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NEWSLETTER OF THE THOROUGHBRED SPORTS CAR CLUB

BJECTS OF THE CLUB\_

"Fostering better acquaintance and social spirit between the various owners of thoroughbred sports cars in Australia".

"To help and advance thoroughbred sports car owners and ownership".

"To establish and maintain by example a high standard of conduct and a respect of the laws of the road".

#### GENERAL MEETINGS OF THE CLUB

The General Meetings of the club are held on the second Wednesday of each month, commencing at 8.00 p.m. at the Sydney Rowing Club, Great North Rd., Abbotsford.

EDITOR: Leonard Madar, Lot 3 Old Northern Rd., Glenorie. 2157. Phone: 652-2061 (h) 651-1812 (w).

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P.O. Box 84, RIVERSTONE, 2765.

DISCLAIMER: Any opinions published in this journal should not be regarded as being the opinion of the club or the committee which also cannot accept responsibility for the accuracy of any information in the journal which is published in good faith as supplied to the editor. Articles and or photographs are invited and should be forwarded to the editor for publication bearing the name and address of the writer.

#### ADVERTISING POLICY AND COST

Advertisements are accepted subject at all times to the discretion of the committee. Display and Advertising: Full page \$30 per issue, half page \$20 per issue, 1/4 page \$11 per issue, 1/8 page \$5 per issue. Advertisments are on a monthly continuing basis unless the advertiser notifies the Editor.

Classified Advertising: - Financial members of the club receive the first four lines at no charge. Rates are \$1 per line of ten words with a minimum charge of five lines (\$5.00). Non members should send payment when lodging their advertisement.



#### COMMITTEE

President: DAVID MUIR, 361 Penshurst St., Chatswood, 2067. Phone: 407-2366 (h)888 7277 (w)

Vice President: RAY ROSS, 25 Taylors Rd., Dural, 2158. Phone: 651-2013 (h) 872 3439(w)

Secretary: MICHAEL DU CROS, P.O. Box 84, Riverstone, 2765.

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Treasurer: ROLAND CLARK, 44 Longleat Rd., Kurmond, 2757. Phone: (045) 73-1367 (h) (045) 77-2219 (w)

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Phone: 810-2556 (h) 92-0762 (w)

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Phone: 637-9483 (w)

New Members Officer: GARRY BRUCE. 21 Barry Pde., Killara.

Phone: 498-1486 (h) 438-3088 (w)

Board Members: JOHN WILLIAMS, 16 English Ave., Castle Hill, 2154. CHRIS JOHNSON, 22 Queens Rd., Hurstville, 2220.

Past President: JIM PETERS, G.P.O. Box 1963, Sydney, 2001.

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- 8. Sporting Report. 22 Ralph Sarich (Pt. 1). 11. Motorkhana - Richmond. 28. Application Form.

## Calendar

OCTOBER	9th	CLUB MEETING - 8.00 p.m Sydney Bowling Club.
	20th	ORAN PARK SUPERSPRINT - A.R.D.C Contact: Len Madar.
NOVEMBER	10th	CONCOURSE/MOTORKHANA - B.b.q Picnic. T.S.C.C Fiat Grounds, Richmond. Enquiries: Ray Ross.
	13th	ANNUAL GENERAL MEETING - Election of 1986 Committee.
	23rd	CRUISE/FANCY DRESS. Bookings: Roland Clark.
DECEMBER	1st	CHILDREN'S CHRISTMAS TREE - Mosman. Bookings: Len Madar.
	8th	ORAN PARK SUPERSPRINT - NSW R.R.C Contact: Bill Gretton.
	11th	CLUB MEETING - 8.00 p.m Sydney Bowling Club.
	13th	CHRISTMAS DINNER DANCE/TROPHY PRESENTATION - Dural.
		Bookings: Ray Ross.



## Classifieds

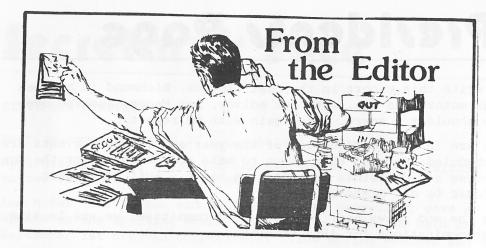


FOR SALE:

Capri RS 3100 GT. Genuine original vehicle. First registered 1975 - third owner since new. 4 speed. Near new NCT radials. 4/86 registered. Stereo. Excellent performer. Yellow body, black interior. MTU 096. \$7,200.

