

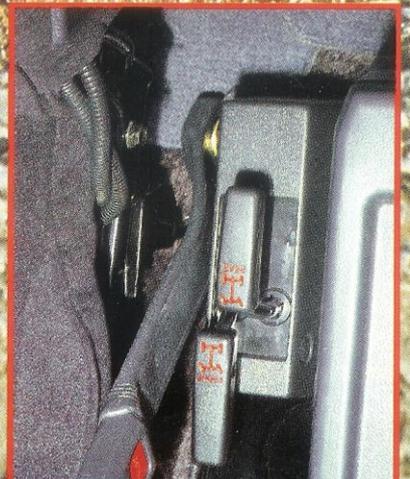
WORLD FIRST TEST

SHOGUN



TOYOTA LANDCRUISER TURBO

**(WITH MANUAL
DIFFLOCKS)**



SHOOTOUT



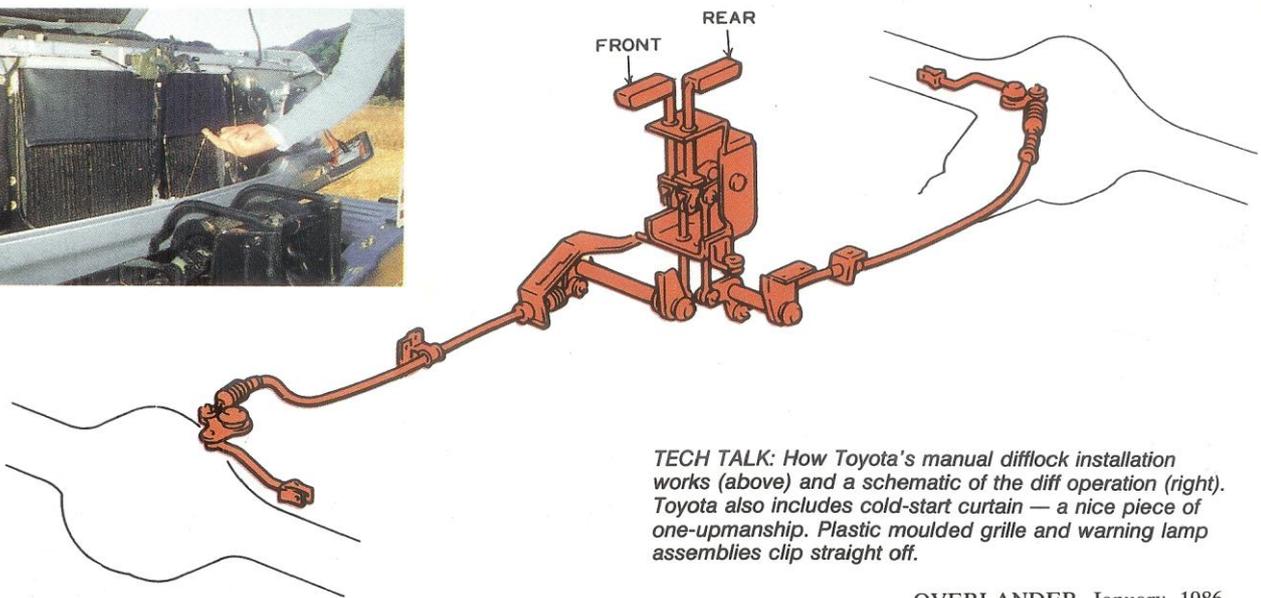
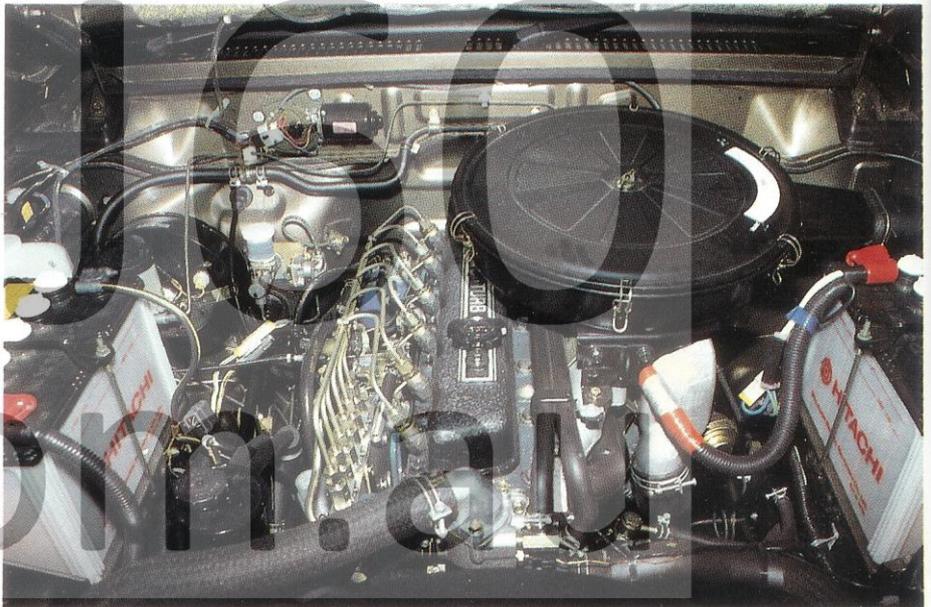
