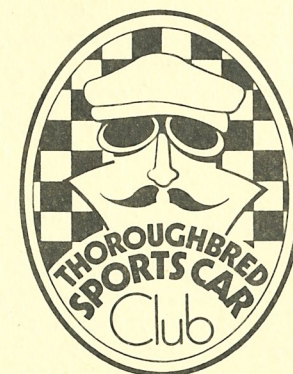





top *gear*

JUNE 1986



REGISTERED BY AUSTRALIA POST — PUBLICATION No. NBH 6791

NEWSLETTER OF THE THOROUGHBRED SPORTS CAR CLUB



OBJECTS 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.

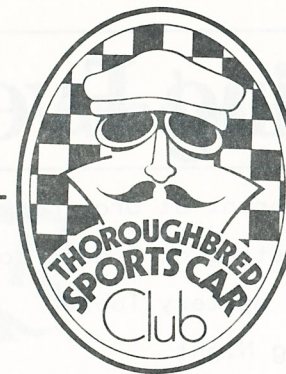
SEND ALL COPY FOR "TOP GEAR" TO: Zig Kyzelis,
8 Prestige Ave., Lakemba, 2195.

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

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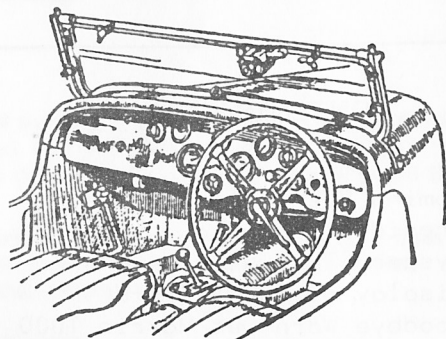
Coming Events

- 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.

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Roy Johnson



presidents prose

I must apologise for not attending the last club meeting on May 14th, but Margaret and I decided that it was time to spend a bit of one school holiday with young Michael, as in our rotten industry taking time off in school holidays is usually a no-no.

WE decided to see some old friends of ours in Albury for 3 days then go across to Griffith and spend another 3 days with the eldest bloke currently based in Griffith. Anyway it was a very interesting week with barbecues on the ski slopes of Falls Creek, completely devoid of snow, to the banks of the Murrumbidgee, almost completely devoid of water.

While in Albury I had a quick look at the new Honda, I think it was called the 'Legend', which is soon to be the replacement for the SDI current model Rover. It certainly is a very nice car, but at a reported \$50,000 they can forget about me.

Heading North West towards Griffith almost without exception every farmer was out following the rain ploughing his paddocks, preparing them for wheat. If those tractors were'n't doing 40 to 50 k.p.h. with two and three row ploughs on the back, then I'm a bad judge. Another interesting thing to me anyway, was the giant irrigation systems. A giant self propelled watering system a $\frac{1}{4}$ mile wide, joined in 40ft sections by a large wheel. Farming has gone hi-tech since I last spent some years in the bush.

On the club scene things are rolling along nicely there as well. We have had a very successful Hawkesbury cruise with Roland and two sporting events since our last magazine and hopefully reports of all these events are now in your hands. Oran Park on the 8th June is our next event closely followed by our club meeting on the 6th June and of course Gary Bruce's Mystery Extravaganza Weekend on the 17th & 18th June.

On July 5th our big event the Gambling Night is where we really need your support. We are having caterers in this

year plus waiters and the all up cost is just \$25 per person including dinner, beer, wine, soft drinks and gambling chips. I'm sure you will agree that's pretty good value these days. We are inviting you to bring your friends remembering of course we are limited to around 100 people for comforts sake, so please book early.

I am also pleased to report that almost all our stragglers have rejoined our club and the ones still to do so have a personal reminder enclosed with this magazine.

I am also pleased to report that the incorporation of our club is proceeding smoothly and that I should have all the magazine binders for you at the next club meeting, all being well.

Looking forward to seeing you soon, regards,

RAY

REMEMBER! EVERY MEMBER GET A MEMBER ! WHERE'S YOURS ?

NEW CLUB MEMBERS

DELIVERED BY AIR MAIL



To: JOHN and SUE HALL

a new Daughter STEPHANIE

c o n g r a t u l a t i o n s

To: TREVOR and VICKY LARKEY

a Grandson, RUSSELL JNR. HUTCHINSON

congratulations to
proud Mum and Dad.

To: JENNY and ROBERT SMITH

a Daughter N I C O L A

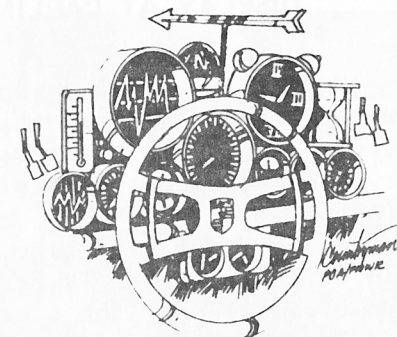
c o n g r a t u l a t i o n s

4 TOP GEAR

WEEKEND

MYSTERY

TOUR



Estimated cost of dinner, bed & breakfast, \$35.00 per person twin share (concession rates if children accompany adults).

Limited rooms available, so early booking essential, deposit 15/5 latest (Meeting).

If insufficient starters other clubs will be invited.

Friends are welcome.

Pleasant lounge with open fire.

It is possible to do run without staying overnight.

Planned finish time, prior to 4.00 p.m. Estimated travel time back to city, 2 hours (subject to traffic conditions).

Also, may provide for a later start for some entrants as long as accommodation paid for in advance.

- TAKE: *
- * Warm clothes (no formal dinner this time)
 - * Picnic Lunch for Saturday.
 - * Snack (planned stop for up to half an hour)
 - * A few quid for drinks and expenses
 - * A rolling pin
 - * 2 Pairs of ear plugs
 - * Last will and testament
 - * Phone number of family law court

Meet at Mount Wilberforce Lookout,
Castle Hill Road,
West Pennant Hills.

10.00 a.m. NOT NEGOTIABLE.

Flagged out each 2-3 minutes, therefore last out (assuming 20 starters) 11.00 a.m.

ALL ENTRANTS WILL BE CONTACTED PERSONALLY BY GARRY BRUCE

DISPLAY AT CARLINGFORD SHOPPING CENTRE

On Saturday 26th of April our club displayed three of our cars at Carlingford Shopping Square. We had a very attractive display using Dave Muirs Porsche, Ray Ross' E type and that horrible blue and yellow thing Rossi calls a Torana.

We used our club sign, the club's "Mark Anthony Production" video, a large TV screen plus a guess the lap time competition to get the victims in.

Our thanks go to Dave Muir who manned the stand for the complete day helped later in the afternoon by Lester Gough and Jim Peters. Dave spoke seriously to seven different prospective members for our club and time will tell just how successful this type of promotion works.

The Shopping Centre Management were very pleased with the response and our stand (one notable exception of course) and we have a standing invitation to do it again in the future.

Thanks once again Dave.

