

TRIPPING THE
LIGHT FANTASTIC
AT TANS



A Chinese banquet? More like a people banquet!
How good it was to see you all again
Laughing, talking and waving your arms around
Not in the least inhibited or shy.

I learned many things at Tans that night.
Like 'how to bowl and maiden over' and
'how to dance the light fantastic'
And how to eat rice with ever so tiny chopsticks...

Weren't the men so gay and witty
Weren't the ladies so fresh and merry
Two mothers to be so round and happy
Two members just back from over the sea.

Three tables of ten (plus just a few extra)
Had joined together for this night out around.
Some danced together.. some danced apart,
Somed danced not at all, just watching us lark.

We enjoyed the whole evening, we all had a laugh
Thanks to our committee who makes it all spark
They work hard all year, sometimes without joy
When response is so slow.. sometimes not at all

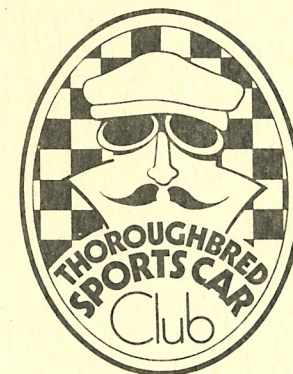
You didn't come? How come?
You missed a great night
See you next time I'm sure
Just do it, it's fun!

Vicki Larkey.




top gear

APRIL 1986



REGISTERED BY AUSTRALIA POST – PUBLICATION No. NBH 6791

NEWSLETTER OF THE THOROUGHbred SPORTS CAR CLUB



SUBJECTS 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.

PUBLISHED BY: The Thoroughbred Sports Car Club,
P.O. Box 195, Croydon Park, N.S.W. 2133.

SEND ALL COPY FOR "TOP GEAR" TO: Zig Kyzelis,
8 Prestige Ave., Lakemba, 2195.

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, ¼ page \$11 per issue, 1/8 page \$5 per issue. Advertisements 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

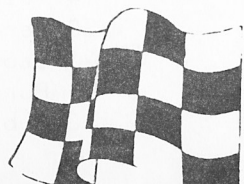
President:	RAY ROSS — 651-2013 (h) 872-3439 (w)
Vice-President:	GARRY BRUCE — 498-1486 (h) 438-3088 (w)
Secretary:	DEBORAH GOUGH — 799-3209 (h)
Treasurer:	ROLAND CLARK — (045) 73-1367 (h) (045) 77-2219 (w)
Competition Secretary:	LIONEL WALKER — 477-1464 (h) 693-1788 (w)
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Coming Events

- 20 APRIL * Hawkesbury Cruise with Roland Clark.
- 27 APRIL * Super Sprint at Amaroo Park.
- 14 MAY * Club Meeting at Sydney Rowing Club.
- 18 MAY * Super Sprint at Oran Park (South Circuit).
- 8 JUNE * Super Sprint at Oran Park (South Circuit).
- 11 JUNE * Club Meeting at Sydney Rowing Club.
- 14/15 JUNE * Weekend Mystery Tour.
- 5 JULY * Gambling Night.
- 9 JULY * Club Meeting at Sydney Rowing Club.
- 13 JULY * Super Sprint at Amaroo Park.
- 10 AUGUST * Flying Fifth at Bathurst.
- 13 AUGUST * Club Meeting at Sydney Rowing Club.
- 24 AUGUST * Motorkhana at Fiat Club Grounds.
- 10 SEPTEMBER * Club Meeting at Sydney Rowing Club.
- 21 SEPTEMBER * Silverdale Hillclimb & Social.
- 8 OCTOBER * Club Meeting at Sydney Rowing Club.
- 18/19 OCT. * Canberra Hillclimb.
- 26 OCTOBER * Australian Grand Prix Party.
- 9 NOVEMBER * Concours - Picnic Day in Parramatta Park.
- 12 NOVEMBER * Club Meeting at Sydney Rowing Club.
- 30 NOVEMBER * Super Sprint at Oran Park (South Circuit).
- 6 DECEMBER * Xmas Dinner - Presentation Night.
- 10 DECEMBER * Club Meeting at Sydney Rowing Club.



presidents prose

By the time you read this a quarter of my year as President will have passed and there has been one social event and two sporting events taken place of which I was only able to attend one of those events. This of course brings me back to our theme:- "Remember, every member get a member", to broaden our base number making life a little easier for the various organisers.

Speaking of members and renewals, have you rejoined yet? At our last meeting only half of the 1985 members had paid their 1986 fees which were due at the end of January. Please either send in your membership form and cheque or attend the next meeting where you can pay by Bankcard, Visa, Mastercard, cheque or cash, so please don't reduce us to having to ring you to renew your interest. Along with your renewal form enclosed with the magazine you will find our complete calendar booklet compiled by Jim Peters and printed by our editor, which gives you an excellent run down on what we feel is a varied and balanced programme for the rest of 1986.

May I remind members that when they make bookings either by phone or at meetings for social functions which have a requirement for the club to nominate, confirm and pay for the numbers attending, members who do not cancel at least 24 hours prior to the event can expect an invoice from the Treasurer for the amount lost by the club on their booking fee. This has been a long standing requirement of our club and let's face it, it's no more of an imposition than you would expect elsewhere if you had booked your seats personally.

For all you stay at homes that missed our Motorkhana, you missed a great day. Fiat car club, who own the grounds at Windsor have now cut a track through an unused paddock which must be $\frac{1}{2}$ to $\frac{3}{4}$ km. long and boy did we have a ball. Results should be included in the Magazine somewhere.

Our next meeting will be on April 9th and will be a Noggin & Natter Night. I promise you a very fast meeting

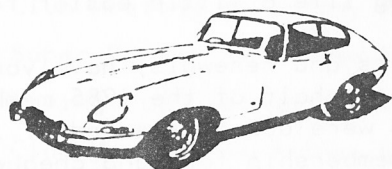
commencing promptly at 8.15 p.m. then out comes the cheese and biscuits, you supply the grog and away we go. So there you are girls, no boring old motor sport videos this month, come on out and let's see what you look like again - we will have a boring old motor sport video next month, right fellas, Righttt.

At the previous two general meetings this year I have been selling magazine binders suitable for filing all your club magazines. These are attractive folders covered in a good quality vinyl with the club insignia embossed on them. Cost is \$5.00 each, money up front and our next meeting will be the last chance to order as we almost have the required number. Yet, another reason to come along and pay your subs.

See you there!

RAY.

REMEMBER - EVERY MEMBER GET A MEMBER !



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secretary's slice



T.S.C.C. MEETING - 12.3.86

Meeting commenced: 8.30 p.m.

Apologies: Len Madar, Debië Gough, Margarte Ross, Karin Falkenberg, Linda Du Cros.

Minutes of previous meeting: Read by Acting Sec. Lester Gough, taken as being correct.

Business arising out of minutes: Ray's cars to be on show 26-27 April at Carlingford Shopping Centre.

Re corvers for magazines - several orders taken.

General: Social - Calendar had been set at a subsequent committee meeting. Incorporation of club is now in progress.

Only 24 members are financial, approx. 35 outstanding.

A letter from Toikan Insurance Co. told of their takeover from the old Classic Car Insurance. A letter from The Toy Shop was tables re videos for sale/hire.

Treasurer: Financial situation is in order but not currently fully up to date. Roland suggested suggested 25 starters for April 20th Cruise. Confirmed need for renewals to be followed up and requested a large note in the next Magazine.

Sporting: Motorkhana 23rd March at Fiat Grounds, only 7 people indicated interest at the meeting. Next event Super Sprint at Amaroo 27.4.86.

Social: Cruise - As only 24 potential places, attendees at meeting had first opportunity to book. As 11 people indicated interest, Jim collected funds at the meeting for 11 couples. Williams & Halls as reserves. Chinese Banquet - 50 expected, thirty one arrived. Mystery Tour - Close date is May meeting. A brief outline of other events was given. The meeting expressed thanks to Jim for efforts in putting together the calendar.

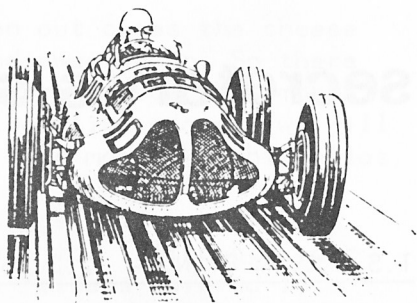
Newsletter: The editor requires information for the Newsletter. Garry Bruce asked for details of the point scoring system to be included. Ray Ross to work out with Lionel Walker.

General Business: Ray Ross reported that Club Motor Show was disappointing. Garry Bruce asked if club had forwarded mailing list to Shannons Insurance. It was confirmed that this was not the case.

Meeting closed at 9.15 p.m.