Contact: Trevor Oldroyd.

Phone: 651-2013 (h).



Just look at all our club activity advertisements - make our job easy, read carefully and book now. Save us ringing around Please, I know you want to go, but let us know NOW. Look at the calendar.

The photos I took of Richmond did not turn out.

LEN MADAR.



### A.G. M.

#### NOTICE.

The T.S.C.C.'s Annual General Meeting will be held on the 13th November, at the Club meeting night at which the 1986 committee will be elected. Please consider taking your turn to help run this excellent club. All positions will be declared vacant, some current committee members may wish to stand again and naturally will be most welcome, but do come along and vote and contribute.

please come and vote

## Presidents Page

I write this report in the Fiat Grounds, Richmond in between our motorkhana day, with our editor, Len Madar, looking over my shoulder - sorry, late again with my report.

We are in the last quarter of the year and exciting events are scheduled, so read this issue to make your booking for the Concourse and Christmas Presentation night - full attendance please by all members.

As the end draws near for this 1985 committee, we are looking for nominations for 1986 committee.

Must go - next event ready !!

DAVID MUIR.





#### WELCOME



A warm welcome is extended to new members Gail and Ray Warner from Punchbowl, introduced by the Andrews.

Their address is 11 Craig Street, Punchbowl.

#### ROBERT ANDERSON D.C., D.O., M.U.C.A.

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## Secretary's Slice

SEPTEMBER MINUTES.

Meeting commenced at 8.20 p.m. chaired by Dave Muir.

Apologies from Ray Ross, Vic Andrews and Al Hunter. Welcome to two visitors, friends of Bob Smith.

Len Madar (our Editor and Acting Sporting Secretary) gave an update on the sporting scene. Silverdale Hillclimb held on September 1st drew 13 competitors; fine spring weather and no serious incidents. Ray Ross recorded F.T.D. with 40.59 seconds second Vic Andrews, third Mark Anthony.

Oran Park Supersprint organised by N.S.W. Road Racing will be held on 20th October. Len has supp. regs. We are having a motorkhana at Richmond on 29th September, 1985.

The Alfa Club is organising a Motathalon at Amaroo on the 30th November/1st December, involving the Hillclimb, dirt circuit, motorkhana and main circuit. Entry fee is \$75.00. The Club is considering helping with the entry fee for a member's car and making it a club participation effort. Unfortunately the event clashes with the Children's Christmas Party.

Social scene:- The Travelodge is unavailable for the 14th December, earlier dates are unsuitable as the spons calendar will not have been completed. Bob Smith suggested the Shakespere Inn at Dural. Dave Muir will contact them regarding a booking.

Roland Clark reported that our finances were in order and he will try and check boat hire for the Disco Cruise.

Correspondence:- CAMS has sent details of a scheme being promoted by the Dept. of Sport and the Corporate Affairs Com. which allows associations such as ours to become incorporated bodies at reduced rates. It was decided to take advantage of this opportunity.

Meeting closed 9.15 p.m.

MIKE DUCROS.



## ANNUAL CONCOURSE/ MOTORKHANA

## Sunday, 10th November

\* 10.00 a.m. Start.

\* Fiat Grounds, Richmond.

\* Cost - \$5.00 per car







Wet weather venue - Undercover Carlingford Shopping Square
Car Park.



AGE 6

BE THERE !!

JUDGING BY RICHARD NATHAN.



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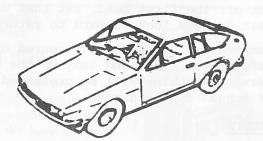


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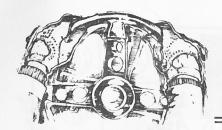


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## SPORTING REPORT



T. S. G. G.

## Silverdale Speed Hill Climb

1st September, 1985.