RAY ROSS

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Three Club members overheard at a recent event:

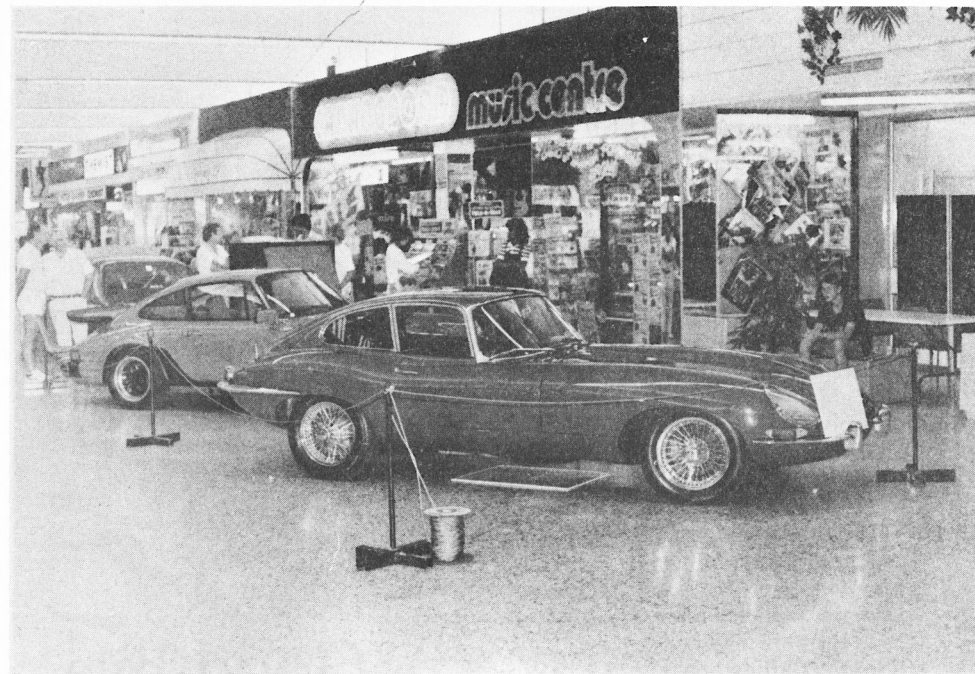
The first (the youngest): "It costs a fortune just to find one".

The second: "It costs an even bigger fortune to keep one".

The third: "No, no, it costs the most to get rid of one!"

Ferrari's??? Astons??? Jaguars???

No. SPOUSES ! !



T.S.C.C. DISPLAY AT CARLINGFORD SHOPPING CENTRE



Oh love, you got no poke left
 I didn't want to say
 It seems we are outmoded,
 Much too slow, and in the way.
 You know how much I love you
 I'd repair you in a flash
 But I haven't got the knowledge
 And I haven't got the cash.

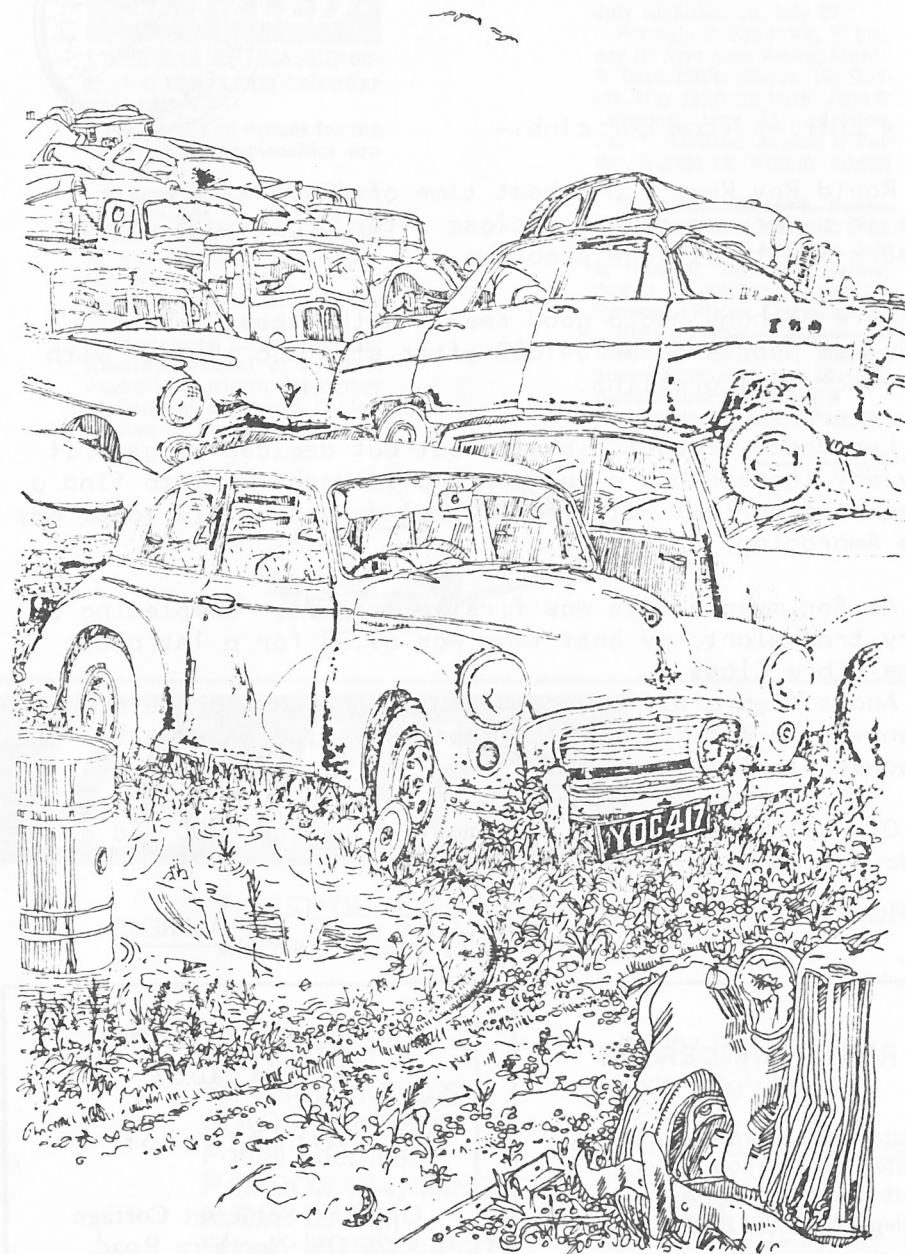
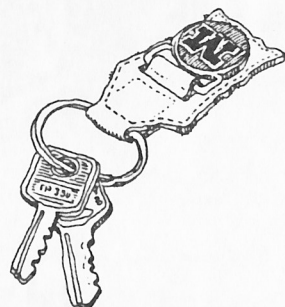
There is rust all round your headlamps
 I could push through if I tried
 My pot of paint can't cure it
 'Cause it's from the other side.
 All along your sides and middle
 You are turning rusty brown
 Though you took me ninety thousand miles
 And never let me down.

Not the snapping of a fan belt
 Nor the blowing of a tyre
 Nor the rattling of a tappet
 And nor did you misfire.
 All your wheels stayed on the corners
 And your wipers on the screen
 Though I didn't do much for you
 And I never kept you clean.

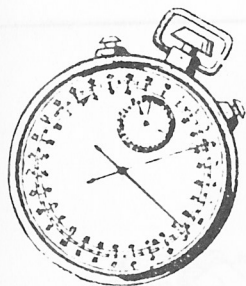
All your seats are unupholstered
 And foam rubber specks the floor.
 You were hit by something else once
 And I cannot shut the door.
 But it's not those things that grieve me
 Or the money that I spent,
 For you were my First-driven,
 Ninety thousand miles we went.

I could buy a bright and new car
 And go tearing round the town
 A BGT! A Morgan!
 (With the hood all battened down).
 But as I leave you in the scrapyard,
 Bangers piled up to the skies,
 Why do your rusty headlamps
 Look like sad, reproachful eyes?

Good-bye Worn Out Morris 1000



AMAROO NOTES 27.4 86



4 Entries from our club:-

Rapid Ray Ross had a best time of 63.01 with a 7th place in a very competitive class after dropping a couple of gears due to linkage problems.

Mark Anthony had a good result with a best time of 63.79, 1st Sports Sedan 0-1600 after starting the day with some electrical gremlins.

Len Madar brought his Alfa out but decided to give it a lay day instead had a warm up lap in Marks Mini to find a locked differential with front wheel drive not his ideal way to go Amarooing.

As for myself this was first event after completing a rotary transplant, my best time was 63.38 for a 1st place in the Libre Class.