GARRY BRUCE

sporting report



23rd MARCH 1986 - FIAT CLUB GROUNDS, RICHMOND.

The weather held off to give us a great sunny day for our first Motorkhana which got off to its usual start by working out how to put up the tent.

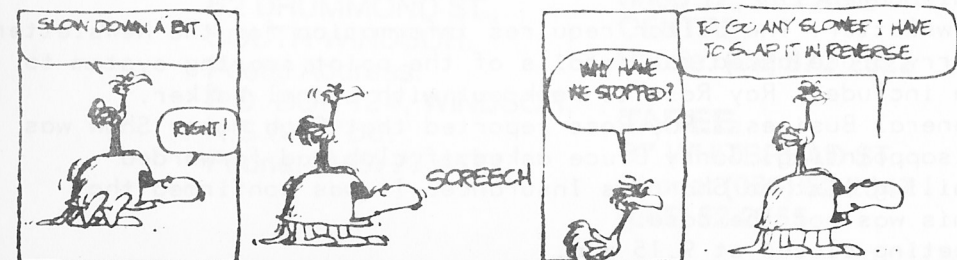
We had a good attendance with 12 entries - the star of the day was Mark Anthony who turned up in his XJS complete with baby and his Laser on the trailer behind.

The first event was the usual slalom to get all concerned into the right spirit. Mark showed us all how to do it with his Laser.

To add some variation to the day I decided to run the next event on the small dirt track on the other field. This proved to be a great event as the track was so tight and the corners were all blind with the 6 ft. high grass. Some interesting results came with Bill Gretton trying deperately to stay in front of Pat and Linda du Cros recording a time only 0.62 seconds slower than Mike. I discovered what it is like to drive a Falcon without power steering.

METHOD OF SCORING: As previously, 3 seconds were deducted for cars of long wheel base, e.g. Falcons, Holdens, and the small and medium cars ran from scratch. Had there been any classic cars there they would have had a 4 second deduction.

Points awarded were 4 for first, 3 for second and 2 for third and one point for entering.

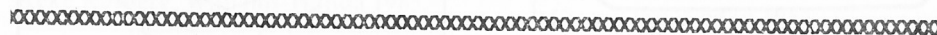


MOTORKHANA RESULTS

	Fastest Times						Points			Total
L. Walker	28.53	2	51.50	2	41.31	5	3	3	1	7
V. Andrews	30.08		53.30		48.81		1	1	1	3
A. Hunter	30.23		53.09		43.03		1	1	1	3
M. Anthony	27.66	1	50.23	1	39.12	2	4	4	3	11
R. Ross	28.75	4	51.68	4	41.25	4	1	1	1	3
D. Muir	29.31		52.93		42.27		1	1	1	3
J. Peters	29.50		52.70		-		1	1	1	3
M. Du Cros	31.21		54.00		47.00		1	1	1	3
B. Gretton	28.73	3	51.50	2	38.89	1	2	3	4	9
J. Andrews	33.97		58.38		45.58		1	1	1	3
L. Du Cros	30.89		54.62		44.86		1	1	1	3
P. Gretton	29.28		51.65	3	39.87	3	1	2	2	5

The next event is a Super Sprint at Amaroo Park run by the A.R.D.C. on the 27th April. Please contact me for entry forms.

LIONEL.



"I sometimes question Harry's motives in entering these rallies!"

ROBERT ANDERSON

D.C., D.O., M.U.C.A.

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The Grand Prix calendar

From Rio to Adelaide – the where and when of the 16 grands prix.

March 23

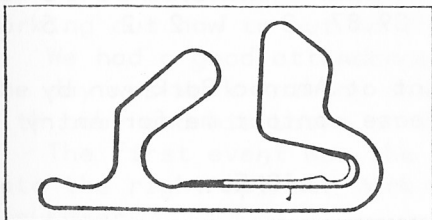
BRAZIL

Circuit: Jacarepagua, Rio de Janeiro 5.03km.

Lap Record: 1:36.499, 187.67km/h, Alain Prost, TAG-Porsche McLaren 1984.

Pole position 1985: Michele Alboreto, Ferrari, 1:27.768.

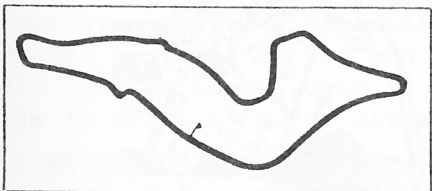
Winner 1985: Alain Prost, TAG-Porsche McLaren.



April 13

SPAIN

Circuit: Jerez (new track).



April 27

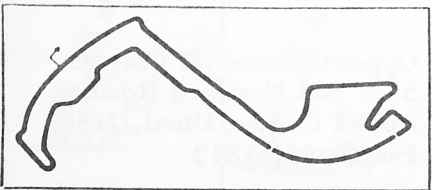
SAN MARINO

Circuit: Imola 5.04km.

Lap Record: 1:30.961, 199.46km/h, Michele Alboreto, Ferrari 1985.

Pole position 1985: Ayrton Senna, Lotus-Renault, 1:27.327.

Winner 1985: Alain Prost, TAG-Porsche McLaren.



May 11

MONACO

Monte Carlo street circuit: 3.312km.

Lap record: 1:22.837 137.82km/h, Michele Alboreto, Ferrari 1985.

Pole position 1985: Ayrton Senna, Lotus-Renault, 1:20.450

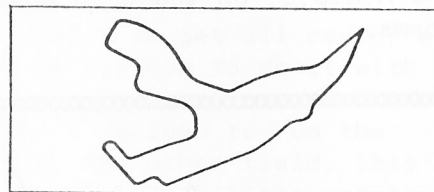
Winner 1985: Alain Prost.

May 23

BELGIUM

Circuit: Spa-Francorchamps 6.940km.

Lap record: 2:01.730, 205.24km/h, Alain Prost, TAG-Porsche



McLaren, 1985.

Pole position 1985: Alain Prost, TAG-Porsche McLaren 1:55.306.

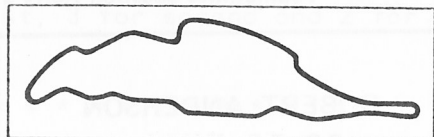
Winner 1985: Ayrton Senna, Lotus-Renault.

June 15

CANADA

Circuit: Gilles Villeneuve 4.41km.

Lap record: 1:27.445, 181.55km/h, Ayrton Senna, Lotus-Renault, 1985.



Pole position 1985: Elio de Angelis, Lotus-Renault, 1:24.567

Winner 1985: Michele Alboreto, Ferrari.

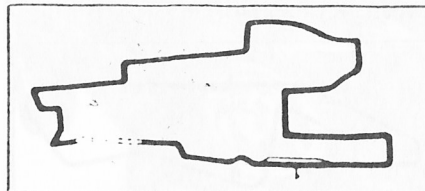
June 22

DETROIT

Street circuit: 4.12km.

Lap record: 1:45.612, 137.17km/h, Ayrton Senna, Lotus-Renault 1985.

Pole position 1985: Ayrton Senna,



Lotus-Renault, 1:42.051

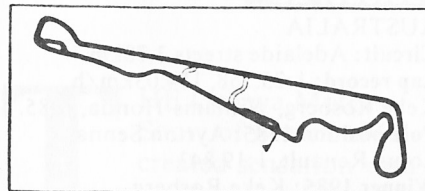
Winner 1985: Keke Rosberg, Williams-Honda.

July 7

FRANCE

Circuit: Paul Ricard Le Castellet 5.81km.

Lap record: 1:39.914, 209.33km/h, Keke Rosberg, Williams-Honda 1985.



Pole position 1985: Keke Rosberg, Williams-Honda, 1:32.462

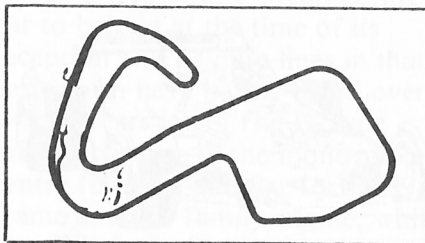
Winner 1985: Nelson Piquet, Brabham-BMW.

July 13

BRITAIN

Circuit: Brands Hatch 4.21km.

Lap record: 1:11.526, 211.72km/h, Jacques Laffite, Ligier-Renault, 1985.



Pole position 1985: Ayrton Senna, Lotus-Renault, 1:07.169

Winner 1985: Nigel Mansell, Williams-Honda.

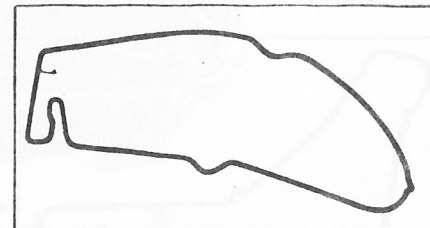
July 27

GERMANY

Circuit: Hockenheim* 6.797km.

