

Nota Le Mans - the Australian answer to the Atom.

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I've just arrived at Nota in Middle Dural, the north western greenbelt area of Sydney to see Australia's registerable answer to England's Ariel Atom, and there to greet me is Chris Buckingham, dubbed by The New Zealand Constructors Association as "The Wizard of Oz in his Nota Wonderland," and I'm getting a guided tour!

Nota have been building sports and racing cars for over 50 years and Chris Buckingham has been designing these cars since he was at school and university, 30 odd years ago. He lays claim to many very distinctive and innovative cars; designing the body and aerodynamics of the Nota FIII & Formula Ford and thereafter the complete cars as follows: The CP3 Chimera with Coventry Climax and Ford engines; TS and TSS, Fangs with Cooper S, Lancia, Ford, Toyota & Suzuki engines; Nota Formula 5000; Marauders with Cooper S, Lancia, P76 V8 and the Four wheel drive 351V8 Ford engined Marauder; Twin Cam & 2litre Nota Levanti's; Four different Nota Clubman's; The 2 Litre Turbo & Quad Cam V6 Nota FI and now the Nota Le Mans, just to mention some of his major designs.



But today we are primarily here to look at his latest design, the Nota Le Mans. It feels like I'm the kid in the proverbial candy store. What a smorgasbord of cars are here to greet me, initially. I'm ushered past a "Fang on steroids", one of the Nota FIs. It sports a Quad Cam 200 plus BHP V6 Toyota engine, total weight of the FI is only 680 kgs. The 70's Nota Fang was formidable enough with a power to weight ratio better than a GTHO Falcon but what a car the FI is with nearly double the Fangs horsepower!

Next car we go past is a Lamborghini Countache in which Nota are fitting a V12 BMW engine. Ron Dennis got 680bhp in his McLaren sports cars with that engine, so it maybe a very good choice.

Then we pass a Bolwell Mk 7. Boy, what a transformation. The Holden front cross member has been removed and a modified Nissan, cross

member, power assisted rack, discs and uprights are married to Nota adjustable wishbones (Saving over 60kgs). To the backbone chassis Nota has added a perimeter chassis and roll cage which is welded into the sills of a Mazda MX5, dramatically increasing the torsional stiffness, (an inherent weakness with the backbone chassis). This allows the Mk7 to use the doors, scuttle, windscreen and soft top of the MX5 and provides very nice electric windows as well. The rear suspension was altered; the live axle being replaced with a Nissan 280Z independent one. It's then shod with Sumito 15"x 215/50 front and 15"x 265/50 rear on Simmons 15x7" and 15x9" respectively. Finally, the engine to go in is from a GTR Nissan "Godzilla". What a formidable car this is going to be, but does one call it a Bolwell, Nissan, Mazda or a Nota It is Probably more Nota now than anything else as they are the ones who have engineered and put this incredible package together in a redesigned, rebodied and transformed soft top sports car (it was originally a coupe).



Well, back to more recognizable Nota's; a historic TSS Fang and then a new Fang and a Clubman in construction. But, there in the foreground is the car I'd come to see. A bright red Nota Le Mans. What a pretty car.

Like Atom in England and Elfin in Australia, Nota are looking into a range of cars for the new millennium of performance oriented motorists. Nota's mid-engined FI Quad Cam V6 and their Fang & Clubman which both sport Toyota's VVTLi 6speed 140 kw Corolla Engine/Transaxles. Nota are adding a new string to their bow, the Le Mans.

Nota's racing format 2C Super Sport, the Le Mans, has been reengineered and re-engined to comply with Australia's ADRs and whilst it has increased from its racing weight of 425kgs it has gained a 1800cc VVTLi Engine. Chris's preference is in mid-engined cars and the Nota's mentioned above boast this layout.

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A mid-engined format, aside from the weight advantage which can be as much as 100kgs over similar engined front engined cars, has low polar moment weight bias with a higher proportion of weight on the drive wheels and nearer to the center of gravity, (A car with a low polar moment has much more predictable handling as the main mass is closer to the centre of gravity and thus not exerting a lever arm on the mass). Chris went on to say they had gone to considerable effort to make the C of G as close to the driver as possible so the driver has the best control of the vehicle. This is also the position of the fuel tank in its own capsule directly behind the driver's back so the depleting fuel mass doesn't change the weight distribution, also a mid-engined format allows for a lower frontal area with less weight on the front suspension giving further benefits in handling and lower sprung and unsprung weight distribution.

The above design parameters make the range of Nota's aerodynamically distinctive, unique and, especially in the case of the new Le Mans, very pretty. This is probably the reason the Le Mans is now a road car as well as a racing one. Chris said every one who saw the racing version kept saying what a magic looking car it was and wouldn't it be great if you could have a car like it on the road. Well some three and a half years later the RTA finally approved the Nota Le Mans for road use. (See "Evolution of the Species" article in the CDC of A Magazine April 2005)

There were a few more hick ups to get it through registration though and the racing wing had to be removed, a new one was made though which uses the top of a Ford XR8 wing. I guess the RTA would have to remove all the XR8 wings if they want to get Nota to remove theirs! The Le Mans went straight through its blue slip inspection

without a fault the inspector saying "doesn't it stop well". The Le Mans is equipped with low boost 4 wheel ventilated discs with even brake bias. It stops as effectively at the rear as most cars do at the front due to the car's set up and weight distribution

It's now registered and a test program is taking place, a new across-the-car wing has been added to the front as well as a rear venturi which also incorporates a bumper bar; I guess the racing 50mm ground clearance wouldn't be very practical. At present the prototype doesn't have doors, but that is one of the first options being explored along with a wider cockpit which would be able to fit standard Recaro seats as well as Nota's racing ones.

