

Pioneers of Air-Cooled Racing - Ron Tauranac

One of the most famous names in the history of the modern-era race-car, Ralt, was devised for a series of cars built in Sydney in the 1940s and 1950s by brothers Ron and Austin Tauranac. The name took advantage of the initial of Austin's second name, Lewis – which was appropriate, because he played an essential part in the construction of those early cars.

Ron Tauranac was born in Gillingham, in Kent, in 1925. He came to Australia with his parents in 1928, and the family was living in Fassifern, near Newcastle, NSW when Austin was born in 1929. Ron joined Commonwealth Aircraft Corporation in Sydney as a junior draftsman in 1939, was accepted by the Royal Australian Air Force in 1943, and trained as a pilot; the war ended before he could fly in combat.

Legend has it that in 1946 Ron Taur-

Our account of the pioneers of air-cooled racing had only reached 1915 in Loose Fillings #47 when we decided to fast-forward in honour of Ron Tauranac's approaching 90th birthday because we realized that an account of the first Ralt was long overdue.

Ron and brother Austin didn't have much in the way of precedents to inspire them when they started building their first 500 in 1947. There were midget speedway cars a-plenty, of course, but there was no local tradition such as that of the Shelsley Special which informed much of the British 500 movement in its early days.

So the first Ralt had some mistakes, but it was soon developed into one of Australia's most significant locally-built 500cc racing cars.

nac happened to be driving in the area of Marsden Park, some 60km north-west from central Sydney, on a day when cars were racing on a former WW2 emergency landing strip there. The legend says he then stopped and watched, and that as result he became interested in building a racing car

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of his own. The legend is improbable because Ron was then just 21 years old, and would hardly have used rationed petrol to drive two hours from home, into what was at that time scrubby, thinly-populated farmland, without knowing exactly where he was going.

Be that as it may, ideas for amateur-built, low-cost racing cars had emerged in England during World War 2, and were given sympathetic coverage in British motoring magazines, which continued to be published throughout the war and were distributed even to the outposts of empire. Jack Godbehear, who in the early 1950s built a very successful 500 in Victoria, remembered first reading about the 500cc movement in copies of the English weekly *The Motor*, which his mother bought in Melbourne and posted to him while he was serving in New Guinea.

Below: A proud looking Ron in the first Ralt, probably in 1949 near the brothers' workshop at Bondi, NSW.



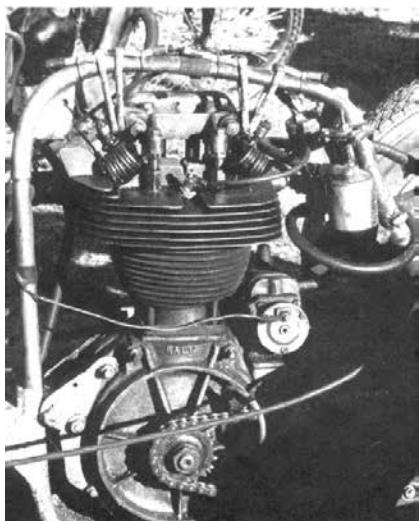
The Melbourne monthly magazine, *Australian Motor Sports*, first appeared in February 1946; from its July 1946 issue AMS for a time carried an almost monthly series of articles encouraging Australian 500cc enthusiasts. In April 1947 the Australian Sporting Car Club in Sydney reported in its members' newsletter on correspondence with the UK 500 club, 'following on considerable interest shown by members and possible members in these machines'. Readers were advised that a meeting of interested parties would be held later that month, and the 500cc Car Club of NSW was duly formed at that meeting. Ron Tauranac, already an ASCC member, was a committee member of the new club from the outset, and Austin joined the committee in 1949.

The June 1947 issue of AMS carried an agreed set of regulations intended to govern all Australian 500cc cars and gave Queensland, NSW, Victoria and South Australia contact details. In Victoria a separate 500 club wasn't formed until 1951, but from 1947 the Australian Motor Sports Club (a very hands-on club, but not connected with the magazine) had been offering support. In September 1947 the first

Australian 500 to appear in competition, the Melbourne-built Low-Lane 500, ran at Rob Roy hillclimb. The first NSW car, the very effective Hooper 500, appeared just four months later at Hawkesbury hill in January 1948. But building a 500cc car seemed to be much harder than the theorists had assumed; new cars were slow to appear, and even in the 1950s the number of completed cars never matched the optimism of the movement's early years. Two more NSW 500s made once-only appearances in the early months of 1948, and Ron Tauranac's car, the next NSW car, didn't make its debut until August 1949, more than two years after the first meeting of the NSW 500 club. His car was only the second NSW-built 500 to go on to regular appearances in competition.

