

# Lotus World

The official newspaper of Club Team Lotus and Lotus Cars Limited

## NIGEL SCORES!

After increasingly quicker lap times in the Detroit Grand Prix Nigel Mansell found his car much to his liking as the race progressed and at one stage was consistently catching Jacques Laffite by two seconds a lap. However the Frenchman received signals from his pit warning him of Nigel's progress and managed to get home in fifth place. Our Birmingham lad got a well deserved point for his effort and was extremely satisfied with his new style Pirelli tyres and a car that generally showed an improvement over its Spa performance. Elio registered an impressive fourth place on the grid and made a scorching start into third place but was penalised a minute for his enthusiasm. However, his crown wheel and pinion made its own protest and caused his retirement. Meanwhile Gerard Ducarouge our new Chief Engineer was hard at work at our Headquarters on a revitalised work programme that saw everyone in our Team keeping the midnight oil burning.

Our Race Report news is on page 4.



Nigel drives to sixth place at Detroit

## Turbocharged Black & Gold



John Player Special Team Lotus

Next appearance: British Grand Prix, Silverstone, July 16th

(Date and venue correct at time of going to press)

DANGER: Government Health WARNING:  
CIGARETTES CAN SERIOUSLY DAMAGE YOUR HEALTH



# John Player Special

## MEN ONLY Belgian Grand Prix Report

With only a week separating the two events of Monaco and Belgium (in 1983, eight out of the sixteen events are spaced only a week apart!), our crew had no time to return to home base and made straight for Belgium. Our Econoline nine seater fun bus gave up the ghost in Grenoble when its transmission dropped out but considering its mileage during the past seasons, we couldn't really complain. Its passengers immediately called up the local car hire company and equipped with two cars continued their journey.

Peter Warr and our engineers returned to base briefly for the "after" race spares needed for preparation in Belgium and zoomed off again.

The Volvo arrived at the circuit on the Monday night to find the tarmac roads around the paddock still being laid, so as a temporary measure all the transporters parked on the circuit side of the pit garages for the days leading up to practice. Our race car bodywork had now been standardised so all four could be refuelled during a race, and general preparation continued for the three days up to Thursday evening. The weather was still overcast with a damp track surface when practice opened but it did not rain again, the track soon dried, and Elio and Nigel went out on slicks.

### New Tyres

Pirelli had brought two new tyres to Spa, one of an entirely new compound, together with another that had a new style of construction but with the compound used in previous events.

Mechanically, the cars ran perfectly throughout the three days, but our drivers encountered quite a serious handling problem through the fast curves and corners and as these predominate at Spa, it seriously affected our times. Elio was disappointed with his times as he had been faster during testing, and again our engineers spent hours in discussion trying to find the solution. As Warwick in his Toleman was using the same tyres as us, it was simply a case of the malady being within the car itself and a possible solution did not emerge until the cars were back at the factory again after the race was over.

In Friday's unofficial practice in the morning, Nigel held a creditable fourth place within the normally aspirated brigade only 1/100ths of a second behind Surer and only slightly slower than Rosberg. But Elio was struggling in 21st place with no ready answer to his handicap apparent.

### Friday Unofficial

1st. de Cesaris	2.06.830
2nd. Prost	2.06.869
3rd. Tambay	2.08.184
4th. Winkehoek	2.08.531
12th. NIGEL	2.10.455
21st. ELIO	2.13.136

### Timing Problem

In an attempt to see a radical change we changed gear ratios, and as rain was threatening, we decided to get out really early and put up our quick times as soon as possible - the spine tingling drama for Niki and John in Monaco had made an indelible impression!

At Spa, the pits were before the hairpin which led onto the fast downward sweep past the official start and finish line where the official timekeepers were positioned and so the times we recorded could be well outside those of the officials if anything slowed the car down in the piece of road between the two points. On one really quick lap, Elio thundered past us but slowed at the hairpin and his official time was gone in a flash. Then on his second run, he missed out the chicane and ran over a kerb, a steering arm being broken as a result. As it could not be repaired en situ, the whole system had to be taken off the spare car, and as his final set of "quallies" had accumulated some miles, his re-run had to be a careful one and appreciably slower. Nevertheless, he was four seconds quicker than his morning run and moved up to 13th behind Baldi in the turbo Alfa.

Nigel, meanwhile, was still trying his best to cope with the handling problem and slipped back to 19th but was only 6/10ths slower than his teammate.

### Friday official

1st. Prost	2.04.615
2nd. Tambay	2.04.626
3rd. de Cesaris	2.04.840
4th. Piquet	2.05.628
13th. ELIO	2.09.310
19th. NIGEL	2.09.924



Nigel accelerates away from the hairpin of Virage de la Source where numerous people were caught out.

