

TRACK AND RACE

HARRIS



BTCC SUPER TOURERS

FLAT OUT AT SILVERSTONE IN THE NINETIE'S £400K+ SUPER TOURERS... NOW THEY COULD BE YOURS FOR JUST £20K. READ THE INSIDE STORY ON NISSAN'S 1999 CHAMPIONSHIP WIN, TECH AND LESLIE TRIBUTE

FRESH GEAR
THE LATEST RACE PRODUCTS



FAST FIAT X1/9
TESTING A WILD ITALIAN ICON

CIRCUIT GUIDE
INDEPTH LOOK AT CASTLE COMBE



LOWCOST LOCOST

TRACK TESTING THE CHEAPEST MOTORSPORT CLASS WITH THE CLOSEST RACING IN THE UK

£5K!
RACE CARS

JUNE 2009 / ISSUE 62 / £3.99



06

9 771742 193022

With the world watching their pennies in these unsettling times of financial uncertainty I suppose this feature on these ludicrously outrageous Super Touring cars may on the face of it seem shortsighted. If we could step back in time to the era when these detailed tourers were competing successfully in the British Touring Car Championship (BTCC) and you'd be right, in fact these two cars alone would have probably cost in the region of just under £1 million of your hard-earned to buy them as a pair. Even more staggering was the funds required to run a team for a season which started at around £4 million... Renault (who employed Williams F1 to build them a car) was rumoured to spend as

WATCH ONLINE



www.trcmagazine.com

Below: This 1999 Nissan Primera was driven by the late, great David Leslie to second in that season's BTCC Driver Championship...

much as £6.5 million and beyond.

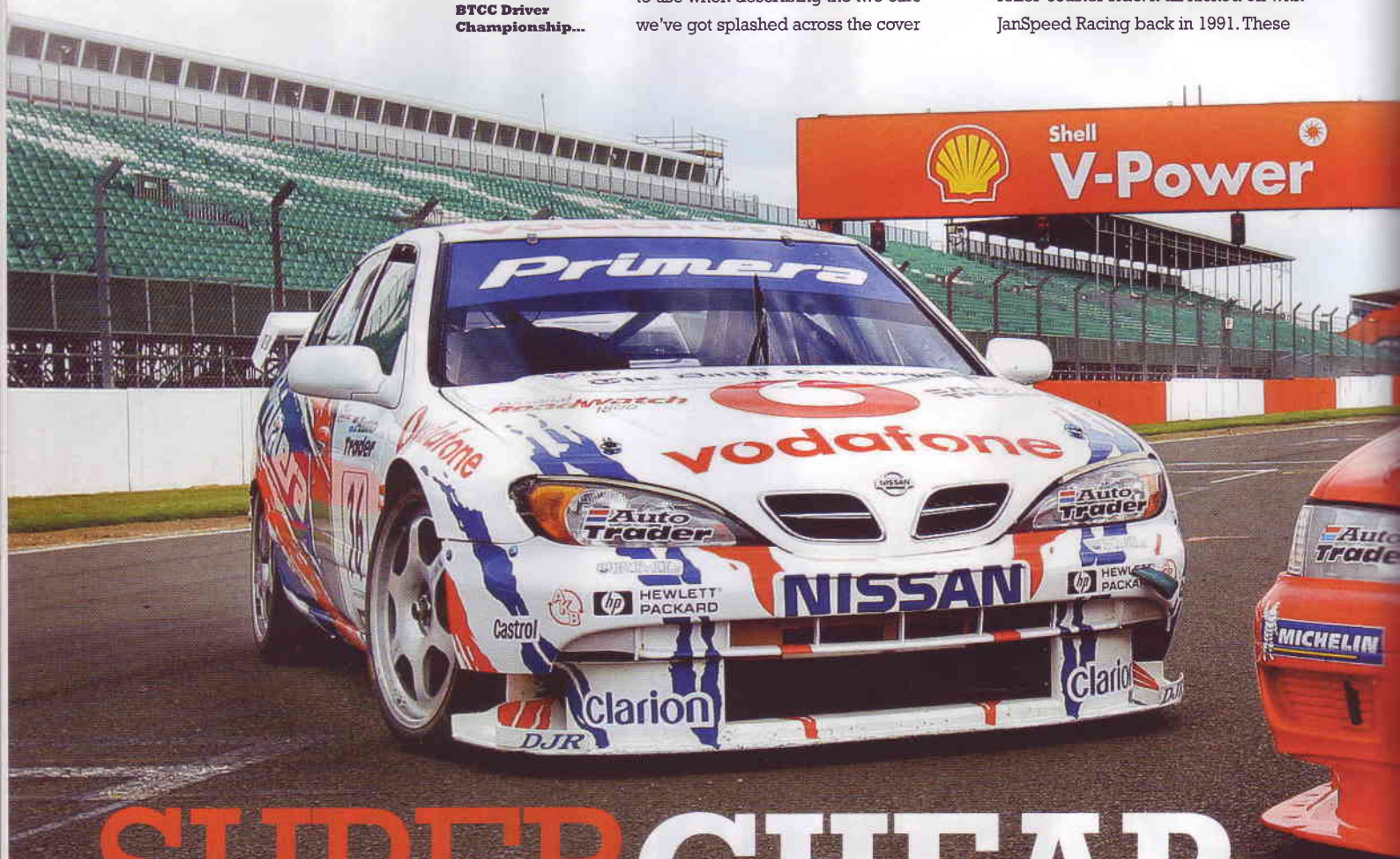
The reason these supersonic tin tops demanded such extravagant budgets was fundamentally chargeable to the complex technology hidden away underneath an innocent looking production road car shell. If we were able to virtually peel back the modest looking bodywork, staring back would essentially be a space-frame chassis, hordes of carbon fibre and a highly complex engine which was also positioned so deep and low into the bulkhead it was barely recognisable. These may have been tagged Super Tourers but they were more like thoroughly modern Thundersaloons, albeit ones with power running through the front drive-shafts. Thankfully today, unlike the Thundersaloons of yesteryears, ex-BTCC cars swamp the second hand market... and they're cheap.