Ron and Austin, who had served an apprenticeship as a motor mechanic, started building their first car sometime in 1947. The first published mention of the car was in September 1948, in the Club Notes section of *Australian Motor Sports*, where the 500cc Car Club of NSW's contributor forecast, 'Ron Tauranac will probably have his car complete early in October.' The comment was entirely in keeping with the

optimism of the whole 500cc movement in its early days, because the car was not mentioned again for another five months, until the club's notes for February 1949 reported, 'At long last Ron Tauranac's car is rolling and it now remains to see what it can do.' The club's notes for the June 1949



Above ES2 engine with stiffened drive-side crankcase. Below, early testing somewhere outside Sydney. Photos Graham Howard Collection.



issue spoke of a planned debut at the 13 June Hawkesbury hillclimb, but this was again optimistic, and the car did not appear. However, the notes show the car was by that time at least a runner, even if not quite fully sorted, saying 'This car in recent times showed good promise, although it may take a little getting used to.' In fact, as Ron remembers it, he had a bit of private practice on the road there, and crashed the car.

Finally, on 9 July 1949, at the Australian Sporting Car Club's standing quarter-mile Records Day on the Mt Druitt airstrip, the car made its competition debut amongst some 70 other competitors. Sticklers for procedure, ASCC did not show the car in their result-sheet, most likely because it failed to complete runs in opposite directions. However 'the Norton-engined Tauranac 500' was mentioned in the AMS report of the event, as was its best time, one way, of 20.6 seconds. The 500 Car Club's notes saw a glass half full, 'Although the motor seemed a little unreliable, the car handled well.'

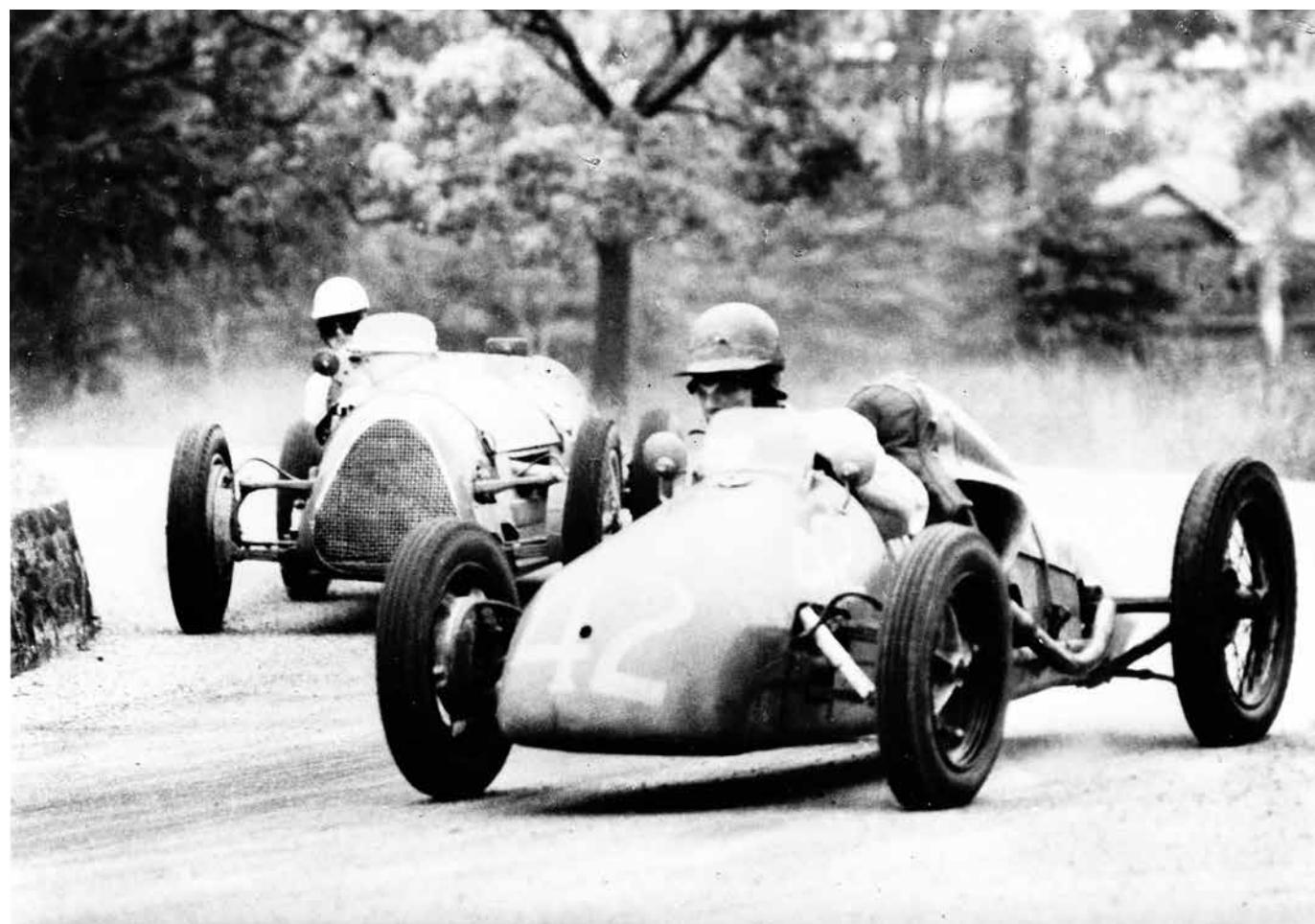
It was the culmination of some two years' work by Ron and Austin, working in