As previously mentioned, the car owes its origin to a 2C Super Sports car and is a development of the Nota Fang, which, as the Fang is designated as a production sports car by CAMS should make the Le Mans eligible to race in the Production Sports Car category as well as be a road car with around 3.5kg/kw with a standard unmodified Toyota engine. This is quite a staggering figure if compared other performance cars

Here is a table of other performance cars. (Figures taken from "Motor" October 2005 except the Nota figures; they are from Nota's tests, figures and estimates)

In descending order of weight per kilowatt of power, generally the less weight you have to push per kilowatt of power the higher the performance. Performance per Dollar is outstanding as well at \$69,990 in road registerable form, with every thing brand new including a brand new engine and transaxle (or \$34,990 without Toyota components)

<u>VEHICLE</u>	<u>MODEL</u>	<u>PRICE</u>	<u>Kg/Kw</u>	<u>0-100 km/h</u>	<u>0-400 meters</u>
Lotus	Elise	\$69,990	8.84	6.85	14.84
Lotus	EliseIIR	\$94,990	6.14	5.62	13.99
Maserati	Spyder	\$212,500	6.03	5.27	13.50
Mercedes	SL55AMG	\$372,900	5.34	5.34	12.82
Porsche	911TurboS	\$348700	4.83	4.26	11.99
Ferrari	F430	\$419,000	4.22	4.30	12.39
Lamborghini	Gallardo	\$399,346	3.94	5.55	13.36
Lamborghini	Murcielego	\$599,943	3.87	3.60	11.73
Nota	FI V6	\$ 79,990	3.8	3.4	10.90
Nota	Le Mans	\$ 69,990	3.5	3.2	10.63

Sports Car Comparisons in descending order of weight per kilowatt of engine power

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The body, which is its most outstanding feature, like all Notas is designed with aero dynamics as a major factor; with a very slippery nose tapering up into the guards with their Perspex covered Hella 80mm lights and on into the massive Kevlar carbon/glass fibre composite air intakes for the radiators and induction systems which doubles as 300mm anti intrusion barriers for the sides of the car. In between these air intakes is the cockpit which rises out of these aero dynamic tunnels and encapsulates the passengers of the vehicle. Immediately behind the roll bar is the engine bay in which the Toyota VVTLi 6 speed engine transaxle sits inboard of the rear axles. All this is covered with a 5 piece body which, in racing trim, weighs only 27 kgs. The aero dynamics are then complimented with a wrap round aero screen and the afore mentioned spoiler and rear venturi / bumper bar.



The nose and rear pivot forward and backward respectfully and the scuttle panel can be removed with 8 quick release screws leaving a bare chassis, suspension and engine transaxle fully open to work on!

The chassis is a composite one using a central passenger capsule made from high tensile steel with torso braced roll bar which is then bonded and riveted to a laminated alloy /phenyl resin composite, (with a far higher stiffness per weight than alloy honey comb). The alloy laminate is used in torsional stiffening diaphragms; this is then complemented with progressively collapsing side tubs which again use cutting edge racing materials of Kevlar and carbon fibre. This exceptional chassis with over 5000Nm / degree of flex torsional rigidity weighs less than 80kgs. Coupled to this is Nota's fully adjustable multilink front suspension, but gone is the racing pushrod bell crank springing system that the 2C car has. The adjustable bottom link on the rear is retained but the top wish bone has been replaced with a Nota FI strut system which gives the car better travel and a more compliant ride for road use. I guess this is what they mean when they say what is used in racing today is used in road cars tomorrow, only Nota does it today.

After these discussions on why and how the Le Mans came into being I'm off for a run in the car with Chris. But first how do you get in, there's no doors, easy, says Chris you just sit on the tub sides then rotate your legs over the sides and into the cockpit, I still think I'd prefer it with the optional doors!!

Once in, we start the Le Mans and idle up the drive to the road, then all hell breaks loose and we get to the 80k speed limit in just a couple of seconds, literally, this car can get to 100ks in less than 3.5 seconds (a Lotus Elise takes 6.8 seconds). We then go back into idle mode in 5th gear, and the car is very compliant and unfussed and pulls without any effort in whatever gear you're in. It all comes back to that unbelievable power to weight ratio of 3.5kgs/kw (better than a Ferrari F430 and Lamborghini Murcielago), see chart.



Chris then turns off the main road and onto a very twisty back road and down into third. The car rockets off and were going round corners quicker than most cars go in a straight line; I feel like I'm at Luna on the Mighty Mouse the way it changes direction its like it's tethered to the corners by rails it's just phenomenal and the road we are on is not what you would call a smooth one either. I guess what Chris says about keeping it compliant is important when you want the car to perform on other than a race track; maybe the Dutton's Rally or the Targa Tasmania.

We are through the twisty section and cruising along at 100ks and another thing becomes evident we are in an open car with a 100mm wrap round aero screen, no windscreen, and there is virtually no wind noise or buffeting. The smooth aerodynamics really work. I guess, in summation you can say the Le Mans has a great pedigree from a really innovative constructor but what really matters is it's an incredible car for that Sunday drive and or the club competition event. The Le Mans just leaves you smiling from ear to ear every time you think about your run in it. I want one. What a company! What a car! Yes; "The Wizard of Oz and the Nota Wonderland" are an apt description. §