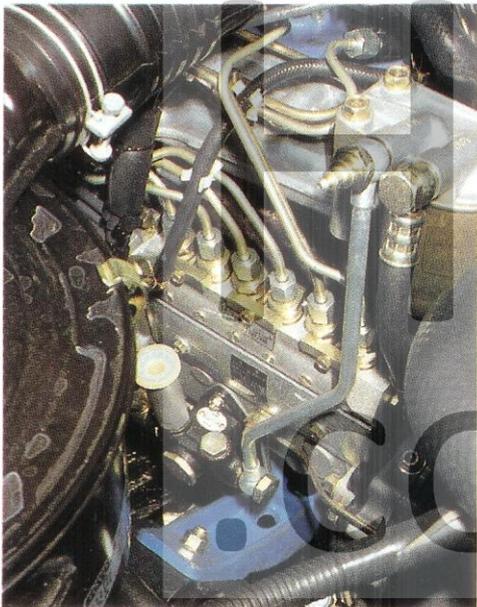
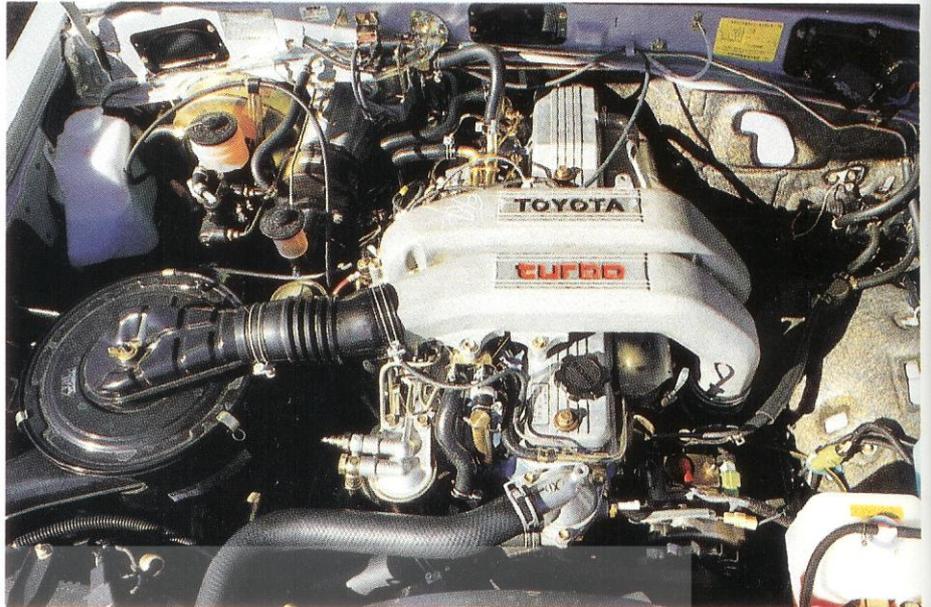
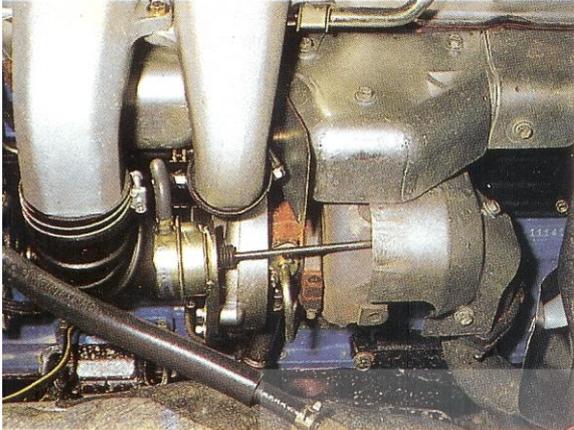
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v NISSAN PATROL TURBO