Cheap isn't exactly the best of words to use when describing the two cars we've got splashed across the cover

and this feature. After all it is very easy to mistake them as being shoddy, so I suppose 'affordable' is a much more fitting and complimentary. But whatever I pluck from the dictionary the truth is these two RML built Nissan Super Tourers were in their day a very, very, expensive commodity indeed. Winners of the 1998 and 1999 BTCC Manufacturers Championship, the Drivers Championship in 1999 while beating the likes of the well funded Ford, Renault and Vauxhall outfits. It was also followed up by an Independents Drivers Championship in the hands of the lofty Matt Neal in 1999 and 2000. So rather fittingly our two feature cars recorded some of Nissan's finest achievements.

THE HISTORY

Tracing the steps to Nissan's 1999 Championship white-wash with the Primera really does take us on a wild roller-coaster ride. It all kicked off with JanSpeed Racing back in 1991. These



SUPER CHEAP

Back in the late nineties the BTCC was swamped by multi-million pound budgets, Formula One built cars and superstar drivers. Ten years on and these highly sophisticated Super Tourers are copping up for sale for knockdown prices. Keith Wood investigates...

Photography: Andrew Brown

WATCH ONLINE



www.trcmagazine.com

early Nissan's were built by János Ódor (founded and team manager of the JanSpeed racing team) with his late son Kieth Ódor as its number one driver alongside such teammates as Julian Bailey, Andy Middlehurst, James Weaver, Win Percy, Tiff Needell and Eric van de Poele. The highest placed was Ódor who managed to bring the car home in sixth in the Drivers Championship but these cars weren't competitive enough

Nissan's first season showed huge potential but it wasn't until 1998 that the cars started to take shape, claiming the Manufacturer's title, followed by the faultless season in '99 when it took the double

and the JanSpeed program came to an end in 1994. A missed year in 1995 saw a comeback in 1996 by the (often forgotten) Rouse Sport Nissan Primera Team but the real change came in 1997.

Although wilder versions of the Primera came in the shape of four-wheel drive (for Team Rosberg's entry into the German Super Touring Series in 1997 and 1998) these would never

of happened if it wasn't for Nissan Motorsport Europe (NME) for the collaboration with Ray Mallock Ltd (or now known as RML Group, RML), the formidable yet quiet motorsport giant. This combination would prove to be priceless for the second generation Primera (or known as the P11) and this was partly due to NME's General Manager, Alex Poole. NME's boss was once a BTCC champ himself (winning

the 1969 One-Litre Championship in a Mini) and knew only too well what was required for Nissan to lift the crown. So using his Irish charm he stole RML away from Nissan's main rival, blagging "we're a better bet than Vauxhall".