The sleepy hamlet of Silverdale was soon brough to life as the T.S.C.C. arrived on an overcast Sunday morning. Thirteen drivers competing with a gaggle of wives, husbands, girlfriends, boyfriends, kids spectating. The Clark family were out in force and it really was a great thrill to see Roland put his A.C. Cobra to the test. Graeme Clark lost his muffler from the Bolwell on the way to Silverdale, which made his car sound very mean indeed. It was great to see the ladies class being fought so closely by Linde DuCross and Judy Andrews and it is a good bet that they will be back next year.

Congratulations go to Ray Ross with a F.T.D. from the Open Class of 40.59 seconds. Most of us had at least 10 runs; Graeme Cox retiring early with mechanical troubles.

New members, Gail and Ray Warren and kid, showed up in their tricked V.W., introduced by the Andrews.

There were no dramas on the day - I damaged my spoiler when I went off the first bend, but that was all. Everyone had a great day and look forward to returning next year.

Champers was presented and poured over the multitude by the fastest five times and lady up the hill regardless of class. However, trophies will be presented to the class winners at our annual dinner dance.

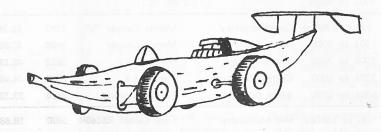
#### RESULTS:

PAGE 8

Name	Car	Capacity	Best Time	Position	
Open Class:					
R. Ross	Torana	3000	40.59	1st	
M. Anthony	Mini Sp.	1300	43.55	2nd	

3000 c.c. plus:				
R. Clark	AC Cobra	4000	44.56	1st
2001-3000 c.c.:				
D. Muir	Scimitar	3000	44.95	1st
G. Clark	Bolwell	3000	45.15	2nd
D. Stone	Mazda	2290	45.65	3rd
0 - 2000 c.c.:				
V. Andrews	AVS	1600	42.15	1st
L. Madar	Spitfire	1300	46.46	2nd
G. Cox	Escort	2000	47.30	3rd
M. DuCros	TR7	1700	48.93	4th
R. Warner	VW	1600	49.56	5th
Ladies:				
Linda DuCros	TR7	1700	55.34	1st
Judy Andrews	AVS	1600	56.40	2nd

LEN MADAR.



If its music or musical instruments you, your family or friends require contact

#### **RAY & MARGARET ROSS**

We have two conveniently located stores at Liverpool and Carlingford selling records, tapes, accessories and all things musical from guitar picks to grand pianos. We have access to most brands and we will not be undersold on genuine deals and if we can't help you, we will put you on to someone that can. After sale service Sydney's best or I will help you let my tyres down.



Phone: 872 3439



### Silverdale Speed Hill Climb

THE BEST IN AUSTRALIA

RECORDS STANDING AFTER SILVERDALE "282" on 18 AUG. 1985 run by LIVERPOOL DISTRICT MOTOR CLUB.

OUTRIGHT RE	ECORD	Warren Brown	Sceptre V-8	4850	32.04	12.5.85
RACING	Up to 750cc	Tony Cosser	Cosser GT1	748	38.47	19.2.84
	751 to 1300	Max Preen	Nota	1167	36.66	13.5.84
	1301 to 2000	Roy Goodman	Renault Myth	1919	36.16	12.5.85
	2001 to 3000	Richard Hatherly	Elfin Rotary	2616	34.03	19.2.84
	3001 to 5000	Warren Brown	Sceptre V-8	4850	32.04	12.5.85
FORMULA VE	E	Stephen David	Commando	1192	40.97	12.5.85
LADIES		Denise Hatherly	Elfin Rotary	2616	34.40	19.2.84
V.H.T.		Bruce Polain	Wylie Javelin S/c	1486	40.62	12.5.85
SPORTS	Up to 1300cc	Bruce Bloodworth	Nota Clubman	1298	37.99	12.5.85
GROUP	1301 to 1600	Pat Goulding	Nota Sportsman	1494	37.47	13.5.84
"A"	1601 to 3000	Keiran Stanmore	Lotus 7	1800	41.54	12.5.85
	3001 to 5000	Т	O BE SET	4 16	33 h	
SPORTS	Up to 1300cc	David Brierley	Morris Cooper "S"	1297	41.24	5.8.84
SEDANS GROUP	1301 to 2000	Peter · Mullin	Morris Cooper	1408	37.02	13.5.84
"B" & GT	2000 to 3000	Trevor Bridge	Mazda RX3	2612	40.19	12.5.85
	3001 to 4000	Garry McFadyen	Torana LJ	3300	36.40	12.5.85
	4001 to 6000	Allan Burrows	Torana Leyland	4414	37.32	13.5.84
PROD. TOURING GROUP "C"	Up to 1600cc	Mel McKendry	Ford Escort RS1600	1600	38.88	12.5.85
	1601 to 2000	Beach Thomas	BMW 2002	1990	41.17	13.5.84
	2001 to 3000	Graham Kerslake	Mazda RX2	2292	43.18	18.8.85
	3001 to 6000	David Noakes	Holden Torana	5047	38.95	19.2.84
MARQUE	Up to 1300cc	Bob Rowntree	MG Midget	1298	40.02	18.8.85
SPORTS	1301 to 2000	Phil Brooke	Datsun 1600	1595	49.27	18.8.85
CARS	2001 to 3000	Les Crandell	Datsun 240Z	2393	42.91	25.3.84
	3001 to 6000	Т	O BE SET		course	
APPENDIX "J"	1	Warwick Agustin	Cooper "S"	1298	40.67	1.4.84
CLUB CARS		Craig Moffitt	Torana XU1	3300	43.63	12.5.85