Apart from a difference of opinion with gear selection (I wanted 4th and the gearbox kept insisting on reverse) the new power plant worked well.

Overall it was a well run meeting by the ARDC and a top days club sport.

JUDY and sometimes quick VIC ANDREWS

ROBERT ANDERSON

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

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1986 CAMS CALENDAR SETTLED

CAMS HAS RELEASED details of the racing calendar for 1986.

The dates and venues for the respective championships are as follows:

Touring Cars: Amaroo, March 2; Symmonds Plains, March 9; Sandown, April 13; Adelaide, April 27; Wanneroo, May 4; Surfers, May 18; Calder, June 1; Lakeside, June 15; Winton, June 29; and Oran Park, July 13.

Endurance Championship: Amaroo, August 3; Surfers, August 24; Sandown, September 14; Bathurst, October 5; Calder, October 19; Oran Park, November 9.

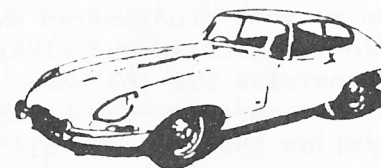
Formula Mondial: Sandown, April 13; Adelaide, April 27; Wanneroo, May 4; Calder, June 1; Winton, June 29; Oran Park, July 13; Lakeside, July 27.

Formula 2: Sandown, February 16; Symmonds Plains, March 9; Baskerville, March 16; Surfers, May 18; Oran Park, June 8; Lakeside, June 15; Adelaide, July 6; Mallala, August 3; Calder, August 10; Winton, August 31.

Sports/GT: Sandown, February 16; Lakeside, March 2; Oran Park, March 23; Adelaide, July 6; Winton, July 27; Calder, August 10; Surfers, August 24; Symmonds Plains, September 7.

Historic: Amaroo, January 26; Sandown, March 27; Mallala, March 30; Winton, May 25; Symmonds Plains, November 9.

Australian F1 Grand Prix: October 26.



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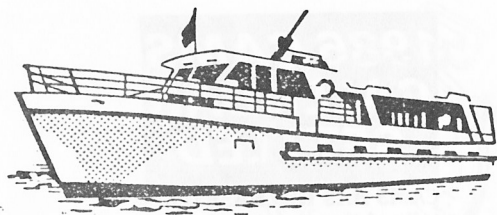
CARLINGFORD

Shop 12, VILLAGE
CENTRE.
Phone: (02) 872 2322

TAREE

67 WHITBREAD ST.
Phone: (065) 52 2047
(065) 52 2755

HAWKESBURY CRUISE



It was an early start that Sunday morning to reach Berowra Waters by 10 a.m. No sleeping in allowed this day. As it happened, the day was sunny and warm. Armed with street directory we located the turn-off from the Pacific Highway without too much time to spare. The last section of the winding and narrow road down the mountain side looked like a hill climb in reverse. Our objective was the big marina at the bottom, which was highlighted beautifully by the morning sun against the bushland setting.

Needless to say, when we reached the bottom, the car ferry was on the other side of the river. Luckily, the wait was relatively short and we were transported over to the marina side. Not quite in the classic car class, but not a bad slow boat to the marina side all the same.

Roalnd's cruiser was not hard to find amongst all the exotic boats and cruisers, as that's where all the action was due to most of our group having already assembled and ready to go. The cruiser was large and luxurious and a weekend sailors dream.

When all were aboard, 'Capt.' Roland manouvered the cruiser out of the marina, and we took off up Berowra Creek to join the Hawkesbury River. The scenery was breathtaking and the cruise relaxing, giving us all a chance to unwind and swap jokes and stories with each other. Two hours later saw us stopping for lunch at Refugue Bay. Lunch was provided by GOURMET Gough's Catering. Getting the on-board microwave to work proved a challenge and all hands were requested for their skill and knowledge to help master this machine to get it to 'fire on all eight cylinders'.

Once this problem was overcome, hot sausage rolls and pies were served, together with cold meats and salads, and we were all happy to have our healthy appetites satisfied by this time. Full marks to Gough's Catering.

After lunch, a few brave souls took the plunge and tested the waters of the bay. The others ate and drank and enjoyed the sunshine, and noted that this sort of lifestyle would be very hard to take on a regular basis. As late afternoon approached, we realised that the day was done and we had to go back to rejoin the rat race.

The leisurely trip back brought us to the marina at dusk and a great day was had by all. Many thanks to Roland for his time and effort in providing an excellent Hawkesbury Cruise, and also to Gough's Catering for keeping our tummies filled.

Should there be an opportunity to go again, do not miss it as you will like it !

ILMAR TOOMING

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

RAY & MARGARET ROSS

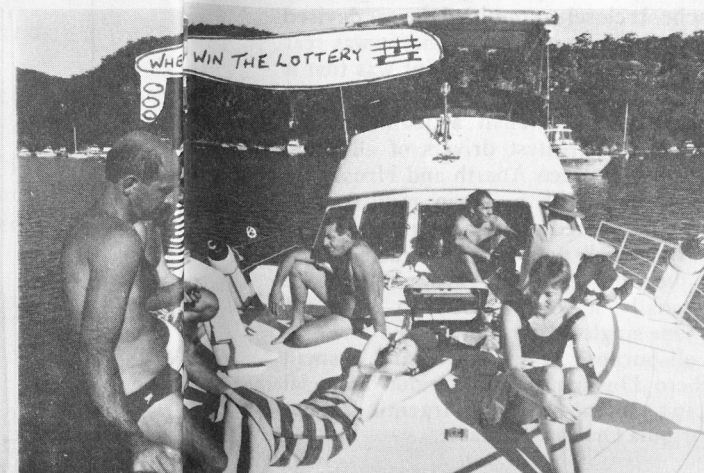
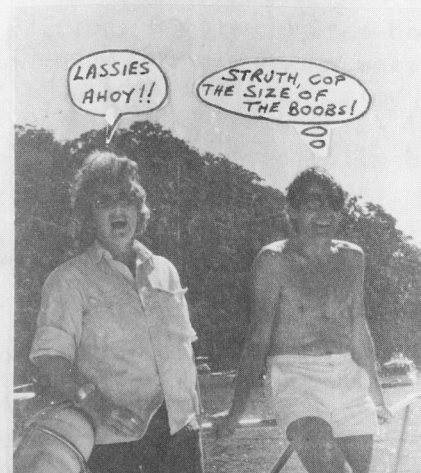
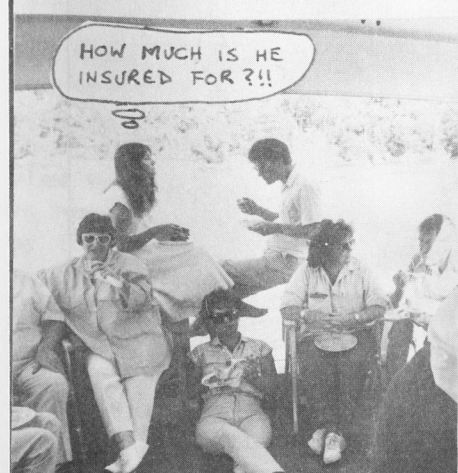
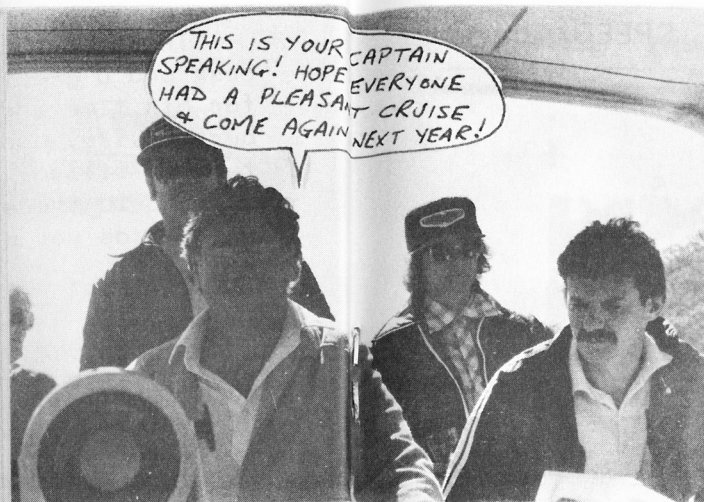
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Phone: 872 3439



"Well, I'll give you two damn good reasons why I hate automation My boss replaced me with a computer and my wife replaced me with a vibrator!"