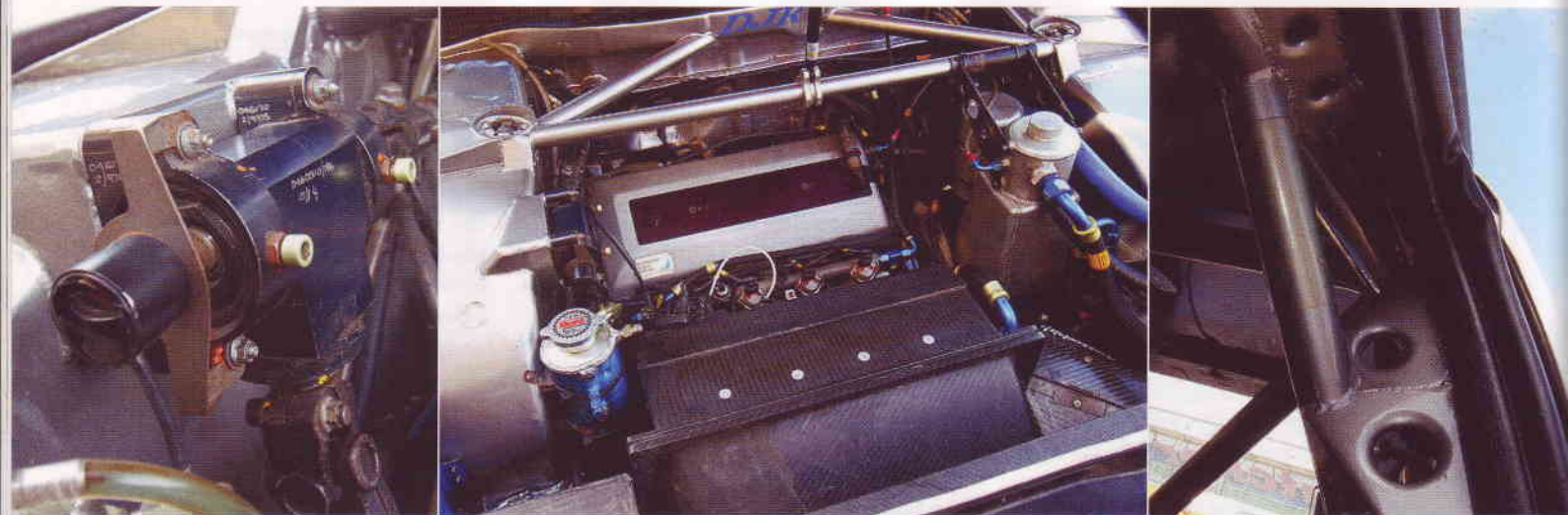
Together with Stewart Ayling (RML Engineer) and Richard Devilla (NME Designer) the project was given an immediate (and much needed) boost

for the 1997 season, especially when controlled by the exceptionally talented Mark Busfield (now team manager for RML's Chevrolet WTCC team). Nissan's first season showed huge potential but it wasn't until 1998 that the cars started to take shape, claiming the Manufacturer's title, followed by the faultless season in '99, not only was the Manufacturer's crown retained but the drivers also finished in first (Laurent Aiello) and second (David Leslie). That year Nissan totally dominated and RML racked up the most wins, poles, podiums, fastest laps and laps lead.

That same season also brought Matt Neal some silverware in the way of his Independent Championship courtesy of Team Dynamics (in an RML Nissan Primera) and again the following year

Below: ... but, alternatively, this '98 ex-Matt Neal Primera helped scoop him the Independents trophy that same '99 season





Above left to right: Special steering rack sits above the engine. The low slung Nissan SR20 power-plant produced in excess of 300bhp at 8500rpm. Seam welds demanded 1000 man hours of labour. Flatshifts were capable when united with the Pectel ECU. Carbon crash box around the drivers feet. Engine position pushed the driver back as far as the driver's door pillar

↳ on the works team (along with the majority of the key manufacturers) Neal's Team Dynamic Primera was to be just one of the two remaining Nissan's that ran in (sadly) this last year of Super Touring cars. The second Nissan was the Championship winning car of Aiello and, like Neal, it was running among the Independent teams but under the steering guidance of Colin Blair and run (and still owned) by Derek Palmer Engineering.

