruiser above are from Luxon's 4WD Centre and on page 44 you'll find another Cruiser, this one from Rallyspeed. If more grunt and less groan is what you want from your 4WD, you'll also be interested in reading our pair of power stories beginning on page 120.

TOYO TURBOS



MR Turbo's turbochargers for Toyota diesels are obviously something special. Mr Turbo, as he's known in the Australian motoring industry, is David Inall, turbocharging engineer extraordinaire. His credits include much design and engineering work on Normalair Garrett turbochargers during the late 1970s — when

aftermarket turbocharging really became popular in Australia — the design of the ARB Engineered turbocharger features in Overlander October, and now, the best aftermarket turbo system we've yet tried on a Toyota 4WD.

The ARB Engineered turbo system on the HiLux we drove last month was impressive, but Inall's AIT system

on a 4-Runner was that much better. The HJ60 system we drove alongside the 4Runner was a reevaluation. Even in the rain.

The AIT systems were on vehicles supplied by Peter Luxon, of Luxon's 4WD Centre. Luxon is the four-wheel-driver who provided most of the feedback used by David Inall to help him produce the HiLux 4-Runner and HJ60 turbocharger systems. Luxon offers the AIT systems at his Melbourne-based outlets, as do distributors in most Australian capital cities and major country areas. Peter Luxon and David Inall came along on the test drive, which could have been a mistake but wasn't.

We talked turbochargers with David Inall as we drove the vehicles he'd improved. And we drove off-road with Peter Luxon, the man who lives and breathes 4WDs. At last count Luxon had owned 64 of them.

"The 4-Runner is a reflection of what Peter said he wanted in a 4-Runner," Inall said as we drove through midweek Sydney morning traffic and over the Harbour Bridge. (The 4-Runner was agile and quick enough to take the cut and thrust of peak-hour traffic.)

"I put power and torque increases where Peter said he wanted them. Things start to happen at 1800 rpm and maximum power of 56 kW at the rear wheels is at 4000 rpm. That is a combination of highway cruising and overtaking ability with the ability to lug it down to very low speeds. The Cruiser, particularly, will lug down to nothing before it will stall."

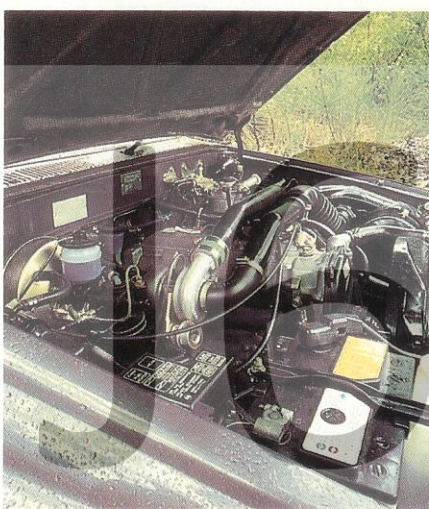
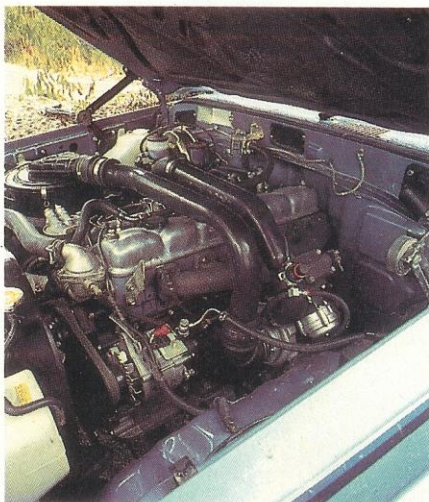
Inall talks of turbocharging as changing the shape of the torque curve.

"It's not just the amount of extra torque available, but the fact that the torque curve has a different shape," he says.

The AIT turbo system on both the 4-Runner and the HJ60 were set up for off-road — and, ironically, Sydney traffic — conditions, with maximum torque produced lower down the rev band. The Land Cruiser developed peak torque at just 1600 rpm and peak power at 3200 rpm. Inall said an HJ60 set up for highway driving would produce its peak torque at 2200 rpm and peak power at 3500 rpm. The customer chooses.

"We offer a version with more horsepower for highway driving and an off-road version with more torque in absolute numbers," Inall said. "Fitment of the two versions is about 50-50. If there is a bias it's probably towards the highway versions."

Inall says his AIT systems for the



The AIT turbo systems installed on the HJ60 (top) and HiLux diesel (above) look neat. Both provided impressive power.

4-Runner and HJ60 coax a 50 percent power increase and about 60 percent torque increase (at the flywheel) from the Toyota diesel engines.

AIT's turbocharger system for the petrol-engined Series 60 Land Cruiser was due for market release in late September.

But back to the diesel turbo systems. Turbines used are Garrett-made — a T2 unit in the 4-Runner (the same unit as in the Jackaroo turbo diesel) and a T3 unit in the Land Cruiser. Both systems use replacement exhaust manifolds, replacement exhaust systems and Setrav oil cooler. Inall considers additional oil cooling essential in all turbocharger installations.

"Air filtration becomes the next most significant area in turbocharging off-road vehicles," he said.

Inall only recently made the Donaldson heavy-duty air cleaner an option, reasoning that most owners of 4WDs will only rarely take their

vehicles into rugged off-road country and would rather save \$200 on the cost of the turbo system.

Retail price of the AIT system for the HJ60 is \$2190 (\$2390 with the Donaldson). The HiLux-4-Runner diesel turbo system is \$1790 fitted.

In terms of their performance in the 4-Runner and HJ60 we drove, both systems look to be good value. We didn't run performance figures on the two vehicles because of the steady rain we put up with on the test drive day. But we were immediately aware of improved throttle response over standard diesel-engined Toyotas. Both vehicles could be driven in traffic with impunity. And they excelled off-road.

Luxon's Supa Ride suspension system on both vehicles was impressive enough to give bitumen and off-road ride and handling together with improved wheel travel. The Koni dampers on the HJ60 had been set firm for towing, yet ride was much improved over showroom Land Cruiser standards.

Tyres on both vehicles were Yokohama Super Digger radials — 31 x 10.5R 15s on the Land Cruiser and 30 x 9.50R 15s on the 4-Runner.

We drove our infamous Sydney metropolitan area off-road course with ease — leaving only the Big Hill, with its tight pinch near the top, for vehicle owner Luxon to drive. (It's always harder to drive someone else's 4WD through terrain where it might be damaged.)

He took the HJ60 up the hill in second gear low range and had enough throttle response to induce enough bounce to somehow snake the big Land Cruiser around a tree stump on the left and good-sized rock on the right. The whole operation was in sticky mud, too. A sidestep suffered on the rock but was repairable.

Luxon then proceeded to drive the HJ60 up and over most of the difficult parts of our off-road course, enjoying himself the whole time.

"The setting for the turbocharger installation on this Land Cruiser were dictated by Peter's requirements," David Inall said as we watched Luxon's skillful off-road driving. "I try to talk with experts in their field and attempt to give them what they want."

"The diesel turbo is the best 4WD for the bush," Luxon said. "Low range first gear makes just about any hill easy. There are good torque characteristics, where you don't create wheelspin but tractive power,"

From what we've seen of the 4-Runner and HJ60 we tested, we'd have to agree.