### MOTORKINANA

29th SEPTEMBER -- -- RICHMOND.

It was a beautiful spring day with 15 people, including kids, showing up. We had nine drivers and five of them were classic cars, so it looks as if the announced handicap system for classics got the desired results.

Bob and Jenny Smith turned up in their most interesting Marcos which is about knee high to a grasshopper. Vic and Judy Andrews came in their immaculate Volvo 123 GT, which was not so immaculate after the many dust drifts and wheelies. Full points go to El Presidente and Barbra for turning up in their newly acquired immaculate Porsche 911 sports ready for action. When we saw the Muirs' Porsche we turned the colour of it - "Kermit Frog Green".

It was a real family day for the Ross's - Margaret doing the timekeeping, Mick doing the flag replacing and Jennelle and her friend Mick competing in a Gemini. No wonder Ray turned up and competed in his Holden wagon. I turned up in the Alfa to put it in its first, but not last, motorkhana. Mark Anthony completed the field in his Laser. The champs of last year did not show.

Method of scoring: Runs were timed and if the competitor knocked the markers or the set 'garage', 10 seconds were added for each "accident" to the timed run. Four seconds were added if the car was not a classic, and \*\*p\* seconds were deducted for cars of obvious long wheel base such as Holden wagons. Perhaps four seconds would have been better, but as we did not want to get into measuring the difference between a small and medium car (for which there is no points penalty) three was deemed to be it. I might also add that four seconds is conservative for the classic handicap, as most small newish cars are at least five to six seconds better than a 15 year old classic over this course. David's old "new" Porsche is probably one exception - also probably a Dino if there is one lurking in the shadows.

There are no extra points for F.T.D. as there is only one club competing and points for the motorkhana are not included in the drivers championship.

Four patterns were set up, we had three runs in each pattern and the fastest of the three runs was scored on. Penalties were then added/subtracted for classic or L.W.B. Four points for first, three for second, two for third and one for competing.

SWE SHE SHIP TO BE	Points	- 4 pat	terns	32 A591 12:32 1/72511 A	Total Points
Mark	2	2	4	2	10
Dave	4	4	3	DNS	11
Bob	3	2	1	1	7
Mick	1	1	1	1	4
Ray	1	1	2	4	8
Janelle	1	1	1	1	4
Vic	1	3	1	1	6
Len	1	1	2	4	8
Judy	1	1	2	1	5

I hope everyone approves of the scoring system and look forward to the last and final round of the Motorkhanas to determine our Champion.

LEN MADAR.



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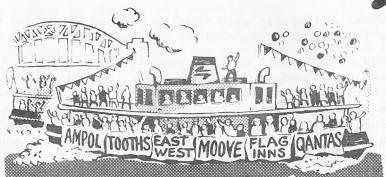
\*Anything else is a compromise. Quality home appliances.