### Saturday

Overnight, Nigel's engine was changed and various other alterations made to both cars. When the team woke up they were greeted by rain absolutely hissing down in bucketfuls with heavy rain clouds stretching over the horizon. Elio was fourth in the early stages of practice devoting his time to evaluating his rain compounds, no doubt in the hope race day would see similar weather conditions.

### Unofficial

1st. Prost	2.20.754
2nd. de Cesaris	2.22.333
3rd. Warwick	2.22.880
4th. Tambay	2.23.500
10th. ELIO	2.24.861
17th. NIGEL	2.27.411

Final qualifying was very disappointing as Elio really got the bit between his teeth and ignoring his car's handling put in a real stormer (remember the appalling weather and fifth gear curves) - his time as he passed our pit was good enough for fourth spot but he thundered past us straight into a horde of yellow flags signalling another driver's "moment" on the

hairpin. Instantly his time was gone - a tremendous blow to him and our crew as he had been brim full of confidence he could put in a quick run and his enthusiasm had proved highly infectious. When the times were announced he was back in 13th place a position which in no way reflected his ability. He still had another set of quallies left but as the car was made ready for the run a huge thunderstorm erupted that washed such ideas away for good.

At the end of the session we found Elio was but a gnats away from Warwick, and regardless of the yellow flag debacle was only 1/1000th of a second in arrears.

### Peter Talks Nigel

Peter Warr was clearly worried about Nigel doing the same thing in a car far from suitable for such a flyer and spent a long time talking him out of any ideas he might have at the back of his mind. As it was, Nigel's eventual run was washed out by the cloud burst but both drivers expressed themselves as more than happy with Pirelli's "wet" compounds.

*continued on page 5*



Down through the trees goes Elio on this circuit of long, very fast curves and corners.

# RACE REPORT

continued from page 4

In similar vein to Friday's programme, Peter Warr conducted pit stop practice, our procedure now aided by a 30 gallon (136 litre) pressurised refuelling tank. Our crew is now very relaxed and very quick with immaculately consistent times – in the drama of the race to come they got Elio away in 15 seconds (26 gallons – 118.3 litres) and Nigel off in only 13 seconds (18 gallons – 81.9 litres).

## Grid Times

1st. Prost	2.04.615
2nd. Tambay	2.04.626
3rd. de Cesaris	2.04.840
4th. Piquet	2.05.628
13th. ELIO	2.09.310
19th. NIGEL	2.09.924

\* All the above times taken from Friday's official practice.

Obviously everyone in our Team went to bed that night praying for rain, but when dawn came it was dry – the first time it had been so for four weeks!

## THE RACE

The first start saw Derek Ongaro, the official F.I.S.A. starter unhappy with the line up and with people obviously in trouble flashed the yellow light to abort. With drivers keyed up and waiting merely for a light to flash on, some obviously reacted by putting their boot in it and those left on the grid patiently waited for the others to do a lap and rejoin them. As detailed in the regulations, and because refuelling on the grid is not allowed, a lap was automatically cut off the total race distance, something not realised by numerous people. Then before the second start, the organisers called for another warm-up lap, and this was also cut off the total number of race laps to avoid people running out of fuel.

Another batch of cars leaves our factory bound for the United States (see last issue). In June we received the following telex from British Performance Car Imports Inc.:

"Lotus Performance Cars was pleased to receive by air, last Thursday, a shipment of six Lotus Esprit Turbos. You will be glad to hear, I am sure, that all arrived in perfect condition. Initial inspection by ourselves, dealers, and customers confirmed our faith in the skill and dedication of the men and women at Lotus responsible for the production of this fine automobile. The initial reaction confirms our belief that demand for the Esprit Turbo in the United States will significantly out-strip the available supply.

Please express our appreciation and congratulations to the entire staff at Lotus Cars Limited."

Signed: W. Fredericks

Elio had Surer to his left and Laffite in front of him on the grid, and as the lights went green, both stalled! Elio with his nose almost touching the William's gearbox was left with nowhere to go until Laffite got away but it was a nerve-racking experience for our Italian driver with tail-enders flashing by on both sides.

Lap one, after the re-start, and Elio was in 11th spot moving to 10th on Lap 4. Here he remained until Lap 12 when he was passed by Warwick but Rosberg pitted the same lap and so Elio regained 10th. Then Giacomelli got past him and on Lap 18, Elio called in for a quick fuel stop of 15 seconds which nevertheless dropped him to 15th. Lap 22 he started moving up again, as he passed cars, some pitted, and some retired. But Lap 32 saw Warwick (after a disastrous pit stop) catch and pass him, but with Lauda about to retire, he took ninth spot which he held to the end.