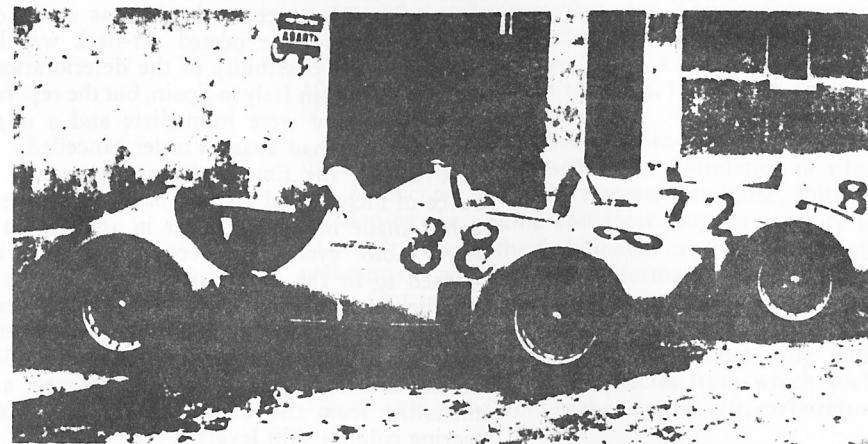
AT THE SIGN OF THE SCORPION

They call Carlo Abarth 'the Wizard'. His secret is, however, neither magic nor miracle, simply wise refinement and careful tuning

TWO DATES span the history of Abarth: founded by Carlo Abarth on 15 April 1949, it was absorbed in July 1971 by Fiat, with which the little Turin company had collaborated closely for over 20 years.

The background to the company is easily outlined. Immediately after the war Carlo Abarth, who came from Yugoslavia, settled himself in Merano in the Dolomites, where his family had originated, and established business contacts with one Rudolf Hruska. Ferry Porsche, son of Ferdinand Porsche (the designer of the Volkswagen), invited Carlo Abarth, who was a friend of the family, to represent Porsche Konstruktionen of Stuttgart in Italy. It was through this offer that Abarth and Hruska were able to make contact with the major Italian car manufacturers. They were also given the task of finding an Italian industrialist willing to manufacture or subsidize a Formula One (supercharged 1.5 litre single-seater) racing car designed by Ferdinand Porsche. It closely resembled the car devised by Porsche for Auto Union in 1933 in that it was rear engined; but its most original design point was that it featured four-wheel drive.

Tazio Nuvolari, an old Italian acquaintance of Abarth and one of the greatest drivers of all time, forged the initial link between Abarth and Hruska by discussing their project with a Turin industrialist, Piero Dusio, who numbered among his interests the Cisitalia company, which manufactured racing cars. That was the beginning of the Cisitalia-Porsche collaboration. Initially, it was proposed to build not only a Formula One single-seater, but also a 2 litre GT saloon car, an all-purpose 11 hp tractor and a small turbine. But Piero Dusio ran into serious financial difficulties and, in 1949, moved to the Argentine taking with him the Formula One single-seater.



Top: the Cisitalia 1100s, developed by Abarth at the via Trecate works in Turin, took first three places in the 1949 Senigallia race

After this the Cisitalia project died, but out of the collapse Abarth and Co was born. Carlo Abarth set up in business once again, this time in partnership with Armando Scagliarini, father of Guido Scagliarini, a well known Cisitalia driver. The badge of the new firm was the Scorpion—Carlo Abarth's sign of the zodiac.

Although Abarth began operations by participating in races with 1100cc two-seater cars developed from the Cisitalia, the company soon began producing prototypes of its own. Carlo Abarth's knowledge and technical intuition were not backed by academic engineering qualifications. A typical self-made and practical man, Carlo Abarth was born with a natural mechanical ability.

The first cars built by this remarkable man featured such items as backbone frames in large section elliptical tubing, flexibly mounted radiators, and readily detachable front suspensions, all of which were typical of the company and indicative of the intuitive skill of their designer.

The Cisitalia 1100, developed and prepared in the new works in via Trecate, confirmed their design promise by taking first, second, and third places in the 1949 race at Senigallia, driven respectively by Taruffi, Macchieraldo and Scagliarini. The first year during which Abarth was his own master ended with 18 victories for his cars.

The production of silencers or exhaust mufflers, which in the end became one of the basic and most profitable interests of the company, grew out of Abarth's desire to create an activity which would support the racing and experimental programme. What set him on this path was the notorious failure of one of his cars, the 204, in the 1949 Madrid GP.

At that time racing engines were run on alcohol-based fuel, which Carlo Abarth was particularly adept at exploiting. But at Madrid, even during practice, it

was obvious that the 204 was markedly inferior in terms of performance to the Simcas and the Oscas. This completely unexpected set-back was later attributed to the possibility of the deterioration of the fuel in transit from Italy to Spain, but the repercussions on the company were immediate and a number of customers who had 204s on order cancelled.

Obviously, the time had come to create another source of income and Carlo Abarth remembered that he had made his first silencer in 1928 when he was racing motor cycles. His second was made in 1949. Devised to fit the most popular cars of the period, including non-Italian ones, the Abarth range of silencers was favourably received. Soon after, manifolds were added to the line and these were followed by valves, valve springs and, in order to meet a fashion emanating from the United States, gearboxes with steering column shift levers.

In the history of the company its second year of activity, 1950, was particularly important. At the 1950 Turin Show the 204 Berlinetta was introduced. Fiat-based, with a four-cylinder ohv engine of 1,090 cc, it featured magneto ignition, and twin carburettors on a special manifold. Into this model, which was capable of achieving 114 mph, Abarth incorporated many of Porsche's most advanced ideas including torsion bar type suspension. In 1950 Tazio Nuvolari won his last race, driving a 204 Spider in the Palermo-Monte Pellegrino hill climb.

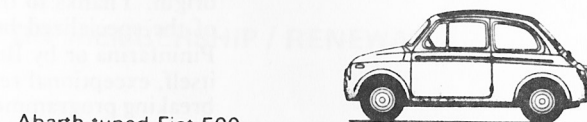
The 204 was the starting point of what was to become another fundamental activity in the expanding activities of Abarth—improving the performance and producing special versions of other manufacturers' series production cars. However, Carlo Abarth energetically denied the nickname of 'wizard' which the sporting press gave him as Abarth-modified cars became more and more successful. He attributed his success to an ability to extract, mainly by increasing cubic capacity and performance, qualities from series production engines which the manufacturer was not willing or able to do.

In 1952, following the 205 (a luxury version of the 204 with bodywork by Vignale), Abarth developed the 1500cc 2-seater which was based on the mechanical elements of the Fiat 1400. The bodywork was designed by Scaglione and came to be appreciated as one of the more successful post-war aerodynamic studies.

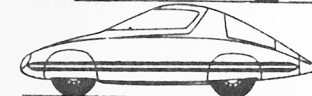
From 1955 onwards, having survived the initial setbacks, Abarth activity settled down and diversified into four distinct fields: special versions of mass production models, record-breaking cars, sports cars designed and produced entirely by the company, and the manufacture of silencers. Taking advantage of the collaboration of such famous coachbuilders as Pininfarina, Ghia, Zagato, Bertone, Boano, Allemano and Viotti, and of the stylist Scaglione, Abarth produced a number of small series models—sometimes one-offs

—derived mainly from Fiat cars. The exceptions are represented by an Alfa Romeo coupé with the mechanical components of the Super, a Porsche Carrera in 1960 and later, between 1963-64, the Abarth versions of the Simca 1500 and 1300.