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## Fancy Aress Sat. 23rd November



7pm

Aboard the fabulous functions cruiser - ZANE GREY.

<u>Cost</u>: Smorgesbord Dinner and cruise for \$27.50/head. Drinks extra.

<u>Bookings</u>: Please send money by end of October to Roland Clark, Box 124, Windsor. 2756. Make out cheques to T.S.C.C.

Where: Birkenhead Point, Bridge Street Wharf; it is the bridge you can see almost directly underneath the bridge and you can park in the top car park.

## letters to the Editor

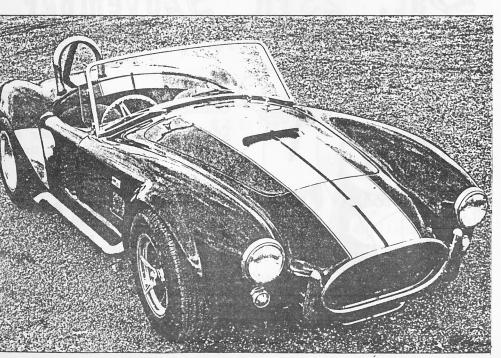
ear Len,

hile Vicki and myself were touring England I decided to have close look at the Component or Kit Car range.

he range of models is quite staggering and in the U.K. they wen have their own annual Motor Show. Kit cars for one reason another have never really taken off in Australia and after close look in England I can understand why. Without a doubt the flourishing Kit Car market sprang from England's rust probems caused by winter salt being laid on icy roads, which, mankfully, we are spared in Australia.

ars two to five years old quickly become riddled with rust and in many cases are still quite mechanically sound which presents the owner with the problem of discarding the whole vehole or retaining the mechanics and dropping a new body on.

## Ram Cobra

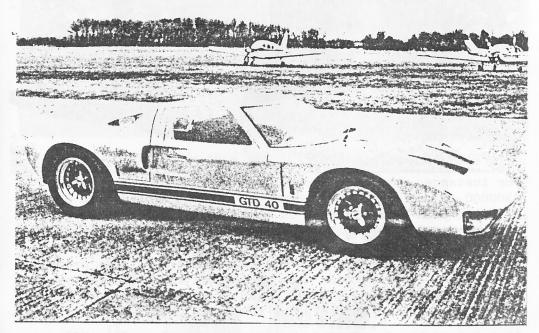


The market at this point divides into two sections. One being the manufacturers own design and the other being Replicas of previous cars, the latter being of the greatest interest to me.

The Cobra Replica has around fourteen companies producing it now, based on various donor cars. I visited the L.R. Roadsters plant in London to check their version out.

The "Ram Cobra" appears to be the best of the bunch and is very simple to build. Import duty into Australia is 25% on the body and chassis and you fit your own engine, wheels, etc. The car can be had from a quite mild V/8 to "Animal" 427 size.

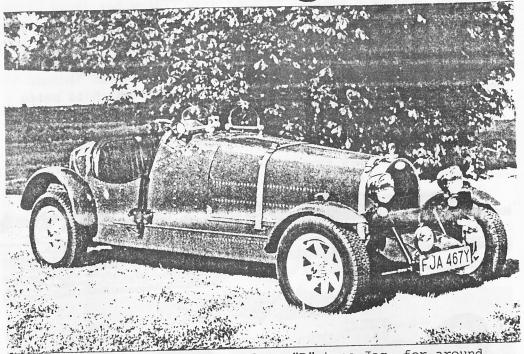
My personal choice is the Ford GTD 40 Replica which is being produced by three or four manufacturers. This car, at the moment, leaves too much for the home builder to do and at this stage I'm going to see if someone produces a better and easier kit to construct.



Thumbing through a colour catalogue of Kit Cars available, the choice is really quite remarkable. From very small novelty cars based on mini parts to XK-120, Bugatti, MG TF, even a Porsche 911. The Porsche Club in England while we were there gave a replica of the famous Porsche Spyder away as a prize to members. How the true car enthusiast sees replicas of their belowed cars varies from wanting to own a replica (so they can drive it!) to downright hostility, but I see there is a place

for car enthusiasts such as ourselves to be able to own such a car.