In the shadow of Fuji, a head-to-head battle of the giants — we pitch the just-released Landcruiser Turbo (with trick difflocks) against the latest Patrol over a tough test course to give you this exclusive comparo of the flagships of the Nissan and Toyota fleets.

Story and photos by Rob Luck-san

BLOW FOR GO: Toyota's sanitary turbine installation uses near-side low-mounted turbine installation (top left) to deliver power through neat cross-over castings (top right). Nissan's unspectacular installation is buried under conventional dish-type air-cleaner, but features precision injector installation.



TECH TALK: How Toyota's manual difflock installation works (above) and a schematic of the diff operation (right). Toyota also includes cold-start curtain — a nice piece of one-upmanship. Plastic moulded grille and warning lamp assemblies clip straight off.

CARWARS — that's the word for the coming battle-of-the-giants in the major sector of the off-road 4WD market in 1985.

TOYOTA will tackle NISSAN head-on with a range of turbocharged engines that will lift the emphasis on diesel power in the marketplace.

The new model range of turbo-diesels will cover three types — 4-Runner, Bundera and LandCruiser Wagon. Exactly as we described in our exclusive news stories in earlier issues.

Launch dates are still a contentious issue. Toyota originally aimed to king-hit the market with a triple-decker launch in the first few months of 1985.

It now seems likely that the vehicle launches will be split and spread over a six month period starting in the second quarter.

The time lag has primarily been caused by the widening gap between the weakening Australian dollar and the strengthening Yen.

This has forced Toyota, in concert with all local importers, to consider the impact of exchange rates on future model plans — since huge price hikes are inevitable if the dollar continues to stagger along on its tottery legs.

However, all three new turbo-diesels will be launched this year. And it is likely the LandCruiser Wagon will be first.

This will compete head-to-head with Nissan's Patrol Wagon which has been on the market for almost 12 months.

While Nissan has had a mortgage on the turbo-diesel wagon market to date,

Toyota will benefit from the extra development time with a larger capacity, and much more powerful engine.

The Toyota engine is almost 4-litres (compared with the Nissan SD33T engine at 3.3 litres) and produces more than 20 percent more power.

Toyota will drive that advantage home with the addition of a manual difflock (front and rear diffs) which will be offered as standard equipment on the topline model, according to our information.

The market has been hanging by its fingernails for these machines, for a long, long time. So with the public preview of the LandCruiser turbo-diesel at the Tokyo Motor Show we weren't about to sit around for many months waiting to see what sprouted up on the local showroom parquetry. No, we thumbed down a JAL jumbo and winged it to Japan, with the idea of bringing you a full comparo test of the two top contenders in the field.

