

25th March, 1954.

REPORT ON THE 450 PROJECT

As instructed, application for the entry of three type 450 cars in this year's 24 Hour race at Le Mans to be held on June 12th-13th were sent to the Automobile Club de l'Ouest in December last.

We have since received an official invitation to enter three cars. This has been accepted and the final details of cars and drivers, and other necessary documents, sent to the Club and duly acknowledged.

Considerable development work, extending since our return from the record attempts at Monthléry, have been carried out on the engine used in these cars, particularly with reference to the six port head which was intended for use last year but failed to produce as good results as the three port version.

One of the main difficulties was due to bad carburettors, in spite of the fact that Solex designed special units early in 1953 for use with this head and spent months endeavouring to obtain satisfactory results on bench tests in our Works, and modified the prototype carburettors on two occasions.

This Department took over development work in December on this head and carburettor. Early tests showed that the carburettor was producing fairly reasonable horse-power in the top ranges of engine revolutions but in the lower range it was not giving satisfactory power, even under a system of forced air feed. Far more serious was the fact that when used on an engine on the road the flow of petrol was cut off completely when cornering due to surge. Solex were informed of this and made suggestions with which we were unable to agree would give the desired improvement. We accordingly carried out modifications to the castings ourselves, including re-setting the main jets which gave considerable improvement. This was passed to Solex who then made fresh castings but altered the float and float chamber. Their new units arrived two weeks ago and upon tests were found to flood and generally misbehave. One of Solex's fitters arrived in the Works this week and agreed with our findings. We have now enlarged the float chamber and made a new float ourselves and tests so far show improvement. It is hoped to complete tests this week or early next and send the unit and fitter back to Solex with an urgent request for supplies of the modified unit to be manufactured and despatched with the utmost urgency, bearing in mind there are but ten weeks to elapse before our departure.

Engine tests with carburettors previously modified are encouraging and a gain in horse-power has been obtained between 3,000 - 6,000 r.p.m. and the m.e.p. curve improved at 3,500 where it was previously very different.

A new exhaust system has been designed for use in these cars and engines are now being tuned to this with satisfactory results.

The use of Magnesium alloy in certain components such as front and rear hubs and back plates has been discarded on safety grounds and new castings in 226 metal employed. Sample castings are at present being inspected.

The rear brakes have been re-designed and reduced from 12 to 10 inches and fitted with two leading shoes and automatic adjusters.

One body has been modified to similar lines to that employed at Monthléry, a second is in the process of modification and it is expected to be completed in 14 days time. This work has been carried out by an outside firm at roughly an eighth of the cost of conversion in our Works.

Arrangements have been concluded with Shell Mex and B.P. Limited for a retaining fee of £2,000 to be paid to the Company and double the starting money received last year, for each car starting in the Le Mans and Reims races, in addition to free petrol, oils and greases for the race, practice period and testing. We have already used some 100 gallons in engine tests and approximately 700 gallons will be used at Le Mans. Dunlops have granted us 83<sup>1</sup>/<sub>3</sub>% discount off the price of racing tyres and tubes, this is the maximum discount and only enjoyed by two other firms in addition to ourselves.

Arrangements have been made with Perodo Limited for the relining of all brakes and clutch linings on three cars together with stocks of future spares together with any further assistance we may need, all free of charge.

K.L.G. have agreed to supply all our sparking plug requirements free of charge and it is hoped to receive a small retaining fee in addition but this has not yet been finalised.

Lucas Limited have agreed to supply sets of special head lamps, stop and rear lamps and flame throwers for these cars together with spares and also to supply new and specially tested starter motors, dynamos, distributors, coils and batteries including three spares to replace the equipment used last year. In addition to this they designed and supplied special windscreen wiper motors incorporating a hand operated control, required by the Regulations, and are sending experts to check all the electrical wiring and replace if at all suspect, this together with their services at races if required is also free of charge. They have also agreed to fit "blinking" direction/and new head lamp units to both transporters.  
indicators

The following drivers have been engaged this year at considerably reduced rates of retainer fees to last year.

T. H. WIDSOM  
P. S. WILSON, R.N.(Air)  
J. E. G. FAIRMANN  
M. KEEN  
J. C. C. MAYERS  
J. T. K. LINE

The last three named also own and race their own cars in an equipe known as the "Monkey Stable" and have done very well in Continental races frequently winning the two litre class with one and a half litre cars against well known Continental cars and drivers.

Considerable difficulty has been experienced this year in obtaining firm shipping reservations due to the Railway Company contracting space with touring coaches. However, arrangements have now been made, although not entirely satisfactory, to ship the equipe to Le Mans and for the return trip. Hotel reservations have also been secured for the personnel.