Lap record: 1:53.538, 215.515km/h, Alain Prost,

TAG-Porsche McLaren.



Pole position 1984: Alain Prost,

TAG-Porsche McLaren, 1:47.012.

Winner 1984: Alain Prost,

TAG-Porsche McLaren.

*Circuit last used in 1984.

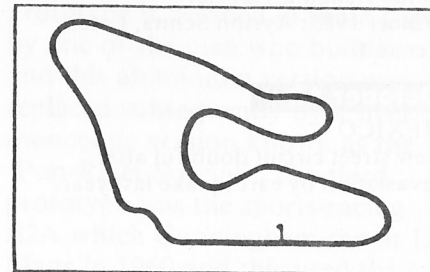
Winner 1985: (at Nurburgring)

Michele Alboreto, Ferrari.

August 10

HUNGARY

Circuit: Budapest street circuit, first running in this venue.



August 17

AUSTRIA

Circuit: Osterreichring 5.94km.

Lap record: 1:29.241, 214.09km/h, Alain Prost, TAG-Porsche McLaren, 1985.

Pole position: Alain Prost, TAG-Porsche McLaren, 1:25.490.

Winner 1985: Alain Prost, TAG-Porsche McLaren.



❖ GRAND PRIX 86 ❖

September 7

ITALY

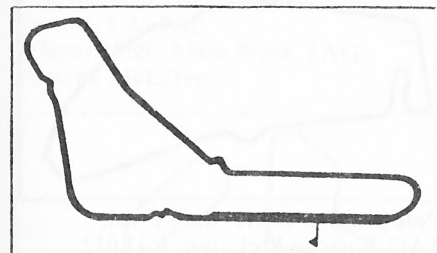
Circuit: Monza 5.8km.

Lap record: 1:28.283, 236.24km/h,

Nigel Mansell,

Williams-Honda, 1985.

Pole position: Ayrton Senna,



Lotus-Renault, 1:25.084.

Winner 1985: Alain Prost, TAG-

Porsche McLaren.

September 21

PORTUGAL

Circuit: Estoril 4.21km.

Lap record: 1:22.996, 150.4km/h,

Niki Lauda, TAG-Porsche

McLaren, 1984.

Pole position 1985: Ayrton Senna,

Lotus-Renault, 1:21.007

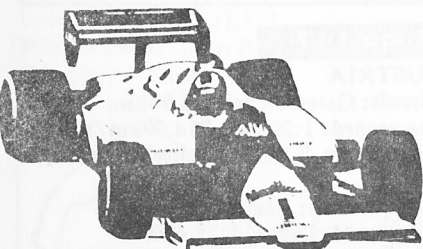
Winner 1985: Ayrton Senna, Lotus-

Renault.

October 12

MEXICO

New street circuit doubtful after
devastation by earthquake last year.

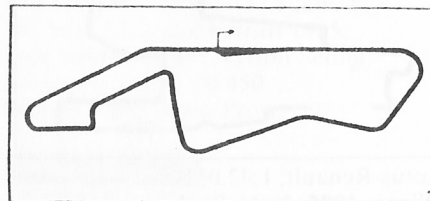


October 12

SOUTH AFRICA (only if Mexican

Grand Prix is cancelled)

Circuit: Kyalami 4.1km.



Lap record: 1:08.149, 216.79,

Keke Rosberg,

Williams-Honda, 1985.

Pole position 1985: Nigel Mansell,

Williams-Honda, 1:02.366

Winner 1985: Keke Rosberg,

Williams Honda.

October 26

AUSTRALIA

Circuit: Adelaide streets 3.78km.

Lap record: 1:23.758, 154.03km/h,

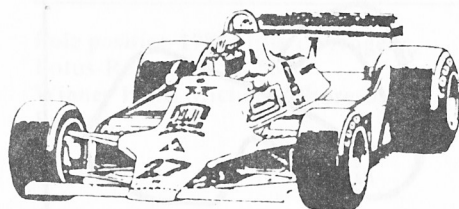
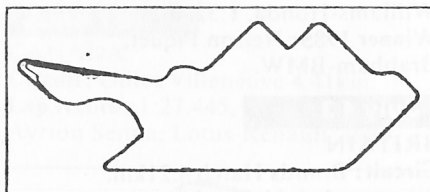
Keke Rosberg, Williams-Honda, 1985.

Pole position 1985: Ayrton Senna,

Lotus-Renault, 1:19.843

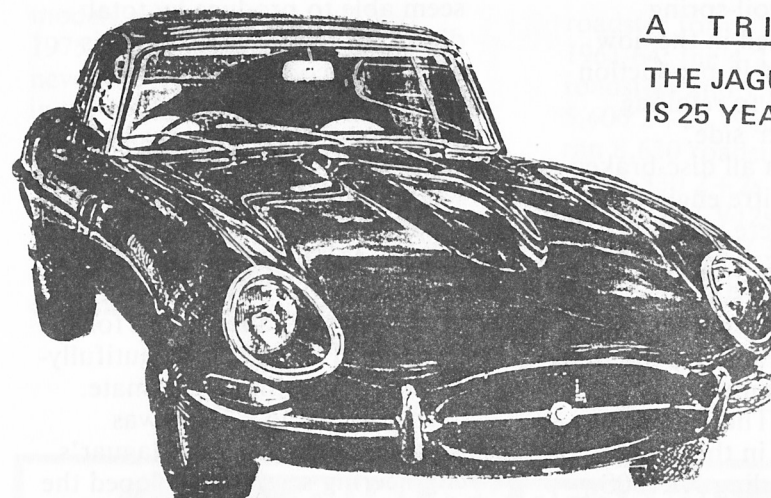
Winner 1985: Keke Rosberg,

Williams-Honda.



A TRIBUTE

THE JAGUAR E TYPE
IS 25 YEARS YOUNG



'E' Stands for Jaguar Excitement

THE Geneva Motor Show of March 1961 created sensation with the debut upon Jaguar's stand of their epochal E-Type production sports car. This was a new start for the company, basing their production car upon the Le Mans-winning sports-racers which had preceded it instead of building a sports-racing car after a production base had been established.

The E-Type was a breathtaking car to behold at the time of its inception and its pure lines in that early form have hardly dated over twenty years later. The D-Type inheritance was in the monocoque centre fuselage, tubular forward frame and XK family engine, while the all-independent suspension system was new.

The true forerunner of the E-Type was the prototype E1A which was used extensively on the road by company engineers, test drivers and 'friends of Jaguar'. This first prototype is detailed in these pages by one of the men who built it, and this aluminium version was replaced subsequently by a steel monocoque version known as the 'Pop-Rivet Special'. The third prototype was the sports-racing E2A which Cunningham ran at Le Mans in 1960 and this used the independent rear suspension along the lines which the E-Type followed in production.

The rigid-mounted final drive flanked by inboard disc brakes was allied to fixed-length drive-shafts forming in effect the lateral location of a double wishbone system, without the upper

wishbone. Twin coil-spring dampers were fitted in the now familiar style, and in production the E-Type added to retailing radius arms either side.

The production all disc-braked E-Type with 3.8-litre engine was a true sensation. Here was a production sports car of international racing standard performance, allied to handling and ride comfort and for the first time virtually, genuine braking power to match. The 3.8 engine delivered 265bhp in this form, same as the preceding XK150S, and this was allied to 206lb/ft torque at 4,000rpm with a 9:1 compression ratio.

The one weak point of the new E-Type was the old Moss gearbox, whose adlermanic gearchange was not in keeping with the overall modernity of the package enclosing it. *The Motor* published the first E-Type road test in March 1961, and this was the now notorious 'standard road test car' which returned such staggering figures. Just look at them now: top speed 149.1mph with hood raised, 0-30mph in 2.6 secs, 0-60mph in 7.1, 0-80mph 11.1, 0-100mph in 15.9, 0-120mph in 25 secs and standing start quarter-mile in 14.7 . . . Overall fuel consumption was 19.7mpg, or 26mpg-plus at a steady 70mph.

Debits were poor use of its overall length, restricted baggage space with that tiny tail boot, poorly-shaped seats, noisy hood, and inefficient cockpit cooling. But *Motor's* noted editor Charles Bulmer's praise was fulsome: "The sheer elegance of line which Jaguar

seem able to produce by total disregard for fashion trends is allied to a combination of performance, handling and refinement that has never been equalled at the price, and we would think, very seldom surpassed at any price . . ."

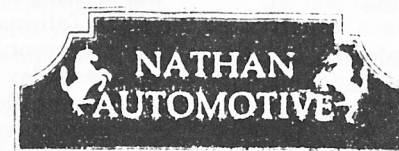
And that price tag was fixed initially at £1,480 basic for the open roadster, and £1,550 for the fixed-head Coupe, its beautifully-balanced looking stable-mate.