In 1955 Fiat put the 600 into production. It was this model which Abarth used as the foundation of what was to become his most famous war-horse, initially developing the engine and increasing its capacity to 747 cc. It became the fashionable car for those people seeking a car with sporting performance at a reasonable price. Out of this development was born the 850 TC, for which a special agreement was reached with Fiat, which undertook to supply Abarth not only with incomplete cars, but with vehicles from which such components as the front brakes, crankshaft, carburettor



Abarth tuned Fiat 500



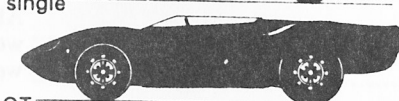
Fiat-Abarth 500 with Pininfarina body



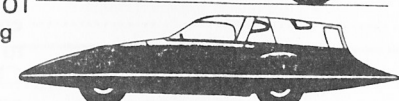
Fiat-Abarth 750/1000 single-seater



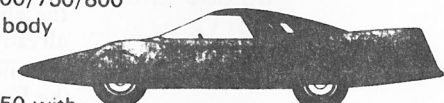
Abarth 2000 with Pininfarina body
Later model Fiat-Abarth 750/1000 single-seater



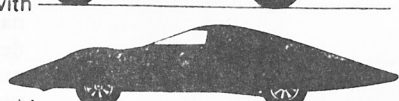
Fiat-Abarth 1450 OT with Abarth styling



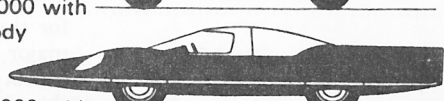
Fiat-Abarth 500/750/800 with Bertone body



Fiat-Abarth 750 with Pininfarina body



Fiat-Abarth 1000 with Pininfarina body



Alfa-Abarth 1000 with Pininfarina body

Right: a selection of Abarths. These range from the Fiat 500, whose engine Carlo Abarth tuned very successfully, to record-breaking machines like the Alfa-Abarth 1000, with its Pininfarina body. Abarth has been involved in every aspect of automobile construction, from exhaust systems to complete cars

and exhaust system were removed, these being the items on which the 'special' version was based. Further development resulted in the 1000 version. These two models, the 850TC and the 1000, won innumerable victories on circuits all over the world and a number of European Touring Class Championships. Later the Fiat-Abarth 595 and 695 followed, both of which took part, with success, in many national and international races.

Abarth's 113 international and five world records are almost worth a separate article in themselves. In this very specialized field of activity, which began in 1956 with a vehicle using a 750 cc engine derived from that of the 600, the Fiat-Abarth name became internationally famous. In fact only two records, the quarter-mile and the standing 500 metres in Class E up to 2000 cc, were obtained with cars entirely of Fiat origin. Thanks to the exceptional drag characteristics of the specialized bodywork, manufactured either by Pininfarina or by Bertone or in some cases by Abarth itself, exceptional results were achieved in the record-breaking programme. Two records illustrate the strides made by Abarth: the 24-hour class G record (751-1100cc) was raised to 167.722kph from 136.502kph, while for the 72-hour record, the speed was raised to 186.687 kph from 139.460 kph.

Another article could be devoted to the engines and prototypes produced by the company. Abarth began work in this field in 1963 with a 1300cc engine which was developed first into a 1600 and then later into a 2-litre unit. The 'four valve per cylinder' version of this engine became the company's most outstanding engine and in 1970 and 1971 the European Hill Climb Championship was won by Ortner using this 2000cc Abarth engine. In little more than 20 years of activity Abarth had achieved 7,402 victories, of which 6,409 were with cars in which the Abarth and Fiat names were linked, and 616 with Simca-Abarth vehicles.

In 1967 Carlo Abarth produced a 6-litre, 12-cylinder engine producing 600 bhp at 6,800 rpm, intended to power a prototype for the World Manufacturers' Championship. But the decision of the CSI to limit engine capacity for prototypes to 3 litres resulted in the abandonment of the project, even though it was already close to completion.

Since 1 August 1971, Abarth & Co has been part of the Fiat industrial complex, although its structure and name remain unchanged. Abarth continues the development of special versions of series production cars and engines, recently for F2 racing, the manufacture of silencers and accessories, and of single-seaters for the Formula Italia. Compared with the past, the major change has been the abandonment of sports prototypes, but this department is now concerned with the preparation of Fiat rally cars which are becoming more and more of a force in international events. PC/BT



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	Family Membership	\$30.00
	CAMS Basic Licence.....	\$7.50

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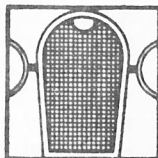
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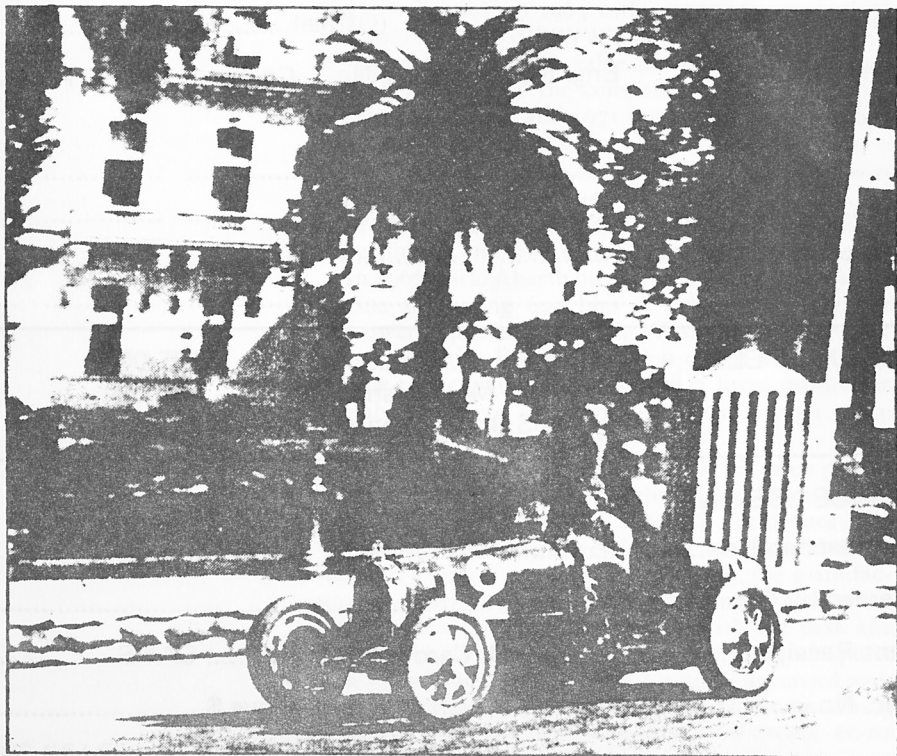
pedigree parade



TYPE 35B



"Williams"
driving type 35B
to win 1929
Monaco Grand
Prix



Startling acceleration, 0-120mph-stop in less than a mile — the Bugatti Type 35B is an incredible performer, even by today's standards. John Miles drivers one and delves deeper into the Bugatti mystique

ENOUGH HAS been written about the Type 35B Bugatti for me not to have to cover the history of the model in any detail. When it comes to a description of the car that started a marvellously dominant period for Bugatti in Grand Prix racing, it's a different matter. It was the Type 35B that led directly to the very similar looking, double overhead camshaft but otherwise mechanically identical 1931 Type 51, and then the fearsome 3.3-litre Type 59. Referring to Hugh Conway's marvellous book, the Type 35 appeared first (in 1924) as an unblown 2-litre. Over the next two years it raced in 1.5-litre and then in its classic 2.3-litre form (still unblown) in the 1926 Targa Florio, the latter capacity being achieved by lengthening the 2-litre engine's crank throw from 88 to 100mm. The bore was maintained at 60mm.