It wasn't that easy. Toyota previewed the turbo in Tokyo, and was particularly coy about formal release dates, specifications, availability, etc. The local distributors were playing their usual nothing-will-pass-our-lips game, and co-operation from Toyota Japan was minimal.

However, we still had some top cards in our deck and we dealt them out in Tokyo. They turned up trumps when a privately organised LandCruiser Wagon fell into our hands.

Our friends at 4x4 Magazine Japan, the leading automotive publication in that country, did the rest. They located a top model Nissan Patrol turbo-diesel, then turned over their own private test ground — a massive acreage of wilderness country covering every conceivable 4WD application, stretched out in the foothills below Mt Fuji. After achieving all this, and in record time, we gave them the credit for fixing the weather (refer to photos).

The test was not achieved without some subterfuge. To maintain secrecy we nobbled the vehicles and stole out of Tokyo in the dead of the night, planning an overnight stay in a small prefecture near the Fuji test track which we could then access at an early hour.

Special insurance was required and the business of negotiating a couple of daunting hours of what the Japanese call "bumpa-a-bumpa" traffic was not without its anxieties. We hauled out of Tokyo in the early evening leaving behind the "Lovely My Town" billboards and battling long lines of Disneyland trucks to get to the outskirts where "Do It Your Cross Country" hoardings signified we were on the edge of the great Japanese "Wood Back" (outback to you).

We already had some dusky insight into the comparative on-road performances of the machines from this exercise.

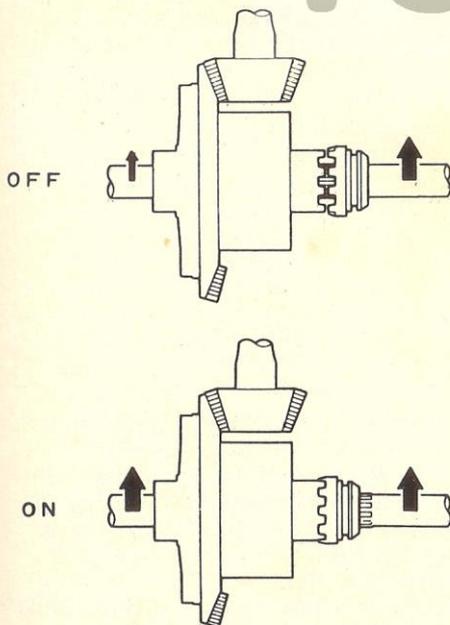
The Nissan, with its well-thought-out 3.4-diesel really sang along the highway with an absence of noise and vibration. It pulled quite hard even in fifth when summoned to get out and around a 12-wheeler. And the gearbox moved easily up and down the gate when the traffic balked progress.

Fifth gear offered 2500 rpm at 100 km/h and that's about where the fun finishes in Japan because if the fuzzi doesn't get you, the "bleeper" will.

The bleeper is an irritating little audio twerp that lets out a penetrating buzz every two seconds whenever the needle goes over 100 on the speed barometer. It's illegal to disconnect but only the prospect of offending our friends stopped us from treating this device with the contempt it deserves (i.e. immobilising it). Anyway, on the bright side, constant exposure to something like that makes the driver computer-compatible, preparing him for a life of horror behind the control of a VDU.

The Toyota, of course, had a similar idiotic gadget, and with even more power than the Nissan, spent even more of its cruising time in the bleep zone. This proved to be a bonus, as it took the mind off the Toyota engine which is noisier and vibrates more than the Nissan. It also goes a lot harder, in fact it pulls like a gun-dog, so we amused ourselves with various acceleration tests, lunging up long hills in tall gears from slow speeds and so on and found it pretty impressive. Basically, the Toyota goes about as well as its petrol-engined partner, and that is quite a decent performer.

We checked our two driving teams



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*Turbo v turbo

into a country motel late in the evening and sized up the units. The 4X4 boys had done a remarkable job in matching the Toyota's specs with a Nissan Patrol.