Into 1962 the E-Type was modified in detail, and Jaguar's engineering section developed the 4.2-litre XK engine and a new all-synchromesh gearbox to match which were introduced together into the E-Type range in 1965. The rather ungainly 2-+2 Coupe followed, with rear seat space in Spring 1966 and it introduced the first automatic transmission option on any sports-cum-GT Jaguar. In the London Motor Show of 1968 the Series 2 E-Type was introduced, with nose and tail end treatments modified — some might say bastardised — in line with the new US Federal Safety Regulation requirements. Jaguar's export market in the States was entirely dependent upon the XK-E by this time as none of the old saloon ranges were available there any more. But Walter Hassan and Harry Mundy were back with the company after their respective periods at Coventry Climax, which Lyons had added to his growing group and they developed the 5.3-litre V12-cylinder engine which emerged in March 1971 in the Series 3 E-Type. This long-wheelbased chassis model threw-up the new 2+2 and open roadster

models and they sold well into 1975. The E-Type's new price never exceeded £4,000, staggering in these times of over-inflated new car prices. Total E-Type production of all models ran to 72,520 of which only 12,330 remained in the UK market between 1961 and 1975. The original 3.8-litre ran 7,820 in

roadster form, 7,670 FHCs 1961-64; the 4.2 litre saw 9,550 roadsters and 7,770 FHCs and 5,600 2+2s 1965-68; 4.2 Series 2s ran 8,630 roadsters, 4,860 FHCs and 5,330 2+2s 1969-70; the final Series 3 5.3 V12s ran 7,990 roadsters and 7,300 2+2s in the tail end of production from 1971-75.

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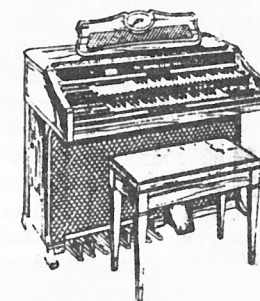
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Triad takes off

The special-builder's trail is littered with failures in Australia, but the beautifully built Triad could be the turning point, even at \$50,000

LOTS OF US think about building our own design of motor car; some of us even get as far as putting some ideas on paper. Few of us ever get around to actually starting, let alone creating a three-man partnership for the purpose, though.

Perhaps a handful of such projects reach completion, but when they eventually emerge from that natural-selection process, such cars tend to be pretty special things. The Triad, premiered in prototype form at the recent Sydney Motor Show, is one of that rare breed.

It is an interesting car for more reasons than mere rarity. To start with, it has been designed for limited-volume production, although the Triad team has no grand plans and in any case would not expect to be overwhelmed with orders for a car which will cost about \$50,000.

That is the clue to the other interesting side to the car. The Triad is no 'dream car' built by starry-eyed show-the-world youngsters. All three Triad partners are men with grown-up families and established full-time businesses. They know the realities of making a quid.

The association probably can be dated back to the mid-'60s when Cliff Trefry built a Formula Three racing car called the Talisman. Trefry, a qualified engineer, had been a long-time racing enthusiast, and had done jobbing work for Ron Tauranac's early production Ralts using Jack Brabham's workshop in Penshurst. The Talisman, which had a lot of

Tauranac thinking in it, needed a body and Trefry chose an expatriate Cockney, Wal Hadley, who in those days worked in aluminium in one of the tumbledown sheds in the same building which housed Nota Engineering in Parramatta.

The Talisman did very little racing and was eventually sold (although it survives today in Victoria), and Trefry continued building up his business in ocular prostheses — artificial eyes. The next time he needed the Hadley skills was 1980, to provide a modified body for a Lotus Europa which Trefry had made major mechanical changes to — including a Toyota twin-cam engine and revised suspension.

By this time, there were two Hadleys, and in fact it's not easy to pick them apart: Wal had been joined by his twin brother Bob, who had his own UK background in metal fabrication, and Bob had become a partner in Wal's flourishing Smithfield shop which specialised in the conversion of sedans into hearses.

As the three men worked out how to incorporate all the new bodywork onto the Europa, it emerged that they had all had ideas of building some sort of specialised, high-quality car, and the idea crystallised that they should pool their talents and build a high-performance coupe, something of a logical extension of the Europa.

The talents they had to offer were nicely matched. Trefry had worked as an engineer with Ford Australia during the early '60s and still kept useful contacts throughout the Australian motor industry (not to

mention with Ron Tauranac).

The Hadleys, for their part, were naturals for the fabrication side. Wal's immediate post-war employment had been with Hooper in London, building bodies in aluminium over timber framing onto factory-supplied Rolls Royce, Bentley and Daimler chassis.

As Hooper went into decline, Wal moved to Handley Page and then to Hawker Siddeley to build Hunters (which still bring a fond smile to his face), before emigrating to Australia. With not all that much demand for either coach-built Rolls-Royces or for locally-manufactured fighter aircraft, it was lean pickings for a while before the hearse business developed.

Bob started at Hooper too, then also moved to Handley Page, where he stayed for 13 years in its experimental department, then spent three years in the template shop at Vauxhall before he too came to Australia.

If three people can make a couple, then the Triad team is the odd couple indeed. Trefry the technical whiz, the contacts-man, the distinctively Australian voice heard over the racket

of power-tools out in the shop. Wally-and-Bob are the artisans, confusingly look-alike, all the time using their hands to feel the dimensions of things they are making, or to describe how it ought to be. And, if you are expecting the volatility, the comic profanity of Cockney panel-men like Stan Brown or Barry Duckworth, these two are almost reticent, pausing with a Woodbine-substitute Winfield before maybe a few, considered syllables.

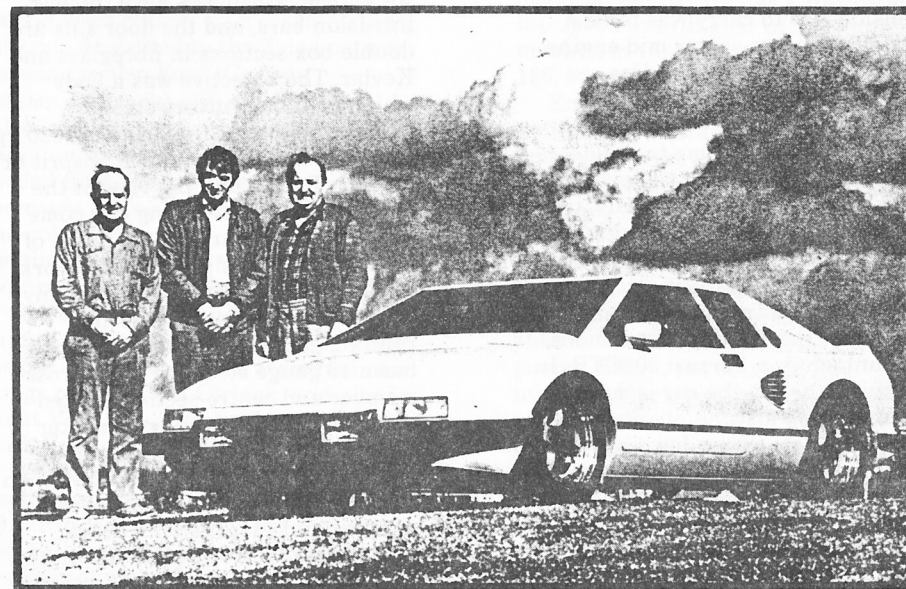
After all, these are grown men, proven professionals, building a very expensive and very advanced motor car using their own time and money. If you want to write about the car, you have to follow them around it, under it, down inside it, and make notes while they talk and work. But all the time, the realisation grows, there are two levels of conversation — there is the steady flow of talk about the jobs being done, and, woven in with it, quiet banter: the Poms versus the Aussies, the manual workers versus the technocrats. These guys have fun.

Trefry: "It's been a very successful partnership."

Wal: "We've got the ability to put up wiv a lot."

Work on the project started in April 1982 — not with cutting metal, but

Triad with its trio of designer/builders: Cliff Trefry (centre) and Wal and Bob Hadley



with a phone call to Tauranac, to get his ideas of what was current thinking in geometry for suspension to control low-profile tyres.

"He's the sort of chap who won't actually *tell* you anything," Trefry says. "He'll tell you what the parameters are, and leave it to you to reach your own conclusions. With modern tyres, you need minimum camber change, which means low roll centres, but then you find ideal roll centres are way too low because you get too much body roll. So it has to be a compromise. The car has 75 mm bump travel, 50 mm of droop; it has fairly high spring rates.

"But that was finally the first part of the car I drew, the suspension. I had bought a new draughting machine, and I'd turned upstairs at home just about into a complete drawing office, which my family was very tolerant about.

"I remember one night Wal and Bob came over for dinner and they brought the first suspension pieces. I knew then we were in business: the parts were beautifully finished. And accurate."