The supercharged 2.3-litre T35B was catalogued in 1926 and could be easily distinguished by its larger radiator moved forward to make room for the blower drive. A Bugatti-built "Roots type" supercharger is mounted low down on the offside of the crankcase and is driven via a shaft and train of gears from the front of the crankshaft. It seems that Ettore Bugatti understood how to reduce torsional stresses even then because the drive is via a laminated spring steel "spade". In fact the car simply abounds with unique technical features and beautiful detail engineering, even if some of it seems a bit tortuously conceived.

Take one look at that monolithic slab of steel under the bonnet and one wonders how it all works. In fact there are two narrowly divided cylinder blocks, topped by the cam and the valve gear carrier. This lot is attached to the narrowest of crankcases with no immediately apparent joint between one part and another (and very few fixings exposed). Let's start with the crankshaft which is built up from nine main parts. Cottar pins secure the four rectangular section webs, to five circular web journals. In this way it can accommodate those marvellously slender one piece connecting rods running on roller bearings. The whole

assembly turns on three huge double row self-aligning ball races, two split roller races, and a thrust at the rear to take end loads. Nowadays most of the crankshafts and rods are made in EN36 case hardening steel by Walsall-based Brinerton Engineering.

The crankcase is split along the crank centre line, and the main bearing retained by conventional looking caps. It is a wet sump engine, with tubes fitted longitudinally in the sump to help cool the oil. What mystified me was how the big end bearings were supplied with oil. The unkind might say "only with luck". Even pundits suggest the oiling system looks like an afterthought. Each circular web has an undercut groove in it. Small right angle plates are bolted to the inner side of the crankcase. Oil passes through tiny 1mm dia holes in these plates and is squirted at the aforementioned "collector" groove, whereupon centrifugal force takes it through tiny holes to the relevant bearings. Yes, the miniscule drillings do get blocked. Worse still, the engine has to be partially stripped every 3,000 to 5,000 miles to clean out these important passages — not good. The engine is a monoblock, i.e. the cylinder bore and combustion space are cast as one. Finish machined blocks are 95mm wide, 60mm of which is open bore. That leaves 35mm or 1.37in. to cram in water passages, inner, and outer walls.

Casting replica blocks has been a problem! The bore is small and it has to be a very accurate small boring bar that comes in front of the bottom face and machines the closely proximate two inlet and single exhaust valve seats and throats. In section the combustion chamber is a simple rectangle so has no appreciable squish. Moreover, the sparking plug comes in from the side. The flame has a long way to travel, so it's no wonder the engine responded well to forced induction. Prior to the blocks being bolted down the valve gear is assembled. Open water passages in the top of the block are sealed with a copper plate (and plenty of Hylomar) which is retained

by screw-in valve guides. Now the valves can be fitted up with springs.

Topping this lot is a very deep aluminium casting carrying a centrally mounted camshaft (three lobes per cylinder) working the valves via beam-type rockers (Ford Pinto principle) pivoting on a thin shaft at one end, bearing on the valve at the other, with the cam lobe working on a radius near the valve end. Bevel gears and a vertical shaft bring the drive from crank to cam. This shaft also drives the water pump and is shrouded in a casing lying flush with the block. No gas-kets are used. Bugatti engines are like tall metal boxes with only the manifolds poking out. Each detail bristles with invention. Take the advance and retard mechanism. The scuttle mounted magneto is fixed. The drive mates with a very short, coarse threaded shaft connected (via a steady bearing) to the advance and retard lever. As this is moved longitudinally the shaft moves in and out and thus changes the relationship of magneto to camshaft.

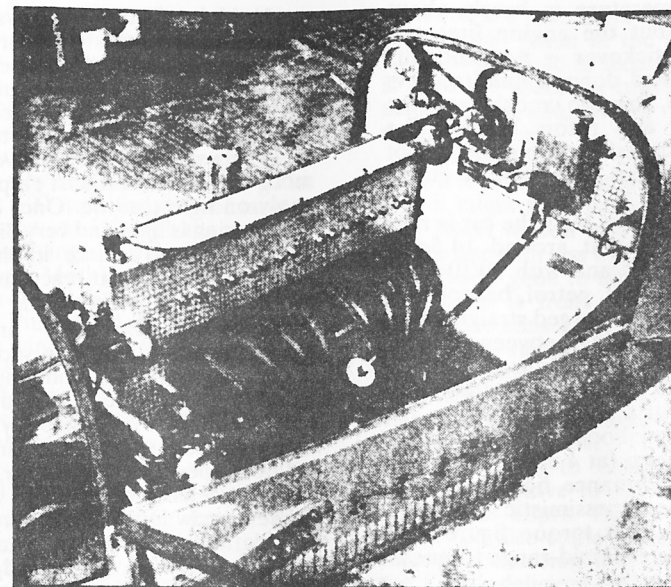
side under the differential to prevent the bending or fracturing that would otherwise occur. The axle is sprung and located sideways by two forward facing and splayed outwards quarter elliptic springs. Longitudinal location is by radius arms — the spring eyes are slotted to allow for vertical movement. Torque forces are taken out by a long "c" section steel radius arm, bolted

to the side of the differential, and attached, with one of the several hard leather links used throughout the car, to a cross member near the gearbox. Other "straps" are used

The 8in. diameter clutch has no less than nine driven plates. The whole thing runs in a casing filled with a mixture of paraffin and oil. It requires a tiny amount of longitudinal movement to release, and works via an over-centre toggle arrangement (see illustration) with a huge mechanical advantage. Clutch pedal loads are not only light but the movement is very short.

A short shaft takes the drive to what can fairly be described as a "crash" gearbox (see later comments), thence via a longer shaft to the rear axle, whose halfshaft casings are so minimally stressed they have to have an adjustable ("tunable" would be better) bracing stay running from side to side to connect the axles to Bugatti's patent friction dampers; in effect tiny little drum brakes with the chassis connected to the outer drum and the axle to the inner "shoes" which are held apart by a strong spring.

Halfway through the T35's production life, small brakes were replaced by much larger drums. Long before the T35 (on the 1923 Brescia), Bugatti used an ingenious side-to-side compensating mechanism — much like a present day racer's system used for front to rear balance — the brake pedal working two floating levers via a toothed



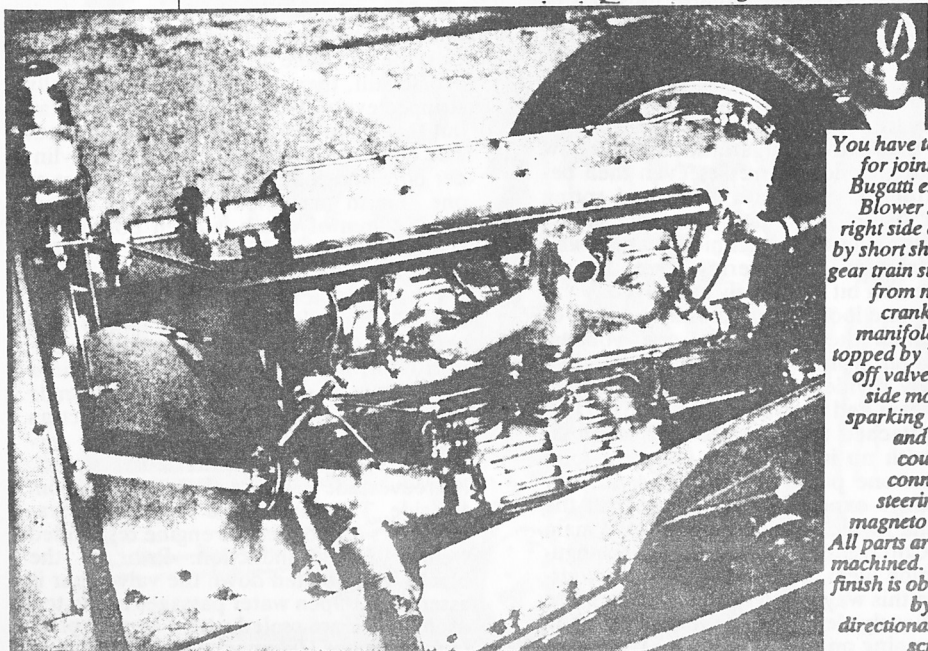
Exhaust side shows twin four branch manifold, oil filler, and water pump. Sixteen adjuster nuts in cam carrier take up end float in exhaust valve rocker. Small scuttle mounted oil tank feeds supercharger

wheel. There is no front to rear compensation, so present-day Bugatti racers hope to achieve a decent front to rear braking compromise by adjusting the length of the respective levers at the drum end.