THE CHASSIS

I think you'll agree that our cover cars aren't your average clubman tin top race cars. To convince any of those mad enough to think otherwise let me inform you that each of the highly complex RML shells would take 125 man-days to prepare. That's 1000, grueling, man-hours. Mind-boggling stuff, you may want to sit down and just think about that. The painstaking time is occupied by the arduous task of seam-welding the entire shell, a process which over-stitches the factory spot welds with longer, stronger welds which are spaced out by literally inches rather than the traditional wider berths set out by the production line

models. So the outcome was a far stiffer shell which was also somewhat stronger.

With the shell covered it was time for the NME and RML design boffins to concentrate on developing the most integral part of the Primera; the safety cell. Driver safety was paramount, naturally, but overall an ingenious roll cage would add overall integrity and stiffness once welded to the already taut shell. The ones inside the RML Primera were computer-aided via finite element

into their keyboards and the final creation was not only solid but also as lightweight as they could possibly go while maintaining high levels of driver safety. Visually it's reminiscent of a monkey enclosure, a brace of complex criss-cross tubes engulf the cockpit and resembles that space-frame chassis look I mentioned at the start of this story. The suspension loads are fed into the outermost corners of the roll-cage structures with the cockpit tubing

To convince any of those mad enough to think otherwise let me inform you that the highly complex RML shells would take 125 man-days to prepare. That's 1000, grueling, man-hours. Mind-boggling stuff

analysis (FEA) in a bid to optimise the tubular steel cage by creating a three-dimensional virtual model into which simulated loads were fed and stiffness values predicted. Sounds expensive but I suppose having Williams F1 transforming a Renault Laguna into a championship winning car certainly didn't allow any breathing space for the competition... Nissan certainly weren't holding back.

Hundreds of simulations were done, changing the shape and size of the tubing was just a couple of factors the white coated engineers punched

reaching out to the top of the damper mounting points, both front and rear.

While we're on the subject of the four corners the original 1997 RML cars (as demonstrated by our ex-Matt Neal example) were blessed with some useful original equipment hardware. The rulebook in the late nineties required the original suspension layout to follow the road version and Nissan's GT model, of its P11 Primera road car, came with multi-link front wishbones and coilover dampers on the nose and tail of the chassis. The front wishbones



PARENTHOOD WE BOTH OWN ONE



Keith Butcher (ex-Leslie Primera) and Dave Jarman (ex-Matt Neal Primera) have been mates for years as Dave explained, "When we met we were both racing in the Welsh Racing Drivers (WRDA) races at Pembrey in the early 90s where we eventually moved into racing among the old Thunder Saloon series." That series subsequently developed into (the sorely missed) Formula Saloons series and between them the guys bought two ex-JanSpeed built Primeras; "Mine [Dave] was a 1995 model and Keith's was a 1996 model and because I ran a race car engine building and preparation business (DJR) they provided me with a fantastic insight into the early Super Touring technology."

"We learnt loads with those early cars and in 2002 we replaced them with the last two 1999 RML Primeras - the wining Aiello and Leslie cars. These were raced in Formula Saloons until the series ended in 2005 and we regrettably sold them..." Three years away was too long and towards the end of last year Keith started the ball rolling again and located a Team Dynamics car in New Zealand and, amazingly, the 1999 Leslie car they had sold was also up for sale.

Dave's car is an ex-Matt Neil car that he raced and won the Independent's Cup in 1998 and, as you now know, Keith's is a car he had already owned - the 1999 Primera driven by the late David Leslie. Out of the two Dave's was the one that had been bought as a non-runner, "Problems that have had to be sorted were the brake and clutch master cylinders, the ecu and Pi data-logging system and a large amount of corrosion within the magnesium parts around the water system of the engine among a number of electronic gremlins."