Bob: "Go on, tell him about the front suspension. How you drew it two inches too narrow."

Cliff: "It only showed that, after all, I am human."

The vehicle this chassis and suspension was to carry was to be a highly efficient two-seater mid engine coupe. Using this as a guideline naturally lead to similarities to a Lotus Esprit.

There was not the time to build cockpit mockups, windtunnel models or styling exercises. Necessarily, the car had to use existing ideas which were known to work. It is interesting that, although the shape is strongly mindful of an Esprit, the overall Triad package also has similar dimensions to a Countach or a Ferrari 308GTB. In many styling areas, the car is subtly different — its waistline, its reversed rocker panels, its swept-down nose. It has also achieved very good weight distribution: 47/53 front to rear.

Not that resemblance, or lack of it, to any other mid-engine coupe has been of primary concern to the car's

constructors. For them, the continuing topic is always the problems of building it, and the satisfactions of building it right.

The fibreglass body was eventually produced after three major revisions to an all-wood plug built by Wal, super-finished by Bob, and changed twice by Cliff. It starts as a floor/wheelarches half, and an upper half, and is then bolted and bonded together. All the fibreglass is chopped or woven mat, laid up by hand, for best control of strength and weight, and in pursuit of those objectives the shell, particularly in the cockpit and front section, also uses a lot of Kevlar and sheets of a honeycomb material called Divinell.

The bulkhead behind the seats and ahead of the engine-bay is 20 mm marine ply — which has excellent strength and sound insulation qualities — bonded into the body proper.

Tubular steel arches run up each B pillar, across the top of the door opening, down the A pillar and down the front of each door, where they carry the door hinges.

There is a fabricated triangular-section steel cross-bar up behind the dash which links each steel arch and carries the steering column, and there is another cross-tube across the top of the screen. The doors have tubular intrusion bars, and the door sills are double box-sections in fibreglass and Kevlar. The objective was a body which is light, but very strong.

Total weight of the Triad is 1020 kg, some 180 kg less than an S2 Esprit or a Turbo Esprit, and the view of the team is the weight-saving has come almost entirely through their use of advanced materials in the bodywork.

There has certainly not been any filigree work in the chassis and running gear: the backbone chassis has a 16 gauge steel box front cross-member and centre-section, coated inside and out with epoxy tar after fabrication. It is welded to a space-frame rear section of steel tube which surrounds the engine and provides gearbox and suspension mounts.

Rear suspension uses a fabricated 14 gauge steel hub-carrier located by

unequal-length transverse links and a long single radius arm which picks up the chassis at the forward end of the engine bay. Front suspension also uses fabricated 14 gauge wishbones locating a Cortina-based ball-jointed upright. There is no provision for camber or caster adjustment, the constructors having total confidence in the accuracy of the jugged chassis.

The car's wheels use a specially-cast centre in heat-treated aluminium alloy which bolts to spun-steel rims, seven inches wide at the front and eight inches wide at the rear, carrying Goodyear NCT 195x60 VR15s front, 235x60s rear. Goodyear was one of several suppliers whose help with the Triad project was positive.

To fit in the front luggage compartment, the car has to use a conventional 175 70 series spare; space-saver inflatable spares such as used by Porsche were investigated, but they are made integral with their wheel centre and cannot be adapted to the Triad bolt pattern. A Triad road wheel, however, can be temporarily stored in the rear luggage area. With a Porsche, for example, the flat has to be carried inside the cockpit.

Front brakes are Cortina; the rears are an interesting system, using locally-made PBR alloy calipers and Falcon discs bought part-machined so they can be drilled to the Triad pattern. Steering is also Ford (Cortina column and rack) although the selection of the rack was entirely based on its meeting the dimensions needed for correct bump-steer geometry. Using an unmodified rack and column, however, will simplify meeting Australian Design Rule requirements in this area.

The servo brake unit is Girlock, built to suit by Girlock after inspecting the car. Again, the Triad team had nice things to say about Girlock, and also about VDO, the instrument-supplier, Ford, Volvo and Maxim Motors.

Which introduces the major mechanical componentry of the car: a V6 Volvo B28E fuel-injected engine and a Citroen SM five-speed gearbox. In terms of weight, compactness and

engineering sophistication, it makes a very nice combination.

Originally, it had been planned to use a twin-cam in-line four cylinder Japanese engine, but Trefry found this simply produced too many serviceability problems — the engine was too long, and access to auxiliaries along the sides of the engine was too difficult in the mid engine installation.

The Volvo has many of its auxiliary components in the centre of the vee, and it is a short engine — allowing more working space around the front. It is also usefully light for its power: it weighs about 154 kg, thanks to alloy heads and block, and its 2664 cm³ delivers 127 kW in fuel injected form.

Using Volvo pressure plate and Citroen clutch plate, and a lengthened version of the Citroen input shaft, this compact 90 degree V6 is mated to Citroen's respected all-synchro five-speed gearbox. The gearbox was ordered through Jim Reddiex's Maxim Motors organisation. Citroen used this box with inboard brakes, but the Triad mounts its rear brakes outboard. Drive from the differential (which has no limited slip) goes to the wheels via driveshafts which use Porsche-type Rzeppa constant-velocity joints.

At the Volvo-nominated red-line of 6000 rpm, the Triad has a theoretical top speed in fifth gear of 220 km/h, and maxima in the gears of 172 km/h (4th), 126, 86 and 54.

Engine and gearbox are invisible in normal circumstances — there is a full length undertray, and from above, even with the long rear hatch opened, the engine is shrouded by a louvred alloy lid and the gearbox is covered by the rear luggage compartment flooring. However, all these panels remove, and the rear hatch opening itself has been shaped to allow easy access. Fuel pumps, filters, the coil, the fuel injection black box, and the header tank are all mounted up high but remote from the engine, behind the ducting which supplies cold engine air, and under neatly-fabricated quick-release covers. Access to the gearbox from above requires unbolting a section of the luggage floor: access

from below requires unbolting the rear section of the undertray.

There are two fuel tanks, one each side of the engine; they are Hadley fabrications in polished aluminium, foam-filled and meeting ADR specs.

The specially-built radiator is front-mounted, its ethylene glycol coolant carried in alloy piping. In front of it is the air-conditioning heat-exchanger, which is an industrial core. The heater/fan unit is a compact box, built from standard components but put together by the Triad team. As well as vents on the dash panel, there are ducted outlets in each door. Air conditioning is standard, as are electric windows, signal-seeking radio plus tape deck and Elkron burglar alarm, including ultrasonic detectors.

Cliff: "There are no extras. We might consider fitting an ashtray, but I figure you can't drive properly and smoke at the same time."

Bob: "You know which one of us is the non-smoker, don't you."

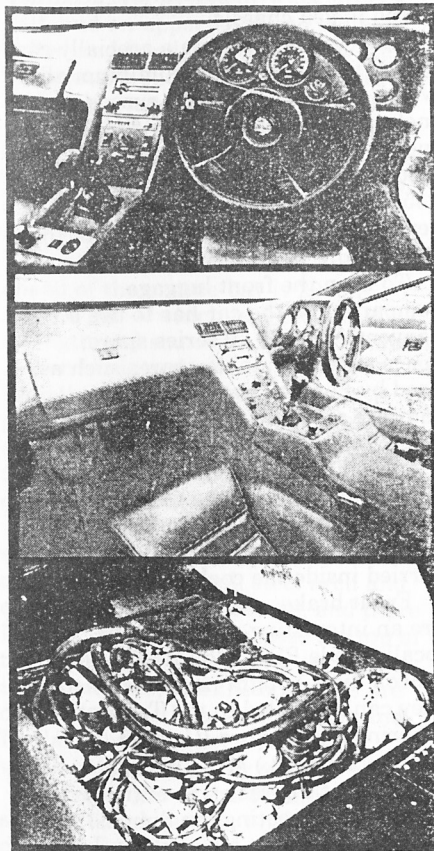
There are, indeed, no extras because it's hard to think what could be added. Interior trim is mainly beautifully-stitched leather, with wool carpet and velour roof lining; the steering wheel is a 33 cm Momo.

Instruments are VDO — proper gauges — with both speedo and tachometer electronically driven and specially calibrated. The dash panel and the centre console panel are both made in acetate and finished matt-black, so that small pencil-point light sources are diffused all through the acetate but illuminate the instruments and identify switches. All the glass is Australian-made, and flat; there is actually a slight curvature to the screen, but this is created by the installation, which uses the same flush bonding system employed on current Holdens. As a result, all glass can be replaced anywhere in Australia.

Wal is sitting in the driver's seat, carefully installing the driver's door trim with the door shut and the window closed. The front screen — a vast area — is not fitted. Nonetheless, Cliff shouts loudly to Wal from immediately outside the closed door. Inside the cab,

Wal mouths words, but makes no noise.