Truth to say, there is a lot of Miller about a Bugatti — screams of Bugatti owners — even before the latter gentleman was so influenced by Miller twin ohc valve gear design for the Type 51. Nearly all Bugatti components are machined, fabricated, or forged, from solid material, yet very few parts have machining marks, or are of constant section — except the engine block. They are radiused, tapered, curved smooth and always beautiful. Witness items like the levers, braking parts, axles and those beautiful cast alloy wheels, whose outer spokes are angled to deflect air onto the brakes. That's the theory, anyway. The chassis is also a work of art. "C" section side rails narrow towards front and back, and are progressively tapered at each end. The chassis looks as if it might have the torsional stiffness of a piece of well cooked spaghetti, but there are six cross members, plus the enormous additional stiffening effect of the engine crankcase solidly bolted to the chassis side rails at four points. Stick the corner of a Bugatti into the bank and it usually breaks an engine mounting lug. Clearly the engine block contributes a lot to torsional rigidity.

Nick Mason acquired his 1927 T35B in 1973, as a "kit of parts". He despatched them to Harpenden (but now Circencester-based) Bugatti specialists Tula Engineering. Founder and guiding light, Richard Iansen, whose engineering skills are well known in Vintage car circles knows and cares deeply for the marque. He also does an expert job in looking after Mason's ERA. Five years later the car — as if brand new — made its first appearance at a Vintage Sports Car Club Oulton Park meeting, and five years after that it looked as good as ever, as we uncovered its shining blue paint, and WD40'd steel, at the MIRA proving ground.

The procedure for starting a type 35B is simple enough. It's a sort of walk around process. Lean in that cockpit full of beautifully honed metal, and turn on the fuel tap down by the driver's right shin. Set the hand throttle a little open. The soft plugs are installed. Work the hand pump on the left-hand side of the dash — not to be confused with the oil sump topping-up pump by the riding mechanic's left thigh — to get the fuel pressure gauge reading off its stop. Move the vertically sliding advance and retard lever up its serrated slot to full retard. Flood the large Zenith 48K carburettor. Walk round to the front, engage the starting handle and pull up once,



You have to look for joints on a Bugatti engine. Blower sits on right side driven by short shaft via gear train starting from nose of crank. Inlet manifold is topped by "pop" off valve. Note side mounted sparking plugs, and fabric couplings connecting steering and magneto drive. All parts are fully machined. Block finish is obtained by multi directional hand scraping

twice. The temperature is barely above freezing point, but the engine fires and settles down to tickover – not smoothly but hunting up and down a hundred revs and with a sharp, staccato crackle from the exhaust. Gears and rotors whine. The sweet smell of vegetable oil burning – not Castrol, but Newtons R – slightly quickens the pulse.

For the performance tests the car is running in racing trim; at around 14.5cwt, stripped of its wings and with 80/10/10 in the tank – a methanol, petrol, benzol mix. In GP trim, the supercharged straight eight was quoted as producing between 130 and 160 bhp (depending on the source) at 5,000 rpm. Perhaps modern day rebuilders like Iansen have learnt a thing or two. On approximately 12 psi boost, Mason's T35B motor gives 130 bhp (at 4,500 rpm) at the rear wheels. Performance figures suggest that may have been pessimistic. Nowhere is there mention of a torque figure – a pity, because above all mid-range torque is where the engine excels.

Frankly we didn't know quite what to expect in the way of performance out of a 1927 Grand Prix car. Iansen mentions something about a Type 51 doing mid-13-second standing quarters, and that a Type 35B should not be that much slower. Conway records Stubberfield's special single-seater 35B doing a standing kilometre in 26.96sec. And I thought this was going to be an easy day...

Leg and arm room is not too cramped but the cockpit is very narrow. Three pedals between the transmission tunnel and body side means they are very close. Too close for size 9 shoes. Time for us to brave the cold and discard shoes altogether. The water temperature gauge is a "moto meter" in the radiator cap and this must be one of the few GP cars fitted with a clock.

The SEV magneto (and plug leads) poke back through the "engine turned" dash – riding mechanics could make immediate repairs. The outside handbrake and gear-lever, engine turned dash, engine, gear-box, steering wheel spokes, bonnet, wheels, radiator cowl, all pieces of a jigsaw that fit together in fully machined harmony.

Iansen suggests a brief warming up session to get used to the car and gearbox. The shift "is back to front" that is to say the outside lever is moved to the left and back for first, second is forward, third across the gate and back and top gear another shove forward. Bugatti's multi-plate clutch is unbelievably light to operate, like pressing the throttle on most

modern cars. The engine revs rise and fall instantly in response to the throttle.

The advice is to not mimesy about with the gearchange, yet to try and "feel" the gears in. Any ideas about engaging first noiselessly were soon forgotten. At best there is a crunch. Never have I felt a car more alive. The exhaust rasps away unevenly on light throttle. Once on the move the steering is light and very direct. If there were a sixpenny piece in the road you would feel it. The car reacts over the slightest ridge or bump. It is damp – there is no chance of it drying out – and there are some transverse joints on sections of MIRA's twin horizontal one-mile straights. These provoke axle hop and some front wheel shimmy. For somebody who spends his life in modern cars, the car feels as if it has no suspension whatsoever. Wheel hop when accelerating means wheel spin. Those narrow Dunlop racing tyres seem to provide minimal traction, what can a 35B have been like on beaded edge tyres? In the damp it feels like a car that could step out and swap ends quite easily.

Braking may be via enormous drums (integral with the wheels) but you need to shove and shove to get the car stopped. The rears lock first. Methodical gear changes go through well enough, but hurried ones still crunch no matter what technique is used.

I'm uneasy about the way the car skips and hops – doubtless quite normal behaviour to real Vintagents. Even warming it up on light throttle, it feels as though it could dart left or right. Sitting exposed in a near priceless Vintage car, that is something to be avoided. The decision is made to use the billiard-table-smooth but somewhat shorter timing straight for the acceleration runs. The intrepid Richard Iansen is co-opted into acting as riding mechanic and timekeeper. He produces a pair of goggles, slides in, and sits slightly sideways to get tolerably comfortable. It is one of those mist-laden days. The sun is low in the sky and the light is tinged with pink – like dawn is breaking. Me? I'm trying to concentrate on getting the gearchange somewhere near right (and the right way round) as we drive towards the test zone.

Colder plugs have been installed. Snapping open the throttle for the first time is like opening a flood gate. From 1,500 rpm – almost a tickover – the urge comes instantly with a deep ripping noise from behind and increasingly mechanical clamour up front. Mason's rev limit is 5,500 rpm. The quivering rev counter needle

rushes round its dial. Second and third gear times are reminiscent of a super low geared 250 bhp rally car, never mind this 56-year-old GP car.