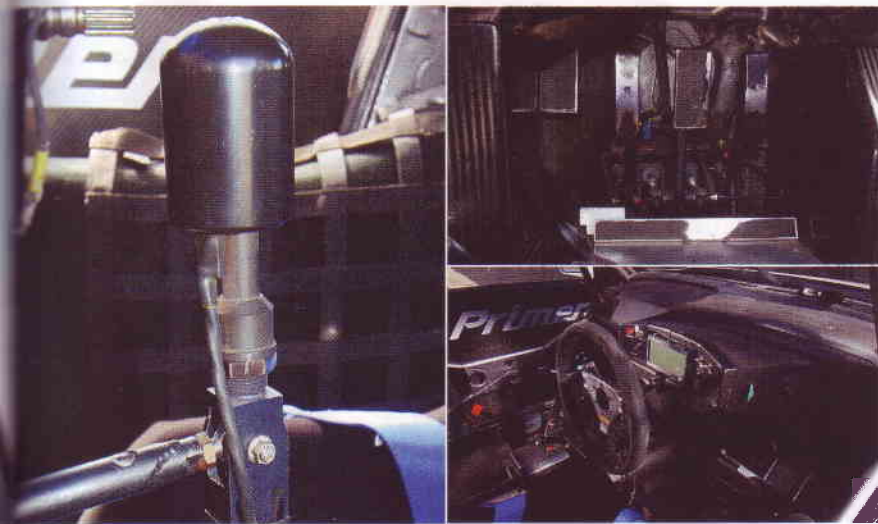
One of the highlights of owning an ex-BTCC Nissan

Primera (other than the obvious driving perks) is the continued help from David Hill of the original engine builders, International Engine Services. Dave was particularly complimentary, "He [Hill] was the key man in the development and building of the eight-injector reversed head on the SR20 power-plant and has been the key in keeping all of the remaining cars going since being handed to privateer hands - it's the single reason why [out of the Super Tourers] there are so many ex-works Primeras still running today."

Another key figure Dave was keen to applaud is Barry Plowman at Team Dynamics, "He's been very helpful with the information on how to get any of our minor problems sorted along with many others that were there in the day... I guess he still holds a soft spot for the technical marvel of the Super Touring era!"

One of the many questions asked is how long an engine lasts and Dave was very open, "An engine life is around 1200km [746 miles] and although they're not quite running as close to the edge when they were in professional hands we try and run the cars as close to original specs as we can." Indeed both these cars race competitively (in LMA Saloons, WRDA races and among the Dutch Super Car Challenge) but the real highlight of 2009 will be at the Silverstone Classic, "A one-off 90's Touring and Super Touring event in respect for the late David Leslie is already getting a fantastic list of cars" explained Dave, "I'll no doubt be embarrassed by some of the returning superstars from that era but there will be enough cars to put on a great show."

Don't miss all the action, get along to the Silverstone Classic (24-26 July 2009) and see these cars in action, visit: www.silverstoneclassic.com - KW



were modified into an odd looking S type design (upper and lower) while the rear slightly less complicated. Our Team Dynamics car (Chassis Number: 31) features this early production run yet the newer 1999 model - finished in the full Nissan Vodafone colours - features a slightly updated design. It wasn't a modification to improve performance however, rather an addition demanded by the BTCC bosses who requested a rule change in favour of a beam axle and swinging arm arrangement.

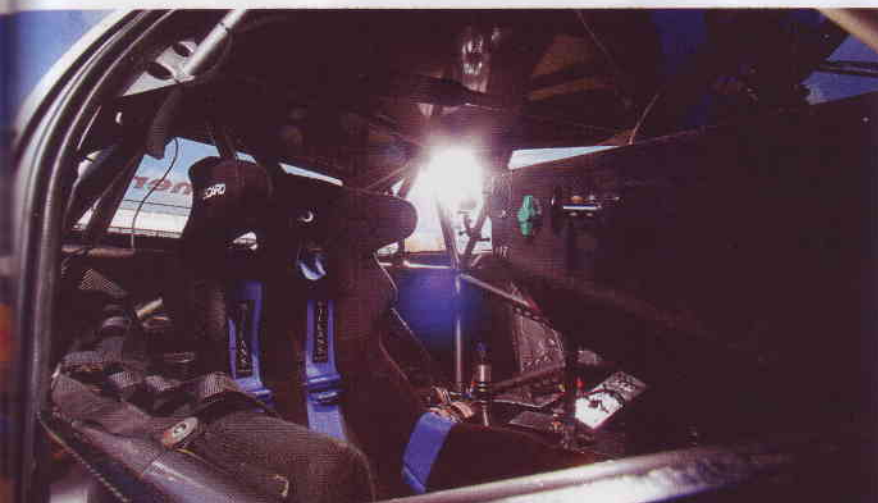
SUSPENSION & BRAKES

One of the more memorable memories we have of most BTCC events is the crashing and bashing... over the kerbs (bet you thought I was going to say into each other?). To put it bluntly it was an exercise to purely lap quicker, straightening out the corners and reducing the chances of dropping out of the peak-power ranges of the engine. Super Touring cars were/are heavy (975kg) and the capped rev band (of 8,500rpm) made it crucial for the drivers to eek out every last thousandths of a second absolutely everywhere. Wheel-spin had to be avoided at all costs and

with the type of technology (and money) available to a 1997 BTCC team damper technology ramped up in quality at an alarming rate.