Above: On the Mt Druitt, NSW start line, 27 July 1952.

Below: Ralt monsters Maybach at Parramatta Park, NSW, 26 January 1952.

Photos Graham Howard Collection.



a rented single-car garage in Blair St, Bondi, about a kilometre from the family's flat, using only hand tools but able to get machining done on a lathe at a nearby workshop. The car was built from Ron's drawings, which reflected then current thinking about suspension design. Ron spent many lunch hours in the NSW State Library reading British motoring magazines, notably *The Motor*, which carried Donald Bastow's five-part series in 1944 and Maurice Olley's two-part series in early 1947.

The first Ralt was in many ways a typical 1940s 500, with 19-inch wire wheels, a tubular ladder chassis, wishbone/leaf spring front suspension, swing-axle rear, and an engine and gearbox from a road-going motorcycle, in this case a pre-1938 pushrod ES2 Norton. On only its second appearance, at Hawkesbury hillclimb in September 1949, the car overturned and Ron was injured. They did not return to competition until late in 1950.

After contesting ten events during 1951, the Norton-powered 500 appeared during 1952 with a series of significant chassis modifications. The first versions of what was to become a family of Tauranac-designed 15-inch cast aluminium-alloy wheels were used, and the rear suspension was completely revised into a semi-trailing arm system. Combined with extensive development of the Norton engine, which included casting a stronger drive-side crankcase and adaptation of a square-finned Manx Norton head to use the ES2 rocker gear, this version of the car was far more effective. *Motor Manual's Racing Annual 3* describes the car in late 1952 or early 1953 form. The car was sold in late 1954 and raced vigorously, mostly by Merv Ward, until its engine blew up at Mt Panorama in 1957.

Australian Motor Sport, in its report of the November 28 Mt Druitt meeting, said, 'Austen Tauranac (sic) has sold his Ralt to a syndicate, who had installed a late-model double knocker Norton in place of its former ES2, and painted it a dull orange, rather more conspicuous than its former leaf green...'

The syndicate included Merv Ward and motorcycle racer Bernie Short, and each of them drove the car during 1955. Short died after a motorcycle accident while racing at Mildura in late 1955. Ward raced the Ralt, using the ES2 and overhead-camshaft Norton engines, through until Easter 1957, when the ES2 engine broke and the car crashed. He continued racing with a Berkeley which he fitted with a 650cc Triumph



engine.

The Ralt was bought, with the broken ES2 engine, by former motorcycle racer Bert Bartrop on the NSW south coast. He fitted the car with a long-stroke Manx Norton engine and ran it during 1958 at various south coast hillclimbs, although few records have so far been found. The damaged ES2 engine was bought from Bartrop by another south coast resident, Sid Smith, who was building an air-cooled car.

Bartrop sold the Ralt to former speedway driver Reg Mulligan, who raced it twice in 1959 before trading it in with Leaton Motors, from whom he bought the ex-Davison HWM Jaguar. The Ralt was bought from Leaton Motors by Bert Lambkin, who crashed it in 1960 at Gnoo Blas on his first race. The damaged car was left with motorcycle expert Cec Platt. Parts of the car were

Top: Merv Ward at King Edward Park, Newcastle, NSW hillclimb championships, 1956.

Bottom: Bert Bartrop, Nowra hillclimb, 2 November 1958. Photos Graham Howard Collection.

used in building TQ midgets, and the rest – apart from the two front wheel-centres – was dumped.