Second took us to 64 mph and third to 90 mph. A bond of sorts is formed between the driver and gearshift. To take charge of it is the best way. At least the gears go in that way. At 100 mph the strip of tarmac begins to narrow, at 110 mph the machine feels like it is flying, (for those who have flown in a Tiger Moth). Concentrate hard. Grip the wheel and *feel* – not steer – the car straight. Push head forward to resist the buffeting windstream then concentrate harder still to brake in a straight line. There is 0.93 of a mile to work with. The car has to be brought to a dead stop because there are no bankings at each end.

The question I'm asking is whether the car will do 120 mph and stop within the distance. I'm not bothering Iansen with such considerations. At 110 mph there is plenty of road left.

What should I take it off the line at? "About 3,000 rpm" says he. First is back not forward, I'm saying to myself. Don't mess it up because you will only get two chances. We don't want to wear it out do we?

The clutch goes home. The wheels are spinning. It's too late to back off now. It's slow to 30 mph, nothing more than testimony to those narrow tyres' hopeless search for grip. First to second goes through as fast as the lever can be moved. I haul the lever back and away from me into third. The car is alive. The steering tremors in my hands, there is lots of vibration through the chassis, and driveline, there is the exhaust note, some gear whine (maybe blower whine above that), a howling gale past our ears. Lord knows what it is like in the passenger's seat bereft of my minimal screen. Into top and it's going well, 110 mph comes up easily. Why not let it run? The speed is building up well, the rev counter is creeping above 5,000 rpm – well above the official power peak. I'm hanging on and the forward momentum is now slowing. Time seems too slow. Prudence is telling me to back off. Iansen is sensed pressing the watch. Slowing this 56-year-old racer is like trying to rein in a runaway horse. You press hard and not much seems to happen, then harder and the car starts to feel vague and weave-y, and that's when you have to stop pressing if the rears are not to lock. It seems to take an age to stop – and in its day the T35B was considered to have fabulous brakes.

If anything, the run in the opposite

direction is a mite more exciting. The very slight uphill grade at the start meant the run took a couple of seconds longer. There is even less space for braking. Two of the most exciting straight line runs I have ever made in any car.

More runs and we might have chiseled off a few tenths. With peak power at 4,500 rpm it might have paid to change up earlier. Racer Mason might have got the car off the line with less wheelspin and it would have surely gone to 60 mph quicker in the dry. Take it from me our acceleration times were conservative. Conservative but very quick. Just 0.04sec slower than Stubberfield's monoposto over the kilometre but Mason's car would surely be faster one up and in the dry. It takes an Aston Martin Vantage, BMW M1, Porsche 911SC or Ferrari Daytona to beat it to 60 mph. It is more accelerative to 120 mph than a 148 mph Lotus Esprit Turbo. The XJ-S and BMW 635 also come to mind as cars with similar acceleration. But most impressive is the T35B's delicious mid-range snap. Gear for gear there are places where it is as quick as a currently competitive rally car.

To put the Bugatti's braking response (from 30 mph in neutral) into context, we attached our U-tube decelerometer and pedal load indicator. With 60lb (enough to produce the ultimate braking of around 0.95g in most modern day cars) the car barely slows at all. It takes 120lb to produce an even tolerable 0.5g. Effort and deceleration proceed progressively until finally with a massive 200lb shove we record 0.72g with the rear wheels locked. Not bad bearing in mind the obvious rear bias, but really hard work to get the best from especially when braking from high speed.

With better brake balance one of the great Bugatti exponents, Hamish Moffatt (who incidentally imported this machine in the first place) might have got Mason's car round Silverstone Club circuit faster than 1min 9sec – a reasonable time for an ERA, never mind a 35B. Moffatt has tried all the normal engine tweaks on his own T35B, but his cannot match Mason's for straight line speed. Thanks to Iansen's expert attention this is possibly the fastest 35B in existence. Nine wins, two seconds, two thirds and two fourths in 19 races prove the point.

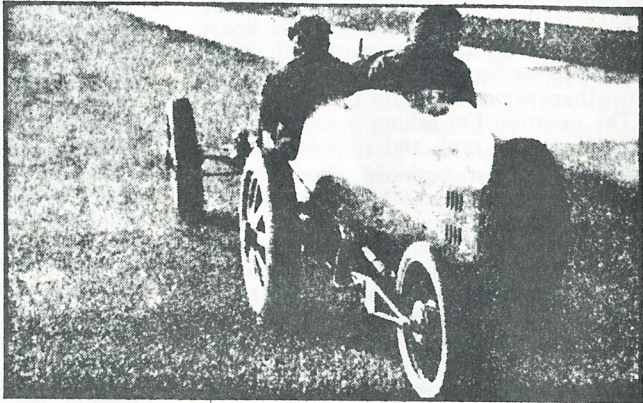
A fractured axle casing meant our chance to experience Bugatti balance never came. Though by the way the car turned into a corner we fancied there might be oversteer there for the asking.

Moffatt confirmed that any 35B

oversteers ultimately, and that they lose a lot of time in mid-corner through wheelspin. "All the wider, softer compound tyres have done is to increase side loads on the wheels and therefore make them liable to fracture." Apparently one or two Type 51s were fitted with a "pawl" type Bugatti-made limited slip differential but the earlier T35B managed without. Owner drivers like Mason don't worry too

much about such considerations. A 35B is exciting enough to drive as it is and after all Vintage car race meetings are not supposed to be that serious. I left thinking that perhaps driving a GP car in the 1920s required just as much skill as present day cars do. The skills needed to get the best from a car with more power than grip on the indescribably bumpy circuits of the inter-war years, were just different. □

Uncomfortable for two. Riding mechanics did full length Grands Prix in cars like the T35B



ACCELERATION

TYPE 35B

LOTUS ESPRIT TURBO

OPEL ASCONA RALLY CAR

True mph

30 2.9

40 3.4

50 4.4

60 6.0

70 8.2

80 10.2

90 12.2

100 16.4

110 20.9

120 26.4

Standing ¼-mile: 14.8 sec, 96 mph

Standing kilometre: 27.0 sec, 121 mph

True mph

30 2.3

40 3.2

50 4.7

60 6.1

70 8.3

80 10.3

90 13.0

100 17.0

110 20.7

120 27.1

130 39.2

Speedo mph

31

41

51

62

72

83

93

105

115

125

135

Standing ¼-mile: 14.6 sec 94 mph

Standing km: 26.7 sec 124 mph

true mph

30 1.6

40 2.6

50 3.9

60 5.0

70 6.8

80 9.0

90 11.2

100 14.1

Standing ¼ mile: 13.9 sec 100 mph

mph

10-30

20-40

30-50

40-60

50-70

60-80

70-90

80-100

Top 4th 3rd 2nd

— — —

4.9 3.8 3.1 3.1

4.4 3.5 2.9 2.3

4.2 3.3 2.6 2.0

3.7 3.1 2.6 2.3

3.5 3.1 — —

3.8 3.7 — —

4.6 — — —

IN EACH GEAR

mph

4th

3rd

2nd

10-30

20-40

30-50

40-60

50-70

60-80

70-90

80-100

90-110

100-120

—

—

3.8

2.0

5.3

3.1

2.1

4.6

2.9

2.4

4.1

3.3

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4.7

3.5

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5.3

4.3

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5.7

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8.3

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10.1

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10-30

20-40

30-50

40-60

50-70

60-80

70-90

80-100

90-110

100-120

Top

4th

3rd

2nd

—

—

6.8

3.7

2.7

2.2

2.5

3.8

3.9

4.5

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10.5

7.8

—

13.1

10.6

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JULY 5th – Saturday

GAMBLING NIGHT

Commences 8.00 p.m.
Dress theme (compulsory) for the evening is "School Days" (for all those who can remember).
Play roulette, blackjack, under and overs, raffles, two up, etc.
Supper provided.
Drinks at economical prices.
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incl. Dinner, Drinks & Chips for gambling.