The trimming is one of the few external-finish areas which has been subcontracted. Everywhere else, the work has been done in-house. Despite its butter-yellow paint and the bars of fluorescent lights overhead, the body looks totally ripple-free, and doors,



Volvo V6 is tight, but all ancillaries are accessible. Interior is neat, comfortable

bonnet and rear hatch fit perfectly. Special care was taken with the edges of the wheel-arches, which are smooth-finished and solid; the join between the two halves of the main body shell is invisible (except at the rear of the rear wheel arches, where the arch is completed by the one-piece foam-filled rear bumper and beaver panel).

Great care was also taken forming the inner and outer halves of each openable panel, the joins being folded

around so each panel has perfectly-formed smooth edges.

The huge, flat windscreen is wiped by two long arms, each carrying a screen-washer. Two wipers were chosen because this allows wiping right to the driver's-side screen pillar while wiping the 85 percent of area required under ADRs, without the difficulty of parking a single pantograph wiper out of sight.

There are no visible drip-gutters: instead, the gutter is formed in the aluminium extrusion which is welded up to form the window frames.

The driver's door is pushed shut, click . . . click. It sits snug and square.

Wal: "Better than a bought one . . ."

Cliff: "So it should be! He's been building bloody doors for 40 years!"

If you wanted to play that game, you could try identifying the sources for all the bought items of hardware. Holden, Ford and some of the popular Japanese makes are well represented. The electric headlight system, for example, is Mazda; the window motors are Holden; the filler caps are Ford.

The rear view mirrors are Ford too, but a clever hybrid: Trefry used the manually adjustable Ford mirror case, and Ford electrics inside.

Everywhere are signs of enormous attention to detail — drains for body-sections which might collect water; extensive sound and heat insulation in the engine bay, and double glazing in the vertical internal rear window; fitted carpet in the two luggage areas; a high-mounted, accessible fuse-box with tiny LEDs which indicate which fuse has failed.

Wal is demonstrating this feature and Cliff vanishes. When the fuse is re-fitted, the car alarm shatters the quiet of the workshop until Wal turns it off. Cliff returns, poker faced.

The Triad has taken two and a half years of evening and weekend work. "Two and a half years of problems," was Trefry's terse comment. He has vivid things to say about certain component suppliers, about the high prices of new parts (the Triad is built entirely from new components).

But it is all in the game, and it is almost part of the satisfaction: giving yourself a big problem and setting out to solve it. Maybe no-one will ever order one; maybe getting type approval will take the enjoyment out of it. If the car doesn't bring orders, the prototype will be sold: for these three, just having the car would be quite incidental to having built it.

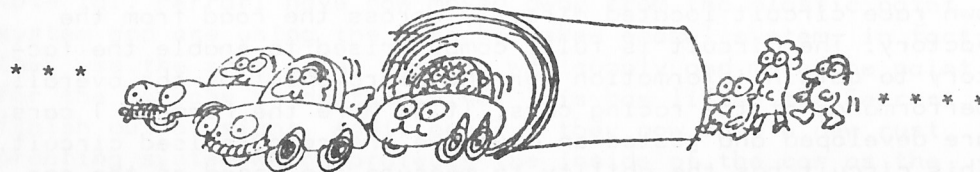
If orders do come in, everything is in place: the body moulds were built for quantity production, all the steel and aluminium fabrication was done in jigs built for the job. And Bob and Wal believe they know where to find the necessary labour to build production cars to the same level of dedication which went into the prototype: their ace painter is a youngster in his early 20s, who was recruited by the sadly simple process of ringing the local Tech and asking for their best unemployed apprentice; after four years in the Hadley shop, he is very good indeed.

They aren't sure if there is a market for a \$50,000 motor car; but there is a little doubt that there will be no shortage of talented young people who could build it.

Cliff: "We had our own wheel-centres cast. You won't see those on any other car. I think that's important."

Wal: "We've tried to make it, you know, better than your average car." □

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DAVID MUIR.



Ferrari

By HUGH BIALAS



Yes, Ferrari is still very much alive and well in Europe and my recent visit there definitely confirmed it in my mind.

The Italians are very proud of their product, a car that is easily criticised by people who do not understand the true meaning of a totally hand built car. If it were possible for you to visit the factory to see the cars being made, where a piece of sheet steel is hammered over a wooden frame to form a panel, where the workers spend many painstaking hours hammering, stretching, shrinking and welding before the panel is finally assembled with the chassis and space frame, which is also made by hand - you would have a better appreciation of the magnificent, streamlined finished product we see on our roads and in our showrooms.

The Ferrari factory is situated at Modena in Northern Italy and is magnificent in itself. The security is extremely tight and the factory is modern, clean and well laid out. After you enter the main gate, and have passed the security checks, you are led into a small courtyard which is surrounded by various Divisions of the Ferrari Factory. Directly in front is the Formula One Workshop. Housed inside this section are 5 to 6 cars being prepared for Grand Prix Racing (the exact number depends on the accident rate!) A crew of 75-80 men work on these cars at the present time, however it is planned to increase this number to 120. These mechanics work on the cars under a tight veil of security - windows blackened and doors locked. For most visitors this section is 'out of bounds'! I was fortunate enough to get a fleeting glance at one of these magnificent machines. The fitting, machining and finish on the Ferrari Formula 1 car is truly incredible.

After assembly the Formula 1 car is tested at Ferrari's own race circuit located directly across the road from the Factory. The circuit is fully computerised to enable the factory to obtain information for the improvement of the overall performance of the racing cars. It is here the Formula 1 cars are developed and tested on a unique and computerised circuit. This circuit has the ability to measure the speed of the car

into the corner, through the corner and out of the corner. This development contributes to the improvement of handling, horsepower, braking and overall performance of the cars. This amazing circuit is not only restricted to Formula 1 cars - road cars are also developed and tested here, which is probably why the Ferrari road car performs like a racing car. But as you can imagine, the security here is very tight as well.

Now back to reality! I continued on to the main production section where the road cars are assembled. It was here I was instructed on the best methods of dismantling and repairing the car - which incidentally was the main reason for my visit.

Ninety percent of Ferrari parts are made at the Modena Factory. Here they have their own foundry where castings for cylinder heads, engine blocks, gear box casings and suspension parts are cast - all by hand of course! Even the moulds and patterns for the moulds for these castings are made here.

My first stop was the machining section. If there is an area where Ferrari excel, it is here. Looking at all the large and small suspension parts being machined it is fascinating that parts as small as wheel valves are turned-up by hand and not stamped or pressed out by a machine - a rare thing in these days of automation. Ferrari also machine and cast for many other motor companies and not only for cars, for truck and tractor parts - their reputation for machining is well known throughout Europe's Motor Industry.

Along a little further we come to the Engine Assembly Section. Here engines are assembled on benches (by hand of course), and are then moved to the dyno testing rooms. All engines are run and tested for several hours at various revolutions and are closely monitored for oil pressure, r.p.m. exhaust, temperature before they are passed as fit and ready for fitting to the vehicles. As we move to the centre of the factory we come to a huge engine storage section where approximately 200 complete engines are held. Quite a sight!

We now leave the main production line building and enter the new Ferrari paint shop. This was opened in September 1981 and is a completely new building with a completely new paint system. It is one of the best equipped and laid out paint shops I have seen. It is clean and well lit - almost sunglass material. Ferrari have now moved away from the plastic paint system and are using the Porsche baked enamel system, in fact, they use the same paint company who supply and make the paint for the Porsche production line. This has lifted the Ferrari finish out of sight. Additionally, they now have a new rust proofing system which protects the inside of the car as the baked enamel protects the outside.

Forty percent of all cars produced are - you guessed it - RED! So the old saying "A Ferrari should only be red" is almost true, at least to 40% of their buyers, it is true.

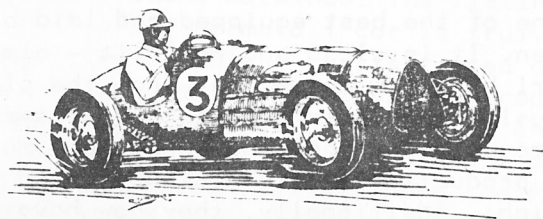
Moving back to the main production building, we come to the two production lines where the painted body shells are assembled with doors, frames, panels, glass and trims. At the very end of this line the completed cars are wait, ready for their first test drive. It is here faults are noted and rectified. All cars, once completed are test driven three times, and, if necessary, this is repeated until the car is given the all clear on the check sheet. All cars travel approximately 150 kms. in the testing period - under all conditions, open road, traffic, hills and curves.