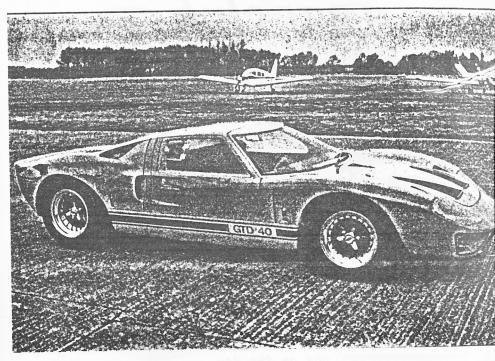
## Teal Bugatti



For instance, owning an immaculate "D" type Jag. for around \$300000 is one thing, but would you take it around Oran Park or drive in peak hour traffic, in fact, would you drive it at all? However a "D" type replica with XJ running gear can be built for quite a modest sum, and, if well built and trimmed is virtually indiscernable from the real thing. Re sale prices in the U.K. are very good with used Cobra replicas, for example, selling around \$40,000 which is quite a bit more than they cost to build but only one third the price of the original.

As a lot of the "supercar" replicas are based on Jag. XJ6 suspension and running gear, I then priced mechanically sound XJ's (with rust) and found the cost in U.K. around \$500, so you can see why they are booming over there. If anyone would like a catalogue on component cars, I would suggest they write to "The Component Car Catalogues", Highway Lodge, Brighton Road, Lower Kingswood, Tadworth. Surrey. KT206XL. The cost is 4.25 (around \$8.50) plus postage.

## KVA Mkl



Trusting all is well within the T.S.C.C., hope to see you so Regards.

TREVOR LARKEY.



# thoroughbred sports carclub

CHILDREN'S CHRISTMAS TREE

AND GROWN UPS PIG IN . . .

### Sunday, 1st December



\* Father Christmas:

Arrives at 10.30 a.m. and gives out free presents to kids.

\* Pig and Lamb on Spit:

Sour cream potatoes, salads, etc., done by professionals. Utensils provided.

\* All drinks FREE:

Put on by the T.S.C.C.

- \* Bring a gift for your older mate and Santa will also give it out on the day.
- \* Cost:

Adults - \$10 per head

Kids - \$ 5 per head

\* Play:

Cricket, football and swim.

\* Bring:

Something to sit on and swim trunks.

\* Where??

SIRIUS PARK (not Cove), Mosman. Take the right turn into Raglan Street, and turn to the left at the water's edge.

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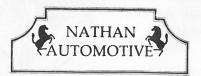


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## T.S.C.C. Christmas Dinner Trophy Awards





Friday, 13th December 7.30/8.00 pm

COME ALONG FOR A GREAT NIGHT OF CELEBRATION AND GAIETY.

Where: Shakespeare Inn. 829 Old Northern Road. Dural (Corner Quarry Road - look for the Tudor building

outlined in green lights).

COST: \$23.00 per head -

A FEAST TO DELIGHT ALL. Drinks extra at bar.

RAY ROSS. BOOKINGS:

ACCOMMODATION: Available 200 yards away at the Vicar of Wakefield Hotel/Motel, New Line Road, Dural. Phone: 651-1735. In-

dividual bookings.





## club shop.

Last Chonce to Order!!

sizes the same as for Sloppy Joes.				
*Yellow fleecy lined sloppy joe, with big emblems front and back. Polly/cotton. High quality.  Each: \$17.00  Sm  S.  M.  L.  T-SHIRTS AVAILABLE: Yellow with black emblems. Each \$7 and sizes the same as for Sloppy Joes.  Cloth Badges Each: \$ 4.00	*Yellow peaked hats, adjustable		No.	
with big emblems front and back.  Polly/cotton. High quality.  Each: \$17.00  Sm  S.  L.  T-SHIRTS AVAILABLE:  Yellow with black emblems. Each \$7 and sizes the same as for Sloppy Joes.  Cloth Badges Each: \$ 4.00	back strap and woven badge sewn on.	Each: \$ 6.40		
Polly/cotton. High quality. Each: \$17.00 Sm  S.  S.  M.  L.  T-SHIRTS AVAILABLE:  Yellow with black emblems. Each \$7 and sizes the same as for Sloppy Joes.  Cloth Badges Each: \$ 4.00			No. Siz	е
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The above prices are valid as at date of writing and may be subject to small changes.