The next Tauranac-built racing car to be driven by Ron appeared in early 1957 (or possibly late 1956). This had a Vincent twin in a four-tube chassis which showed virtually no design similarity to any earlier Tauranac-built car. Its front suspension used Austin A30 wishbones and uprights and its rear suspension was Tauranac-built De Dion type. The wheels and the rack and pinion steering were also Tauranac-built. Noel Hall bought the car in 1957 and in his hands, and with Reg Mulligan in the early

1960s, this car worked very well.

From about 1958 Ron offered for sale multi-tube chassis, suspension components, wheels and racks. Many Sydney-built cars of the late '50s and early '60s used these components, and three chassis were eventually completed by private owners. These chassis had only similarity in detail to previous Ralts. When Ron finally accepted Jack Brabham's invitation to work with him in England in 1960, a number of chassis and components were unsold. They became the basis for early examples of Lynx cars, using a variety of engines.

An engine and the two front wheel centres were left to Garry Simkin by our late editor Graham Howard, and it is on Graham's research notes that this short history has been based. The Ralt Vincent was converted to a water-cooled engine and independent rear suspension, and survives in this form. Two of the three completed kit Ralts, both of which had used Vincent engines, also survive. There were other early Ralts but none like 'Ralt 1'.

In our next issue Tony Caldersmith will write about the development of the Ralt 1 chassis design

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Australian dampers from Ikon

by Terry Wright

Taking my cue from recent suspension articles in *Loose Fillings*, I decided to call 'time' on the Armstrong units Bruce had fitted to the Walton Cooper way back in the late 'fifties when he was trying to sort out major handling problems. On the rough surfaces that the barely-sealed hillclimb tracks then were, the soft-sprung Mk8 Cooper bucked and bounced almost uncontrollably. I had the units overhauled when I rebuilt the car ten years ago, but one had started to leak, and the advice was that they simply aren't serviceable.

Some of the options looked unattractive. There was the price; there was the appearance. I had used Koni adjustable Mini dampers on the Walton-JAP Special, and they seemed to be fine: not that I am the sort of driver who would really know, but it did appear that being able to fit and change the bump-rubber length might be more important than simple damping adjustment.

Setting up a leaf-spring suspended car is a bit of a hit and miss affair and what is going on under load can really only be determined by looking at photographs of the car in action. The ideal is to have the bump rubbers just starting to load up when cornering hard; think of them as a bit of supplementary springing. I am told that there are Mini dampers with removable top eyes, and that may be so, but not on the Konis I currently have on the Walton-JAP.

Looking for both help and a source of units, I called up Ikon/Proven in Albury, NSW, and they seemed pleased to work something out for me. Proven Products was for long the place in Sydney for shock absorber/damper sales repairs and adjustments, but a while ago they moved to Albury and there they now make a range of car and motorcycle dampers for the aftermarket business under the trade name Ikon.

After an exchange of emails, for \$587.50 (about £80 each including tax and local Left: The Ikon unit described. The top eye screws off allowing varying lengths of bump-rubber to be fitted. The eyes are 22mm wide.

postage) I got four custom-made units as follows:

- Ikon Basix type
- Powder coat black
- Light valving
- 50 and 25mm bump rubbers
- Removeable eyes
- Eye bushes for 5/16" and 3/8" bolts
- Static length laden 250-260mm
- Compressed length 220-225mm (no rubbers)
- Extended length 300-310mm.

They fit perfectly to the Cooper mounting lugs. The units can be serviced and revalved if different damping is required. The only problem was of my own making in that I overlooked that the rear dampers on my Mk8 Cooper were longer than on the front, and on both ends of the Mk4-like Walton. Whether this is a feature of the Mk8 as original or Bruce Walton's period modifications to convert it to the Mk9-onwards rear curly-leaf design I do not know.

Obviously you should check your various lengths before ordering and Ikon can make longer units than described here if required. The thing to do is to measure the static length on your car with a driver on board, then estimate the fully *laden* length and fully *unladen* length, allowing a margin of error in both directions. Ikon will then supply units that meet those limits.

This seems to me to be a very good package, and I can recommend contacting Ikon for supply to anywhere in the world via sales@ikon suspension.com or telephone +61 2 6040 9911. You can see more about the company at www.ikonsuspension.com. Obviously overseas supply will not have Australia's 10% GST.

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A chat with Chas about chains for air-cooled racing

The following is a transcript of a recording made between the Loose Fillings roving reporter I.Spy, and semi-retired Cooper historic racer Chas McGurk, who holds the world's record in a Cooper for the highest number of DNFs for the year 1996.

L.F Thanks for giving us this opportunity for a chat, Mr. McGurk.

MeG No Problems You can call me Chas.

L.F Thanks With a record of DNFs like yours, Chas, there must be some tips you can pass on to the many readers of Loose Fillings, both here in Australia and overseas to help improve the reliability of our motorcycle-engined race cars .