RML utilised the services of Dynamic Suspension on its BTCC cars (although some Independent teams tested with Öhlins) and refined the control of its coilovers to such a degree that the cars could ride kerbs without upsetting the balance of the chassis but all the while still retaining the all important stiffness without a hint of roll. This was mastered by providing the damper with two levels of control, low speed damping (regular track lumps and bumps) and high speed damping (irregular track lumps and bumps aka: kerbs). Those clever chaps in white coats once again came up top-trumps, providing soft suspension over bumps but firm in its resistance to roll and pitch. It kicked off multi-way adjustable damping in big way and the ripple effect landed its way into clubman motorsport and has since provided us all with plenty of head scratching since.

With the chassis poise taken care off the brakes were critical considering the punishing kerb weight. Super Tourers came packed with the biggest wheels



IN RESPECT DAVID LESLIE - LEGEND



When David Leslie was cruelly robbed of his life after an aircraft crash one year ago - on 30 March, 2008 - the motor sport world lost a supremely talented and legendary racing driver. He will be more fondly remembered as one of the great British Touring Car Championship competitors and during the sports most popularity and prolific years. During the 1990s he raced for such giants as Vauxhall, Mazda, Honda and, of course, Nissan. It was for the latter he achieved his highest championship finish, ending the 1999 season as runner-up to his team-mate Laurent Aiello.

Many won't know this but like the majority of today's F1 stars Leslie would kick-start his career in Karts, winning the Scottish Karting Championship three-times, the first at just 18, before joining the then highly fraught National Formula Ford Championship, winning overall in 1977 and finishing an amazing second in the 1977 Formula Ford Festival. Around this era he would have been up against the likes of Derek

Warwick and Nigel Mansell and he often beat the Isle-of-Man copper. He jumped from Formula Ford to Formula Ford 2000 (second in 1978 and winning in 1979), did a stint in Formula Atlantic (winning the title) until he spent two years (1981 and 1983) in Formula 3.

His big move away from single seaters was to World Sportscar racing with Ecurie Ecosse in 1984 where he enjoyed much success up until 1990 when he made the move to the BTCC. Along his long and illustrious sportscar career he met and worked closely with Ray Mallock and it was inevitable the two would be rejoined. The partnership came in the shape of a Vauxhall Cavalier originally but culminated in that fantastic season of 1999 when his services to RML and NME resulted the kind of domination unseen since.

Although Leslie retired from Tourers at the end of 2003 his love for the sport would see the humble driver take part in events such as the Britcar endurance series, winning at Silverstone just a few days before his death. - KW

we had ever seen running up to the 1997 BTCC and thus enabled a huge cavity of space to fill with discs and calipers. Team Dynamics RML cart really was the last of the late brakings when you consider it had not just one but two calipers on the front of its early cars but NME banished these and replaced them with a singular and more efficient AP Racing six-piston caliper, with 378mm discs upfront and four-piston, 280mm discs at the rear. Both examples of braking are clear to see courtesy of our feature cars behind the mammoth 8.2x19" forged magnesium Rays rims on each corner. These gigantic wheels were wrapped in slicks - obviously - and NME/RML had to reconstruct the inner arches in sheet metal to clear them.