When ordering by mail, add \$1.50 per item for postage (except for decals and cloth badges, for which you add 50 cents.) Please note: This is a once only order and I will wait for your money before I order the articles.

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LEONARD MADAR.

<sup>\*</sup> Car Decals yet to be priced.



Almost 12 years after backyard inventor Ralph Sarich and his revolutionary replacement for the piston engine were headlined to fame, the Orbital Engine Company is still going strong. Only the naivety of the early days is missing. Red Easdown reports from Perth.

Ralph Sarich and his revoluntionary orbital engine first hit the headlines back in 1972, and together they generated a wave of national optimism. Here, at last, was a replacement for the 120-year-old piston engine. It was smaller, lighter and perhaps even more reliable. And it was Australian with the promise of fantastic royalty payments from round the world. Enthusiastic press reports were indicating production by the end of 1973. In the parochial environment of Western Australia the public, press and parliament were in raptures. Ever determined to prove West Australians the equal of anyone the local media built Sarich and his engine into an automotive messiah and the State Government, always anxious to capitalise on such a bandwagon, jumped up for the ride.

"Sarich need only ask to get millions," the newspapers were saying in 1972. "Good news for 1973 - Sarich engine to be built in Perth" screamed the headlines. Of course it did not

happen. But what went wrong?

Today Ralph Sarich is a little older and a great deal wiser. His engine, basically the same, runs much better. And in an industry where it can take 2000 manhours to re-design an ashtray, his idea is now sufficiently developed for international marketing.

"I can't deny I was pretty naive at the time," Sarich says recalling those early headlines. "I had got this motor from paper to test bench so fast I had the idea that everything else would move fast too. I was setting records for getting a radical idea to work ... everything else should have been easy. I had no idea of the amount of development involved and the colossal amount of time it takes to train people. You know the rotary engine was first thought of in 1924 and it wasn't until 1950 that they got it running. Even after that there was more than a billion dollars spent on developing it. I had a working prototype in a matter of years and I did not see why everything else shouldn't go just as fast."

And although his comments to the press were always cautious he couldn't dampen media enthusiasm. He'd state that production was possible depending on a number of conditions. The stories disregarded the conditions so that production was regarded as being as all but certain.

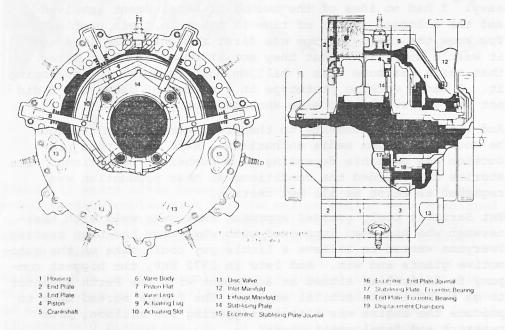
But Sarich's cool, guarded approach came over well with businessmen who had been impressed with what they had been reading. Everyone wanted to believe a little guy could take on the automotive giants and win. And late in 1972 BHP, the biggest company in Australia, signed an agreement with the Perth inventor to go 50/50 in the orbital engine. The figure agreed upon to produce the engine was a then staggering \$50 million, plus research and development costs.

In 1981 the news about Ralph Sarich had died down and at one stage, it looked like the most exciting thing the orbital engine could hope for was a future powering lawn mowers.

To anyone without a working knowledge of the automotive industry what Sarich has achieved since those frenzied days may not look very impressive. His Orbital Engine Company has had only 15 different orbital engines on the test bench, subject to experimentation with a big number of differing components and construction techniques. And the motor itself looks the same as it always did.

But for people who know about the long lead times involved in

the industry, the astronomical development costs and the tremendous complications of production, Sarich is moving fast. He has a clean, efficient, smooth and compact motor with a brilliant power to weight ratio. He has a fuel injection system which is far smaller and more efficient than the best from Europe. He runs one of the best technical research and development facilities in the country. And while the engine may not yet have reached production it has nevertheless got some of the biggest producers in the world highly interested. no small achievement when it's considered what sort of costs they face to re-tool for an entirely new concept of engine.