Racing Manager  
T. V. G. Selby

The convoy crossed on the Dover-Dunkerque night ferry on Sunday, 27th June and left the French port at 6.00 a.m. on Monday 28th arriving safely in Reims at 1.30 p.m.

The cars were unloaded and checking and preparations for the race commenced.

The course had been shortened by some 46 metres this year due to a new radius on the Thillois corner making it slightly faster.

There were ten other competitors in our class, 1601 - 2000 c.c.s, 1. Gordini, 6. Maseratis, 1. Peugeot supercharged, 2. Ferraris. At this period it was considered that the Gordini No. 25, Maseratis, No. 27 Chiron, No. 32 Sparken, and the Ferrari No. 28 would produce the serious opposition.

Final adjustments and headlamp settings were done on Tuesday and the cars presented for scruteneering on Wednesday, then taken to the course for practice between 4-6 p.m. No. 20 Wisdom-Fairman completed 17 laps the fastest 3'.07", No. 21 Keen-Line completed 22 laps, fastest 3'.05", No. 22 Wilson-Mayers and reserve driver Blakely 22 laps, fastest 3'.04".

We tied with Maserati and Ferrari No. 27 and 28, for fastest laps, the Gordini not being present.

Practice on Thursday was between 8-11 p.m. We commenced at 9.40 p.m. the sole object being familiarisation in the dark. The cars completed 20, 16 and 13 laps and were returned to the garage. No very high speeds were attempted, the fastest lap being 3'.04", 3'.10" and 3'.06", the Gordini being the fastest in the class at 2'.58" (daylight).

No practice was done on Friday night by our cars as timing was satisfactory and the drivers quite happy. The team attended a cocktail party given by Shell Francaise, on the course, when Wilson and Mayers were presented with clocks for their class win at Le Mans, the writer collecting 60,000 francs class prize money.

The race policy, decided on Saturday morning, was to lap during darkness at about 3'15", after settling down, weather permitting, and let the Gordini press on but keep as near as possible to the Maserati No. 27 Chiron and the Ferrari No. 28 Picard with one car. This speed calling for 18 laps per hour.

The cars were on the course as required at 6 p.m. and empty tanks and refueling attended to. As last year, only half the total number of pits were available to competitors, the other half being sold to the trade. This necessitated three cars being worked from one small pit, a highly dangerous proceeding on this narrow course. Some pits as the one next to us housing three cars of different makes and nationality besides being of different engine capacities. As starting time approached, a fairly high wind persisted and a threat of rain. Fairman Keen and Wilson were elected to start and three hours turns proposed. These to be lengthened if operational necessity arose.

All cars completed the required 18 laps in the hour at the set average, but this dropped after 1 $\frac{1}{2}$  hours due to heavy rain but picked up again when the drivers became accustomed to conditions with the exception of Fairman who is considered to have had an "incident" and frightened himself, as his lap times increased by some 10" after 14 laps, about 12.45 a.m. The Gordini and two Maseratis were ahead of us, the former two laps at about 3 a.m.

Shortly after this, 3 10 a.m., on lap 56, Wilson on 22 was called in, refueled and the car left in 59" with Mayers with instructions to chase the leaders, the job being done by No. 21 Keen. Fairman was called in next on lap 59, replaced by Wisdom and leaving in 48". Keen was called in on lap 66 and the car left with Line in 60", time then was 3.45 a.m. Keen on 21 had established the desired lead on the other Bristols before being called in and Line kept up the chase of the leaders, followed by No. 22 Mayers, in pouring rain. This car, however, lost a plug and made two pit stops on lap 69 and 70

losing 8'31". This was due to water from preceeding cars being thrown up the air shute and drowning the plug leads. The driver was instructed to increase his "towing" distance from faster cars ahead of him. The air shute entrance was also blocked up with tape. The Gordini's increased lead was reduced shortly after this by their pit stop of 3'18" and the leading Maserati by a stop of 2'28".

At 5 a.m. No. 21 had done 89 laps, 22 87 laps and 20 86 laps. At 6.34 No. 21 Line was refueled and left with Keen in 54" with instructions to speed up as we were some 5 laps behind the Gordini and 3 behind the Maseratis. This was on lap 115, next in was No. 22 on lap 116 for water check and refueling and left with Wilson in 67", then No. 20 was refueled and left in 50" with Fairman. This car made a call for oil on lap 132,  $\frac{1}{2}$  gallon being put into the engine to cure oil surge on corners.