The total output of the Factory is 11 cars per day. This consists of 9 GTB's/GTS's and Mondials, 1 Boxer and one 400. For this small output, the factory employs 1,600 people. So now you may start to appreciate the price tag. It is not a 'cash in on the name game' - only the very best of materials are used in the manufacture of Ferrari which, in turn, makes it expensive to produce.

Although Ferrari may not be your style of car, you cannot dispute the fact that it is a car which most would love to own. With their new improved paint system and rust proofing system, a new quieter and more reliable injected engine and many assembly and factory improvements, Ferrari are certainly moving forward, probably at a greater rate than ever. This was brought home to me only recently when I had the opportunity to repair my first Mondial. The rust proofing and assembly improvements Ferrari have made has had an enormous effect. The main effect I believe is in the dismantling and re-assembly of the vehicle - panels fit much better and more easily and the frame work is more accessible and therefore easier to work on.

Love it, or hate it, the Ferrari shall always be the ultimate dream of most men.

(Lifted from 'Porsche Power')



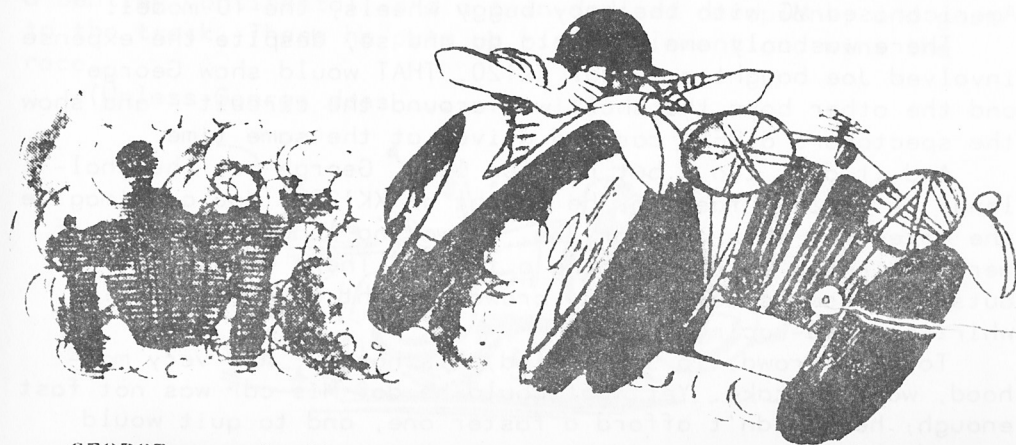
GROWTH OF AN AMATEUR.

A long time ago, way back in 1948, there was a young man named Joe Smith. Like many of his contemporaries, he liked mechanical things. And, like many of his contemporaries, Joe eventually saw an MG TC on his city's streets. Unlike most of them, however, Joe knew, the minute he saw the little car, that he had to have one.

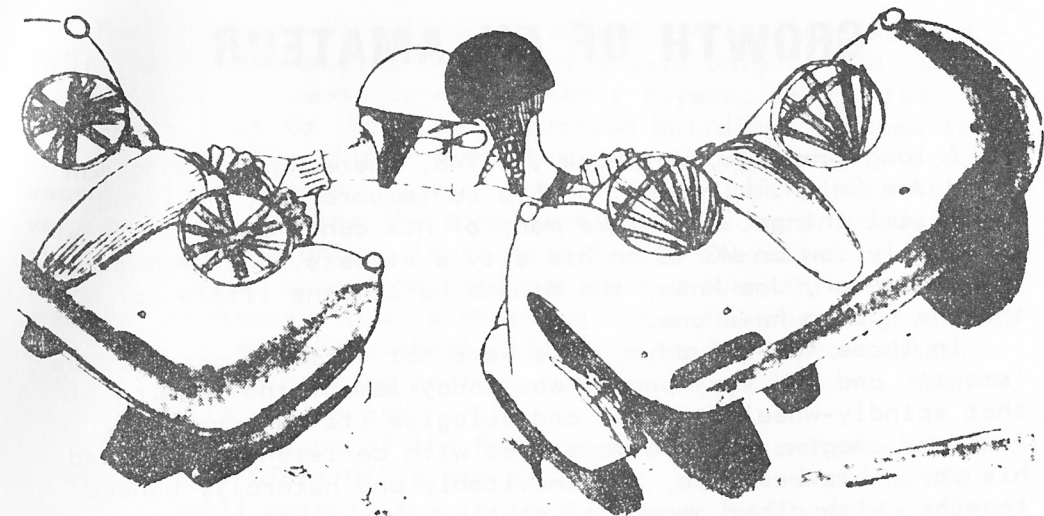
In those far-off days, TC's were not socially accepted as 'smart', and the very people who today lament the passing of that spindly-wheeled wonder and eulogise its many virtues, real and imaginary, were most free with derision for Joe and his car. This being so, Joe inevitably and naturally banded together with other owners of similar cars, whom he met at his dealer's. They gathered informally whenever it was possible, aiding and encouraging one another.

As more and more people joined in, it became apparent that a club, with organisation, officers and rules, would be advantageous, in that planned activities could be carried out. There were rallies, gymkhanas, time trials and group outings, but the most popular events were the races held occasionally on abandoned airports and roads. These gave Joe the chance to find out whether or not his car really WAS faster than that of his friend, George.

The races were fun: they required no particular preparation or special effort. Joe just packed his girl, some sandwiches and a vacuum flask of lemonade in his car, drove to the track, unpacked said girl and lunch, raced, beat George, ate the lunch, put the girl back in the car and drove home.



GEORGE mounted a blower on his TC and showed Joe the way around the course



Next year Joe took along an extra set of spark plugs as insurance and wore a new shiny white crash helmet, but the day was not quite so much fun, because good old George had installed a blower on his engine and won everything. This was doubly disturbing to Joe because this time there was a fair-sized crowd present to witness his defeat.

That wouldn't do, of course, so Joe countered by removing from his car everything that would come loose. It was more fun than ever. George was vanquished once again, and the 100 dollar tune-up it had taken to do this seemed well worth while.

It seemed less so at the first event of the next season, however. George wasn't driving a TC any more - he had a Jowett Jupiter - and most of the other fellows were driving that new Americanised MG with the baby buggy wheels, the TD model.

There was only one thing to do and so, despite the expense involved Joe bought a Jaguar XK120. THAT would show George and the other boys the short way around the circuit - and show the spectators a REAL car and driver at the same time.

And it did, too - but not for long. George met the challenge in typical fashion: he bought an XK120M. You can imagine the effect of this on poor Joe. It was no longer a matter of merely winning or not winning a trophy. There was a crowd outside those fences - a gay crowd, caught up in the social whirl of road-racing.

To that crowd, in Joe's mind, his honour, his very manhood, was at stake. Yet what could he do? His car was not fast enough; he couldn't afford a faster one, and to quit would mean dishonour.

Joe's plight was not unknown, and actually was welcomed by some - notably a Mr. White who was well known in some circles as a "wealthy sportsman". Mr. White approached Joe with an offer to let him drive a new Allard. Joe was overjoyed at this opportunity, and began driving the Allard with new enthusiasm. George was a menace no longer - at least not until he appeared driving a Mr. Black's 2.0 Ferrari.

Mr. White's solution? A 2.3 Ferrari.

Mr. Black bought a 2.6.

Mr. White bought a 2.7.

Mr. Black bought a 2.9.

Mr. White bought a 3.0.

Mr. Black bought a 3.5.

Mr. White bought a 4.1.

Mr. Black bought a 4.4.

Mr. White bought a 4.5.

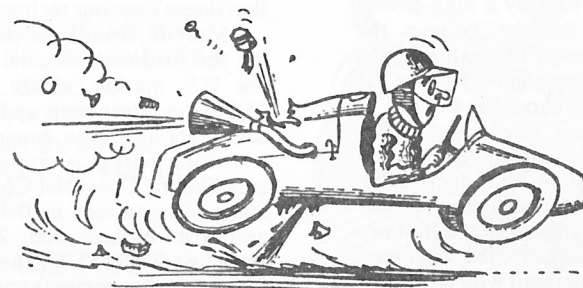
Mr. Black bought a 4.9.

Ferrari didn't make a bigger car, so Mr. White switched tactics and bought a 1500 Osca.

Joe is happy. He doesn't work any more, but he doesn't miss it; he hasn't spent a dime in years. He's an amateur sportsman full time now.

It's just like in the old TC days. Racing doesn't require any particular preparation or special effort. Joe just packs Mr. White, 12 girls, 10 Italian mechanics, 16 scorers and timers, four caterers, three psychiatrists, two pilots and a public relations man, together with a tent, three tables, 40 spare tyres, a machine shop, two ice tubs, a bar, 24 cases of coke, two portable outhouses, 14 folding chairs, two scooters, a Ferrari, a Porsche, an Osca and a 10 pound bag of spare cash into a van trailer, a VW bus, a Cadillac Eldorado, a Bentley Continental, and a twin-engined aeroplane, and goes to the track. There he puts up his settlement and wins the race.