What we had there were the ultimate topline Japanese versions of each.

The Toyo was something called a LandCruiser 60 Series Station Wagon VX (for very expensive?) with difflock. The Nissan was dubbed a Safari GranRoad.

Both vehicles were stacked-up with about every option you could tick-off on a well-stocked sales sheet. This included these items . . .

- Power steering, brakes.
- Power functions — all windows, remote tailgate, central locking.
- Air conditioning, stereo/tape, moonroof-sunroof (Nissan: sunroof only) with front and rear controls), inclinometer.
- Winch with transmission tunnel-operated control.
- Sports steering wheel and instrument pack (tachometer etc).
- Cloth trim, carpet and other interior goodies.
- Body exterior kit including sidesteps, special front and rear bars, stripe kit.
- Big exterior mirrors.
- Rear wiper-washer kits and headlamp wash/wipers.

There were some subtle differences, and some not-so-subtle ones. In the "blatant" department, Nissan had "big foot" sized tyres — 10.50 x 15s, apparently the largest ever fitted to a Japanese 4WD production machine. Bridgestone Desert Duelers mounted on the 15s produced the same overall diameter as the optional 215R x 15s and were of the on-off road type offering basically good road and sand qualities but dubious value in the mud.

A nasty little side effect of the Nissan fats was the effect it had on tailgate access. Nissan fits a two piece horizontal-style tailgate with swing-up glass panel on the top half rather like a Range Rover. One problem: with the fat DD swinging on the tailgate hinge-mount, the glass wouldn't open without tilting the spare. Naughty, naughty.

The Toyota, with its standard tyres and under-floor stowed spare, didn't fall for this trick, but with fats would suffer a similar fate no doubt. Working with both these systems pointed up just how ordinary the yankee-style tailgate system is — a key reason why Toyota at least is offering a vertical-split door option.

Both these units had factory winches fitted, and the way they are

SPECIFICATIONS

	LandCruiser HJ61X VX	Patrol (Safari) GranRoad
ENGINE		
Type:	Six-cylinder turbocharged diesel, water-cooled, OHV	Six-cylinder turbocharged diesel, water-cooled, OHV
Bore/Stroke:	91/102 mm	83/100 mm
Power/Revs:	102 kW at 3500 rpm	87 kW at 4000 rpm
Torque/revs:	314 Nm at 2000 rpm	262 Nm at 2000 rpm
Capacity:	4.0-litre	3.3-litre
Power/litre:	25.6 kW/litre	26.8 kW/litre
Fuel:	Diesel	Diesel
GEARBOX		
Type:	5 speed	5 speed
Ratio	High Low	High Low
1st	4.843 9.506	3.897 8.576
2nd	2.618 5.139	2.370 5.214
3rd	1.516 3.064	1.440 3.168
4th	1.000 1.963	1.000 2.200
5th	0.845 1.658	0.825 1.815
Rev.	4.843 9.506	4.267 9.387
Transfer case:	1.000/1.963	1.000/2.200
Axle ratio:	3.7:1	4.375:1
Diff locks:	Front and rear axles	No
SUSPENSION		
Front:	Rigid axle, leaf springs, double acting shock absorber and stabiliser bar	Rigid axle, leaf springs, double acting shock absorbers and stabiliser bar
Rear:	Rigid axle, leaf springs, double acting shock absorber and stabiliser bar	Rigid axle, leaf springs, double acting shock absorbers and stabiliser bar
Tyres:	215R15	10.50R15
BRAKES		
Front/rear:	Power assisted (dual circuit with proportioning valve) ventilated disc/drum	Power assisted (with prop valve) ventilated disc/drum
STEERING		
Type:	Power assisted ball and nut	Power assisted ball and nut
Turning circle:	12.4 m	13.4 m
DIMENSIONS		
Length x width x height:	4750 x 1800 x 1910 mm	5080 x 1810 x 1985 mm
Wheelbase:	2730 mm	2970 mm
Track front and rear:	1485/1470 mm	1465/1455 mm
Ground clearance:	190 mm	220 mm
Mass:	2150 kg	2170 kg
GVM:	2610 kg	2630 kg
Mass/power:	21.1 kg/kW	24.9 kg/kW
GVM:	25.6 kg/kW	30.2 kg/kW
Fuel tank capacity:	90 litres	82 litres

offered from the factory explains why after-market installations are still the go in Australia.