At 7 a.m. the position was:

1. 25 Gordini 128 laps in 6h. 59' 7"
2. 27 Maserati 125 laps in 6h. 58'16"
3. 28 Ferrari 125 laps in 6h. 58'21"
4. 29 Maserati 125 laps in 6h. 55'12"
5. 21 Bristol 124 laps in 6h. 59'28"
6. 22 Bristol 122 laps in 6h. 58'1 7"
7. 20 Bristol 121 laps in 6h. 59'49"

Rain was lashing down but Keen on 21 was speeded up and responded well getting down to 3'9", 3'8" and by 8 a.m. 3'5" and then between 3' and 3'4" with a lap at 2'59", a very excellent performance.

at 8 a.m. the position was:

1. 25 Gordini 148 laps in 7h. 57'43"
2. 27 Maserati 143 laps in 7h. 58'
3. 28 Ferrari 143 laps in 7h. 59'10"
4. 21 Bristol 143 laps in 7h. 59'29"
5. 29 Maserati 142 laps
6. 22 Bristol 141 laps
7. 20 Bristol 139 laps

Shortly after this, No. 21 Keen, was again speeded up and held 3'4". 22 Wilson was also speeded up and got down to 3'6" followed by Fairman who held between 3'4" and 3'6". This had the desired effect and worried 27 and 29, the Maseratis and quite unnecessarily the Gordini who had enough lead to sit on our tail for the remaining  $3\frac{1}{2}$  hours instead of which he speeded up and ran out of petrol near the pits, pushing in, which further reduced his lead.

At 9 a.m. the position was:

1. 25 Gordini 166 laps
2. 28 Ferrari 163 laps in 8h. 59'17"
3. 21 Bristol 162 laps in 8h. 57'30"
4. 27 Maserati 162 laps in 8h. 58'29"
5. 29 Maserati 160 laps in 8h. 58'23"
6. 22 Bristol 160 laps in 8h. 58'03"
7. 20 Bristol 158 laps in 8h. 57'06"

22 Was called in about 9.30 a.m. refueled and left with Mayers in 45" told to speed up. No. 20 was called in at 10 a.m. refueled and left with Wisdom after more oil had been added to the engine directly (as opposed to the tank) in 4'7" it being considered too costly in time, to clean the oil tank valve. No. 21 Keen, upon whose hopes depended was left out as long as possible as he was reducing the lead of the opposition satisfactorily having caused the Gordini to "blow up" with the usual transmission trouble and was sitting on No. 29, Maserati, having passed No. 27 Maserati who blew up trying to hold on. He succeeded in passing 29 and drawing away at 4 seconds per lap. Then in response to further signals, set off after 28, Ferrari who had a 2'37" pit stop ultimately catching and passing him to get the lead by 23".

The position at 10 a.m. was:

1. 21 Bristol 182 laps in 9h. 59'22.4"
2. 28 Ferrari 182 laps 9h. 59'57.4"
3. 27 Maserati 180 laps
4. 22 Bristol 179 laps
5. 20 Bristol 177 laps
6. 29 Maserati 171 laps

A problem now presented itself, we had to make another fuel stop. Keen had been out nearly 4 hours instead of 3, with the desired result, as he was faster than Line his co-driver, especially in the wet, but it was considered unwise to extend his spell a further 2 hours from the fatigue and hunger point of view. In spite of the fact his lap times were around 3'5" to 3'7" which was holding our lead. He was left out until the 184 lap, called in, the car refueled in 48" and left with Line who was instructed to go as fast as he could manage with safety. On wet roads he dropped the lap time of Keen about 8" - 10". No. 28 Ferrari gaining about 2", sometimes 3" or 4" per lap. Keen was fed and washed and Line called in after 8 laps and Keen took over in 14" and proceeded to lap at 3'2" then 2'59" to 3'2" cutting down the Ferrari lead once again.

The position at 11 a.m. was:

1. 28 Ferrari 201 laps in 10h. 58'7.2"
2. 21 Bristol 200 laps in 10h. 58'2.8"
3. 27 Maserati 198 laps
4. 22 Bristol 198 laps
5. 20 Bristol 196 laps
6. 29 Maserati 190 laps

Unfortunately Count Lurani, the Italian delegate, discovered we were cutting down the Ferrari lead by 15" per lap and warned the Ferrari pit who for some reason were apparently unaware of this fact. The result was they speeded up and for the last vital 35 minutes succeeded in keeping us in view, some 25 seconds ahead of them, but 4.5 to 5 miles behind them in lap distance. The other cars were speeded up and passed 27 Maserati, who subsequently also blew up.

#### Final result of the 2 Litre Class

1. 28 Ferrari 1,137.67 miles 94,865 m.p.h.
2. 21 Keen-Line 1,132.13 miles 94,405 m.p.h.
3. 22 Wilson-Mayers 1,121.37 miles 93,488 m.p.h.
4. 20 Wisdom-Fairman 1,076.72 miles 92,286 m.p.h.
5. 29 Maserati 1,060.09 miles 88,341 m.p.h.
6. 34 Ferrari 1,014.66 miles 85,591 m.p.h.

Prize money

£ 700

Shell

Starting money

600

Lucas

30

£1,330

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