An orbital engine exists right now that not only meets all the requirements of ADR27A, but also records much better fuel economy than a comparable petrol engine under the procedures of Australian Standard 2077.

Back in 1972 economy and emissions did not matter all that much, which was just as well for the orbital engine because those were the problem areas. And that's where all the work has gone - it has all been a matter of refinement.

While the basic design, and certainly the operating principles, remain the same the engine has changed significantly. Sealing has been greatly improved and there is vastly better fuel burning characteristics. A variety of different head designs

have been experimented with, one of which is rather fondly referred to as the semi hemi, and quad valve layout has been worked on.

The Orbital Engine Company has grown quite rapidly. It's a long time since Ralph Sarich has been called a backyard inventor - wages for him 60 full-time staff totals around \$1.5 million. The present factory is in the industrial suburb of Balcatta, 15 minutes north of Perth, and while Sarich and a partner built the premises, the land is leased from the State Government for a peppercorn rental. It's a gesture by the politicians to underscore Sarich's stated intention of keeping the business end of the orbital engine concept within W.A.

Sarich says "To be attractive to buyers the engine has to be highly developed and very good. It has to offer weight savings, economy and compactness to allow better utilisation of aerodynamics in vehicle design. And it must be borne in mind that all the time we were working toward these goals the oil situation was causing the automobile industry to put phenomenal investment into the conventional piston engine to make it run more efficiently. Not only did we have to keep pace with that, we had to do better if the orbital was to offer an advantage."

That's where the time and money has gone. Engines from all over the world, including the lastest American V6s, grace the test benches at Balcatta and are quite relentlessly scrutinised for weaknesses and, more importantly, strengths.

And the orbital engine is at the stage where it's ready to prove itself. With better burning, brought about by the unique head design and the orbital movement of the piston, the engine is showing itself to be at least 10 percent more efficient (hence 10 percent more economical) than a comparable piston engine and NOx emissions are seven times lower. On top of straight fuel saving, it offers a manufacturer substantial weight gains. The engine itself weights one-half to one-third of a piston engine while occupying far less space. A car designed around the orbital engine can pay far more attention to aerodynamics. All up Sarich believes an orbital will offer 42 percent better economy on a car of 1000 kg., 38 percent on a car of 1500 kg. and 36 percent on a 2000 kg. car, based on the consumption figures being achieved by such cars right now. Through weight saving alone a car of the size of the Commodore would achieve 13 to 15 percent better economy.

Size and weight are the biggest selling points of the engine, and selling is going pretty well despite the world market

being "not easy to break into from Australia". Sarich is playing it close to his chest and won't reveal just how many companies are interested in the motor and how many in the fuel injection system.

But surely major producers are worried about how much it would cost to tool up for a completely different engine? "If they were I don't think there'd be any starters in the project, and at the moment we have starters," Sarich says. "They want to go ahead and work on it, and we're agreeing to sell them the prototypes. At up to \$1 million an engine."

That's the top price. It is being sought for a two-litre, five chamber motor, the orbital equivalent of a two-litre four cylinder. The price is high because all development work has so far been done on the bigger 3.5-litre seven chamber motor conceived to rival the big, lazy American V8s and larger sixes now falling rapidly from favour. Royalties would be an additional charge, as would development contracted to the Orbital Engine Company.

"When the engine will get into production is anyone's guess," Sarich says. "If it proved remarkably economical it could be on production lines within three years, but it's more likely five. Perhaps even eight years."

It could be a much shorter gestation for the fuel injection system. The entire unit fits comforably into the palm of one hand and by test results seems to work better than the best electronic systems from Europe. Sarich's great caution and conservatism about his own work makes this claim believeable. n addition it's cheap, simple and highly tolerant of impurities

In addition, it's cheap, simple and highly tolerant of impurities. While a single speck of dust can cripple a normal fuel injector the Sarich injector is more tolerant of dirt than a conventional carburettor, and will probably cost about the same to produce as a carby.

It came about as a direct result of problems that arose with the orbital engine when run with a carburettor. The chambers are not rounded like a conventional engine's cylinders, they are squared. The corners can lead to high levels of hydrocarbon unless the fuel mixture and firing direction is exactly right. A conventional carburettor could not provide the combination of atomisation and direction, so fuel injection was necessary.