The entire winch assembly is mounted outboard of the original bumper line with the bumper repositioned a good 30cm (15 in) further out into the airstream. Since this tends to look pretty ridiculous on

a family-looking wagon, both Nissan and Toyota tried to tart-up their installations with really chintzy chromed-checker plate. It adds up to about two square metres of bad taste — and inefficiency since approach angles are affected.

Nissan wins a bit of that back with a nice piece of lateral-think engineering



DOING IT TOUGH: Toyota's difflock-equipped Cruiser crawled up slippery black-soil slopes better than the Patrol, which handled and rode better in rutted bogs. Nissan chose automatic freewheeler hubs while Toyota opted for manual (insets).

in the winch design — a locking hub. This is matched inside the cabin by a PTO lever that has a neat machined protection plate — magnetised and grooved for quick and easy use.

Both the units are good quality, and since they are engine-driven, are capable of delivering the full near-900 lb pull at any time. The Nissan's PTO is driven directly from the gearbox — not the transfer case — because the same transmission is used in light Nissan trucks (2/4 tonnes) where the PTO facility is used to drive doovers like agitators for cement trucks and hydraulic systems.

Both machines are fitted with 24 volt electrical systems. The Nissan is thoughtfully equipped with a warning on the cigar lighter to remind you that

a trouble lamp plugged in here will have a very bright but very brief life.

Package-wise, these machines are virtual clones from the same mould.

They are similar in length, height and weight. The Nissan has a longer wheelbase and the Toyota has a wider track (and wider body). Ostensibly this should give it more interior body room, but in practice, the Patrol's extra centimetres in the wheelbase pushes the wheelarch back behind the rear seat squab making for more comfortable accommodation here. The opposite applies in the front where the extra-wide transmission tunnel narrows footspace in the Patrol (in the Toyota it is generous).

The bodies look similar, both using the six-window layout that is form for wagons with basically similar front

and rear screen angles. The Nissan has a higher, more bulbous roof which gives more interior head room but which is less aesthetically pleasing.

Nissan installed a forward facing "skyport" in the high-roof which makes it look a bit like a compact tourist coach. With tinted glass, it will give you a reasonable strip of tan across the forehead.

The seating positions in the Nissan are slightly higher offering better all round views from any seat. The Toyota driver sits low, looks up over the boundary fence of the waistline and has to make judgments on clearances of much more rounded body lines.

The Nissan offers truck-style mirrors which would be pretty easy to leave hanging in the trees like Christmas decorations in the appropriate country. The Toyota mirrors are big, but streamlined and fold back flush when impacted. When folded, they don't protrude beyond the bodyline. In Japan all mirrors are convex, which is quite relevant on their crowded streets, but replaceable with standard glass for Aussie use.

The mechanical specs are similar with some interesting variations.

The under-shell rig is based on a solid chassis system with leaf-spring live axles hung at each end. The Nissan rear end is fully floating, whereas the Toyota's is three-quarter.

Both have straightforward five-speed transmissions (except for the Nissan PTO from the box) with conventional transfer cases. However, the Nissan has a LSD rear end, while the Toyota has gained front and rear diff locks.

There are manually operated (push-pull levers) with a kind of dog-clutch engagement (which works well). They are set up so that the front can not be engaged without the back, although the back can be used alone. This is a good system since this allows the rear diff to be used without locking the front hubs which, besides saving a short outdoor trip, would help the machine through some light off-road chores.