MeG Certainly I'd be pleased to do that. You choose a topic.

L.F OK. let's talk about drive chains. All bike-engined cars use chains, and they always seem to be falling off or breaking or whatever. What can we do to keep chains on sprockets and lasting longer?

MeG Well to get any sort of long life out of a chain there are three basic requirements. The first is correct alignment of the sprockets. You would be surprised how often the engine to clutch or gearbox to rear sprockets are out of alignment. This means the poor old chain has to constantly twist sideways to stay on the sprockets. If the chain gets at all slack it climbs off the teeth of the sprocket and breaks or bends something. If it's not the chain itself that breaks, then it will probably be the engine or gearbox mountings, or casings, or mainshafts. To check alignment just put a straight edge along the sprockets to make sure they all line up to within no more than a sixteenth of an inch error.

Usually rear sprockets are fixed laterally, so it may mean first spacing the gearbox sideways to get the rear chain to line up. Then check the clutch and engine

sprockets and space the engine accordingly. It's worth noting that the engine sprocket on a Speedway JAP can move a good half inch sideways on a splined extension of the mainshaft. This allows self-alignment of the chain, (and also easy gearing changes). An excellent design .

L.F That's good stuff Chas Now what's the next chain tip?

MeG ... Lubrication. If you can keep a chain lubed it will do big mileages.

Run it dry and it will overheat, break rollers and wear itself out in minutes. The problem we have with our bike-engined cars is that for lots of reasons we can't run our chains in an oil bath. That means we have to lube the chain internally before we use it, and externally as best we can when it's on the car. Internal lubrication is best done by immersing the chain in oil for a couple of days before fitting.

External lubrication can be done on the car with an aerosol spray and the application of heavy grease on the INSIDE run of the chain between EVERY race. The grease won't get inside the chain rollers, but it will lubricate the outside of the rollers and the sprocket teeth, which are subject to some very heavy impact loadings.

A chainguard is a very desirable item because it stops broken chains flying past your ear. It also helps keep the car clean. Naturally the above notes are more relevant to the primary or front chain because it is constantly changing direction around an engine sprocket rotating between three and six thousand revs a minute. It is therefore good to use as big an engine sprocket as possible and adjust the overall gearing at the gearbox or rear sprocket. A big engine sprocket not only makes life easier for the primary chain but also for the clutch, because the clutch will run at higher RPM reducing the torque on it.

The rear or secondary chain has a much easier life because in top gear it runs around the sprockets at only about half the speed of the primary chain. In all the lower gears the rotational speed of the rear chain relative to the front chain is even less. A squirt of oil on the rear chain now and again, and it will last forever. And this is important.

Don't be tempted to fit a modern O-ring chain to address the lubrication problem. An O-ring primary chain will cost real horsepower because of the friction of the rubber O-rings between the plates. We speak from experience. Three seconds

a lap slower at Mallala. Just bend an O-ring chain in your hands and you'll see for yourself.

L.F And what is your last chain maintenance tip today for us Chas?

MeG .. It's all about chain tension. Firstly you very seldom get constant tension. Turn the engine or wheels and the tension varies . Find the tightest position and give the chain about half an inch (each direction) vertical slack. Studies show that as chain slack increases, so does power loss. Correct chain tension is very important. Never deliberately run the chain tight.

There's enough loading on the crank-shaft and gearbox bearings already. And something else. Because of its slower rotational speed, the rear chain always has more torque, or in simple terms, more pull than the primary chain. This means that the rear chain will always overcome the opposite pull of the primary chain and want to move the gearbox backwards.

This explains why, if we get both chains tensioned perfectly, and run the car, we may then find the rear chain loose and the front chain drum tight. If this happens regularly it suggests the gearbox is not positively located, even with the bolts dead tight. This may be due to the rear chain adjuster on the gearbox being located on the opposite side of the gearbox away from the chain side where it is less effective in holding the gearbox tight and square . If so, transfer and re-engineer the rear chain adjuster.

And one other thing Always try to use an endless riveted chain ... particularly on the primary. If you are forced to use a spring clip with a connecting link, smother it with silicone it might stay there a couple more laps before leaving home. So that's about it for chains right now.

L.F.... Thank you ChasIt sounds as though you've had to find these things out the hard way. Many thanks for sharing.

McG ... It's been my pleasure But now excuse me. I've got a dental appointment, and I'm due soon for another DNF probably the clutch. Cheers.

- Graeme Noonan has bought the MkV Cooper Irving (big-twin Vincent) and we will have more on this in our next issue.
- We are sorry to hear that Ivan Tighe has suffered a stroke.