AERO PACK

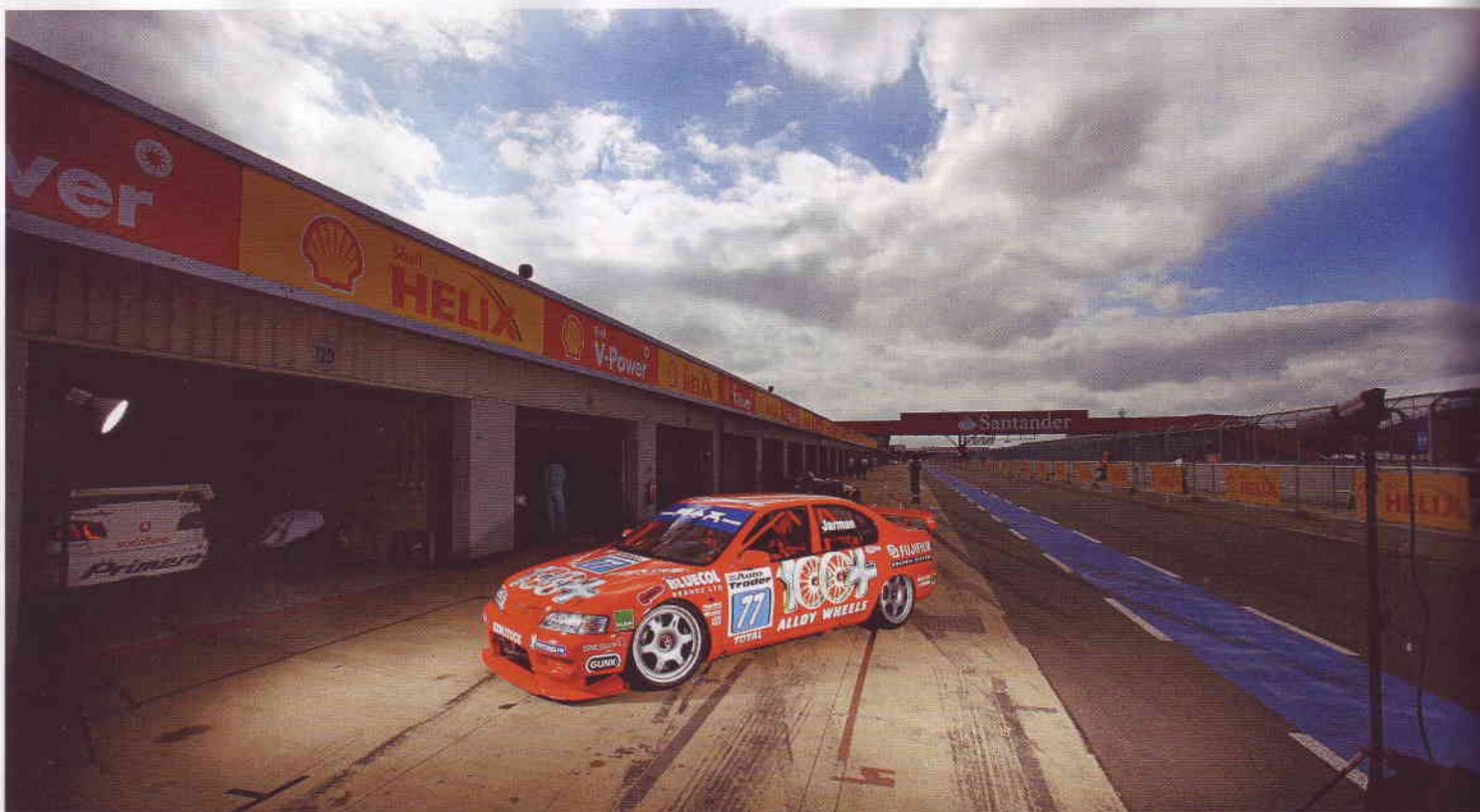
After the cheating Alfa Romeo 155s (Oi! ~ AB) had bent the rule-book out of any kind of recognition in 1994 the following season saw a bunch of Mickey Mouse stick-on wings and splitters ungracefully adorn the front and rear of the entire field. Some worked, most didn't but it didn't take long for the grid to fine tune its wings and louvres and by 1997 (just two years after the rules changed in favour of wings) the Super Tourers started to really take shape. Any wing-set was required to be homologated at the start of the year (to stop developing throughout the season) and it wasn't until 1998 that Nissan found its feet. The red

Matt Neal car features the '98 update pack while the ex-Leslie car is as it was (less the updated P11-114 face-lift pack) in 1999 when he brought it home with second place in the championship.