This almost reads as Toyota's "serious" answer to Nissan's automatic freewheeling front hubs. Not popular with the "serious" off-roader, these operate in the same way as a Pajero with cam-lock once 4WD is selected. Unfortunately the hubs can unlock in reverse, taking a metre or so to automatically re-engage,

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by which time you could be up to your armpits in something you were trying to avoid.

The Toyota has a power-booster for the clutch. This makes for very light operation, but the Patrol's doesn't feel heavier anyway.

The parking brake on the Patrol is located on the rear propeller shaft, in theory a more effective position than the Toyota's which is installed in the rear brakes, after the reduction provided by the differential. However both worked equally well on the steepest hill we could get the machines up and down.

Driving differences between the two machines fall into subtle zones of assessment.

The Toyota is obviously more powerful. The big engine surges the car through traffic and makes it a winner in those iffy on-road situations including overtaking and clambering up big mountain ranges. It has abundant torque reserves and is therefore ideally suited to lugging heavy loads, whether on-board or on the end of a towbar.

Off-road, that advantage is less evident, and without using the Toyota diff-locks it does not appear to have a significant off-road edge in any regular situation.

With the locks engaged it is another story. This is the same sort of system preferred by Mercedes for the G-wagen (with mechanical operation replacing the Mercedes' hydraulics). The spring-actuated dog-clutch provides only a momentary delay to selection, and with all four wheels engaged the machine becomes a tour de force for the off-road.

Besides being capable of attaining steeper gradients on slippery ground, it is safer when crabbing across a hillside. But it is particularly effective when negotiating very uneven ground (rocks for example) when one or two of the vehicle wheels are hung up in the air. In situations dedicated to halting the forward progress of the Nissan, the Toyota will charge right on through.

It's not all happy news though.

For a start, inexperienced operators need to take special care. Toyota provides a warning light to indicate when the diffs are engaged, but it could easily be overlooked and this is potentially dangerous on any normal surface — smooth gravel or bitumen — since the vehicle wants to charge straight ahead on corners. In the wet it may even rear end steer.

Toyota has also thrown some of its traction gains away with poor suspension design. We don't want to

jump back up on the soapbox on this point since it is well known that Toyota's ignorance of suspension design has done more to foster after-market suspension firms than any other factor. But this test really pointed up the shortfall in design.

The Toyota suffered chronic pitch in bumpy terrain, and in many conditions this caused the corners to come unstuck. As anyone knows the name of the game is to keep the tyre patch in contact and the Toyota fails to do this a lot of time.

The prognosis seems to be over-firm springing with inadequate travel and over-soft dampers. This turns the machine into a veritable "lurch". On the test track its lack of suspension control really showed up in rutted bogs, where the machine bounced off-line, hooking wheels in the air, generally floundering. On one occasion, it just spun right out in the middle of a mudbog, a situation that was only retrieved by the use of the ubiquitous diff-locks. Smacks of band-aid engineering, eh?

Toyota has obviously detected the negative effect of the suspension on the vehicle's ride quality. Their answer: fit suspension seats both sides. These were elaborate devices, with pressure adjustment (wind up type) from 20 to 100kg/m. This is how they worked . . .

On low settings, the seat bottomed out hard on any sizeable rut or dip. On medium settings, it bottomed, had more compression control, but seemed to rebound harder. On hard settings it came down slow and went up fast. Head-knocking on an ordinary bush track was so commonplace we considered going back for crash helmets. With the sunroof open and the seatbelts stowed, the suspension seat could double as an ejector seat.

The good news for Australian suspension modifiers is even more business in the future. Even seat suppliers will be happy — though suspended and restyled, the seats don't come near a good Recaro.

The Nissan was much more inviting. It had more suspension travel and the longer wheelbase and different rates soaked up a lot of underwheel aggro. Nowhere near right, but vastly better than the Toyota.

Where the Toyota shone was in rocky country, taken dead slow. The Nissan was quite smooth on rutted tracks, and provided a nice on-road ride. Handling from the fatbags was good too, and the car turned-in nicely and carved gravel and bitumen corners neatly with little body roll.