(Unless George does !!)



"The evil that men do lives after them"

Porsche Vroom-Vrooms to Profits

High technology is a winning formula for "the little company"

For years around West Germany's auto capital of Stuttgart, where the assembly lines of Daimler-Benz and Bosch crank out thousands of products every day, the sports-car maker with the super-charged machines and the stratospheric prices was frequently referred to as "the little company up the road." It is an apt name for the almost noiseless suburban plant, whose output constitutes only .5% of cars sold in West Germany and where small teams of craftsmen fuss for two weeks in making a single automobile. How can a firm be taken seriously that entertains its customers at a private casino the evening before they pick up their new cars?

The answer in financial and industrial circles is quite seriously indeed. Porsche, one of the world's premier sports-car builders, will report this week that 1985 was another record year for sales and earnings. The reason is not only increasing demand for its cars but the development of new products like a light-aircraft engine, lucrative consultancies and the knack for attracting U.S. and European buyers to its high-priced cars.

While other West European luxury lines, such as Lamborghini and Aston Martin, have been suffering financial reverses, Porsche has accelerated its production the way its 300-h.p. turbocharged engines rev up. Output last year soared to 49,400 cars, from 28,000 in 1981, pushing sales to \$1.3 billion, from \$480 million. West German auto analysts believe last year's profits were in the region of \$45 million, up from only \$1.4 million five years ago, aided in part by a high-priced dollar. Nor does Porsche believe the roughly 25% decline in the value of the dollar against the deutsche mark over the past year, which has caused a 4% rise in U.S. prices, will hurt sales in the U.S. "With 50% of our sales in the U.S. with dollars, and 90% of our production in West Germany with deutsche marks, that is a management challenge of the first order," says Peter Schutz, 55, the German-born naturalized American who took over as Porsche's chief executive in 1981

It is the sort of challenge that Porsche relishes. The company is best known for its elegantly engineered racing and production machines, which sell in the U.S. for from about \$20,000 to well over \$50,000. With its auto assembly line in Stuttgart operating at capacity, the firm plans to try its wings in aviation. Porsche is testing a piston engine for private planes, a redesigned version of its air-cooled, 911 auto motor that has been in continuous production for 22 years. If the sports-aircraft industry is enthusiastic about the design, Porsche will move to full production. Porsche also sells its engineering skills to other firms, a practice begun by Founder Ferdinand Porsche, an engineer with a thirst for speed, who designed, among other things, the Wehrmacht's World War II Elephant tank and the Volkswagen Beetle. The company only began building cars in 1946, mainly as a way for Ferdinand's son, the present board chairman, Ferry Porsche, 76, to raise bail money for his father. The elder Porsche, while on a business trip to France, had been arrested by the French government on charges arising from his wartime industrial activities; he was, however, never tried.

Much later the company designed the cockpit for the European-built Airbus and engine components for the Soviet-made Lada car. Other firms pay royalties on 2,000 Porsche patents, from torsion bars to a twin-clutch system. Says Marketing Specialist Hartmut Kristen, "There isn't an automaker in the world that doesn't use our technology."

Most important, the company is holding the road with its cars, particularly in the U.S. market, where it sold nearly 25,000 autos last year, up from only 7,800 five years ago. The American high-performance market is crowded with sports cars like the Chevrolet Corvette and Japanese imports such as the Isuzu Impulse and the Nissan 300 ZX. Even so, Porsche's 928 (\$52,723) and 911 (\$54,298 for the turbo version) models have be-

come symbols of achievement for successful and adventurous Americans. The classic 911 (U.S. base sticker price \$34,798) is particularly sought after in California, where Porsche sales amount to 17% of its U.S. total. Les Strahm, a dealer in Sunnyvale who sells Porsches largely to affluent engineers in Silicon Valley, notes that a

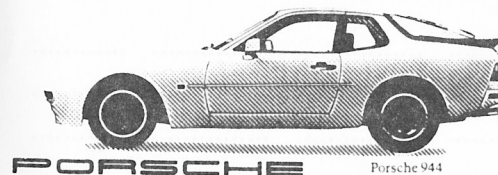
few days of good economic news for the computer industry will generate a Porsche miniboom, bad news means idle salesmen. In 1984, Porsche canceled a long-standing agreement to sell its cars through Volkswagen dealerships, and set up its own U.S. subsidiary to handle its main sales problem: impatient prospective buyers who balked at waiting months for delivery. A computer network helps to locate cars quickly around the country.

Under their hoods, Porsches may contain the latest in power technology, but inside they are uncluttered by innovations such as instrumentation that chimes and dashboards that talk. "We believe a driver should drive his car, not be driven by it," says Kristen. Today's typical Porsche buyers "are hands-on

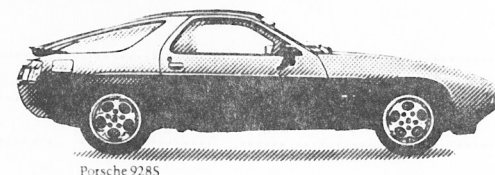
people who are too busy for golf or sailboats. They want a hobby they can use while doing other things, like driving themselves to the airport with a phone in the car," says Schutz, who frequently unsettles his employees with his American informality.

Because women buy 40% of cars sold in the U.S., Schutz has attempted to soften the car's macho racing image. Porsches have won the past five Le Mans endurance races. But it has not been easy. At his wife's suggestion, Schutz asked designers to move the vanity mirror from the passenger's to the driver's side. Too costly, huffed the engineers. Schutz won his case by pointing out that the mirror was on the left in machines destined for Britain. Next month the company will begin deliveries of its latest model, the technically advanced 959. Although the car has few interior frills, its integrated computer system not only monitors the fuel injection and antiskid brakes but can raise and lower the vehicle on an adjustable suspension system and switch it from two-wheel to four-wheel drive. The initial run of 200 cars is already sold out. The price, \$175,000. The 959 also has vanity mirrors on both sides. —By J.D. Reed, Reported by William McWhorter/Stuttgart TIME

We speak PORSCHE



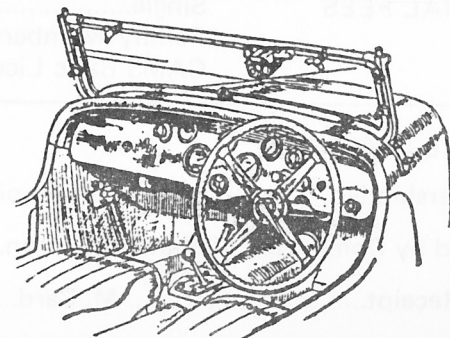
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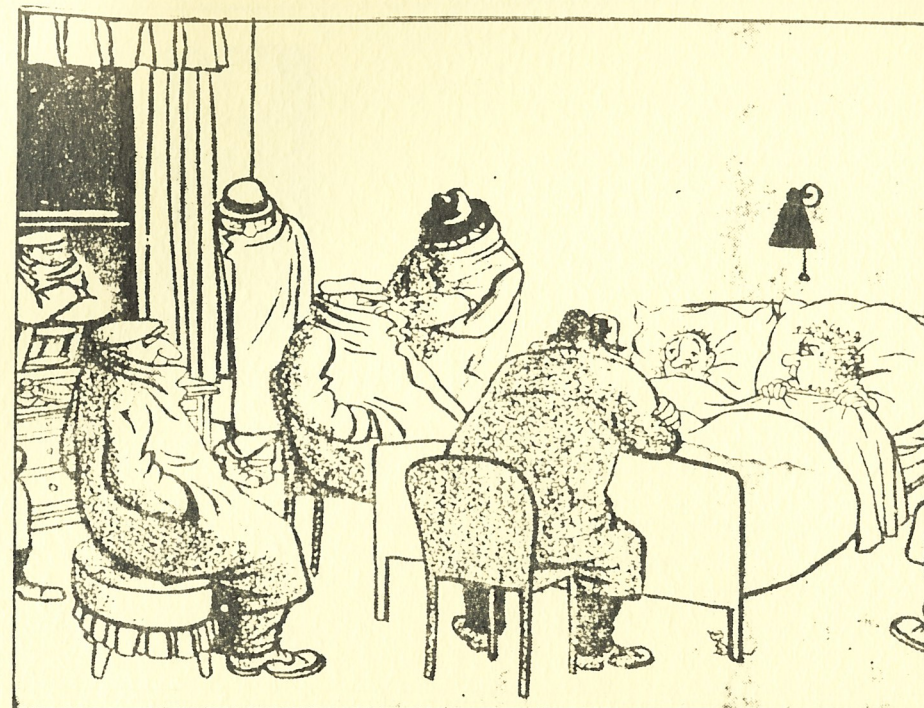
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