The '98 bodywork was where things really start to work and although having their original designs rejected the 10 days at MIRA (in the wind-tunnel) but 15-20 days out doing live runs paid-off. Complications with the governing body was all part and parcel of working to the strict rules. There was a limited minimum ground clearance of 45mm for the front splitter arrangement which also couldn't be extended back behind the front wheels while the rear wing was limited to fitting into a theoretical 150x150mm box and could extend beyond the car's outline in front elevation (view), or in plan view (from above). Although flat panelled floors or profiling weren't allowed RML did do a very neat job of tucking away that £3,000 Inconel exhaust system from impending kerb damage...

RUNNING GEAR

Out of all the components on the car, a Super Touring car engine wasn't the most secret of all. Quite the contrary in fact, most engine builders were open about the construction of such an engine and claimed it was just well-known technology everybody knew. The real secrets which were kept under wraps at that time was the differential systems. Back in 1997 the rules prevented the



manufacturers from running bespoke engines, it was required to use the basic block and head configuration as found in its road cousins. The Nissan SR20DE was a cracking little engine for the job - the head and block were made from aluminium so it was light - and after all was said and done (forged pistons, lightened conrods and titanium valves) the restricted 8500rpm would push out a steady 290bhp (while some journalists at the time quoted in excess of 300bhp).

The early engines built by International Engine Services (IES) featured slide throttles and a shift from belt-driven cams to chain and gear drive, a modification which was implemented to eradicate the small amount of belt stretch that occurred at high revs which interfered with accurate valve timing. This was crucial because when IES wanted to run tight valve-to-piston clearances (in order to keep the valves open as long as possible) so the timing 'had' to be accurate. This would change yet again in 1998 when IES upgraded to barrel throttles but the same Pectel T10 engine management was retained which controlled eight injectors; four down near the inlet valves and the other four high up on the inlet trumpets pointing down towards the inlet ports.

One of the more startling revelations isn't necessarily the engine itself, but the location inside the Primera's bay. It sits low in the chassis and a deep into the bulkhead. This achieves a couple

WATCH ONLINE



www.trcmagazine.com

Below clockwise from left: The year older chassis featured many of the same components of the newer models like the carbon crash box around the pedals. IES still prepares privately owned Primeras today. Independent rear was adjustable from the cockpit. Twin calipers were binned in favour of single design for '99.

of important things, firstly it drops the lower centre of gravity and moving it towards the centre-line of the chassis takes the weight off the front-wheels (moving the weight distribution further backwards) and at the same time it also moves the engine's mass to reduce the polar moment of inertia which in turn made the Nissan change direction rather quickly. The engine has also been canted rearwards too, a great way of (again) moving that heavy chunk of steel crank further backwards into the chassis.

All this power is fed through an AP Racing triple-plate, 5.5" diameter carbon clutch to a compact non-synchro X-Trac/Nissan sequential transmission filled with dog tooth gears. Interacting with the Pectel ECU it was an all dancing,

Two years after the Super Touring era had come to a close the cars still fetched between £24,000 and upwards of £80,000 and since then prices have dropped and leveled out to just above £20,000

all singing flat-shift system with the electronics cutting the engine to take the load off the 'box and allow the gear change to go through smoothly and rapidly all the while the driver's right foot is welded to accelerator which is buried in the bulkhead. Combined with a viscous-plate type limited slip differential system, power delivery was where BTCC teams would experiment. At the time it was all top secret stuff and this changeable system (depending on the circuit) would often create some wild conspiracy theories in the paddock.

HOW MUCH

It's very difficult to place a value on a Super Tourer. The millions poured into the project by the teams can blur the bigger picture somewhat and back when they were just a year old the good ones (they weren't all good, remember the Peugeot 406?) were swapping owners for a tidy sum of £150,000. That's without an engine and gearbox (which alone from X-Trac was £35,000). Two years after the Super Touring era had come to a close the cars still fetched between £24,000 and upwards of £80,000 and since then prices have dropped and leveled out to just above £20,000 and fluctuates up to £30,000 (plus) depending on the history, condition and manufacturer of the car.

Although these purchase prices place

them among the likes of the latest Clio Cup cars and considerably cheaper than last month's cover car (the SEAT Leon Supercopa) it's hard not to be seduced by these wonderfully iconic racing cars. Fingers will be burnt however if you don't purchase one with a comprehensive spares package. The vast amount of specialised components (like the unique wishbones on the Nissans) will undoubtedly cause headaches if you unfortunately encountering failures of such products. Write-off a chassis? It'll be cheaper to buy another car... ■