The LSD was very handy in a lot of situations — for example when encountering unexpected sloppy ground without 4WD engaged.

The LSD unfortunately requires special gear lube (not required for the diff locks) which is both inconvenient and more expensive.

The Nissan also achieved superior ride performance without the use of suspension seating.

Both systems have a long way to go — they frequently smacked onto the bump stops in rough situations.

Nissan originally did its engine homework better, producing a car-type engine which is smoother, quieter and less like a diesel than the lumpy, rattly, harsh Toyota (ex-truck) unit. However, the Toyota undoubtedly has more performance. Nissan can catch up in this area by upgrading capacity and the diesel performance is still adequate for general use if not up to the Toyota's towing ability. Fuel economy on the two vehicles is similar.

Obviously, everyone wants to know how the Toyo turbo stacks up against the after-market units.

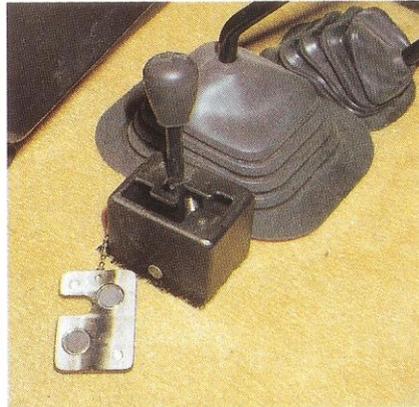
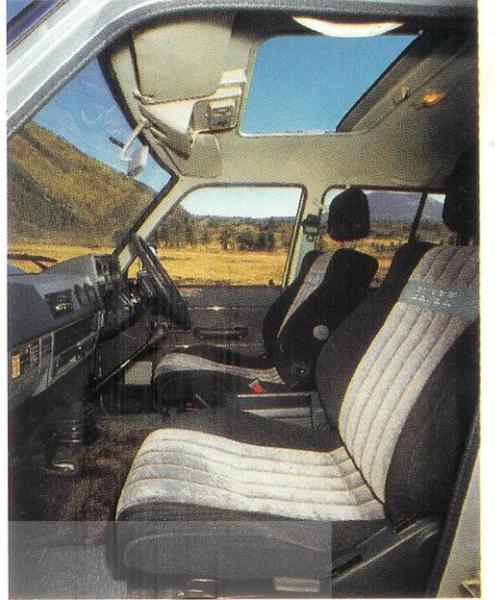
In terms of claimed power output — it doesn't. Toyota refuses to be drawn into the hot-rodding market, preferring controlled power improvement which doesn't effect its other objectives of reliability, durability and economy. Considering the amount of engine development and the time to get this unit on the market, this is to be expected.

Interestingly, the wagon performs equally as well in most situations as some after-market units claiming far higher outputs. Obviously, the more reputable after-market suppliers can substantiate their performance claims and have superior acceleration figures claimed. We look forward to the first opportunity to match factory original and after-market turbos head-to-head.

Price could be an important consideration.

The turbo has added about Y240,000 (Yen) to the price of the LandCruiser in Japan, which translates (their words) into about \$A2000.

This compares favourably with after market conversions at \$1700-\$2500, although the power output and range of features offered may be somewhat different. Warranty levels seem compatible, providing substantial companies are employed to do the after-market job. And, of course, there are many secondhand Cruiser owners who will want to upgrade — one way or the other — when they see what the factory offers this year. 



THE BIG HOLE: Rear compartment of Toyota (top left) and Nissan (middle left) shows how Nissan's longer wheelbase puts wheelarches wholly into loadspace area. Nissan floor-mounted jack has its own bootie. Toyota front cockpit (top right) and Nissan (bottom left) have virtual xerox-specs. Of two dysfunctional protruding winch-mounts, Nissan's (above) was most interesting with freewheeling hub and magnetic-plate gate-protector on PTO lever.

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