Nigel was 18th on Lap 1, but sadly dropped to last next time around as he bravely fought the car's bad handling and later a seizing gearbox. His pit stop on Lap 23 was a quick one and he remained where he had been on the road, carrying on until he was forced to retire on Lap 31. The external starter shaft had broken and the gearbox oil pump driven at the internal end had stopped working causing the box to seize as a result.

The "race for men" was over.

1st. Prost	4th. Piquet
2nd. Tambay	5th. Rosberg
3rd. Cheever	6th. Laffite

Fastest Lap: de Cesaris

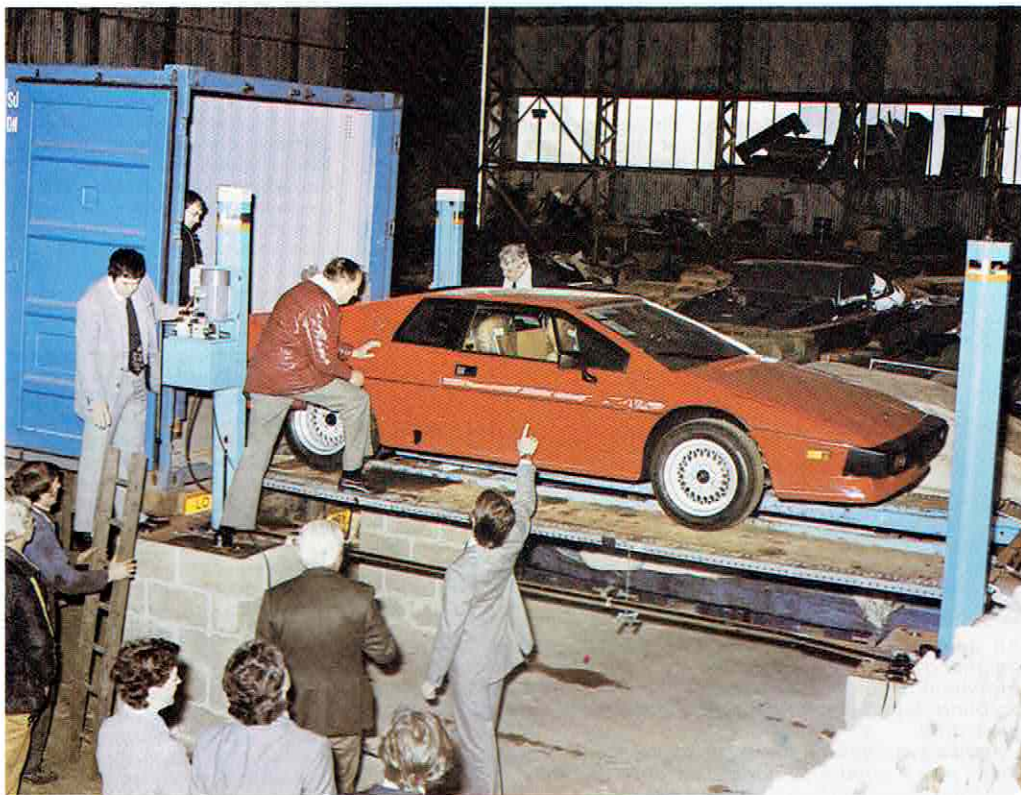
(Reminiscences of Spa are on page 13)



Frantic activity in the pits as Nigel joins Elio (foreground) and our mechanics push him back into his slot on the pit road.



Nigel thunders over the brow of a hill on this circuit labelled "men only".



# RACE REPORT



## NIGEL SCORES! REPORT OF DETROIT GRAND PRIX



Pole position! Elio splashed through torrential rain to take pole slot on the first day of practice.

After Spa came a quick dash back to the factory – Belgium like Holland is so conveniently close to us and with regular overnight ferry services to nearby Felixstowe and Harwich, our crew can have a night's sleep and keep their mileage to a minimum. The transporter had been emptied by early Monday morning and we now had four full working days before our cars and spares were to arrive at Heathrow for loading on the F.O.C.A. freighters.

Elio's regular cars, JPS 93T/1 and /2 were to go together with Nigel's standard JPS 92/5 and /10.

The vast pile of paperwork was completed in good time by Jenny of our Administration Office, and an even larger mountain of engines and spares was checked over and put into the Packhorse crates. Mechanics and engineers left on a British Airways flight the Tuesday before the race going direct to Detroit, Peter Warr not being able to leave until the Wednesday thereby missing the Charity Ball on June 1st, organised jointly by F.O.C.A. and the race organisers. Newly joined Gerard Ducarouge was hard at work in the factory and decided to miss out this one and go instead to Montreal, but as it turned out he elected to miss the Canadian race as well to ensure his work programme was completed on time.

The Team was most agreeably surprised by the change of atmosphere that had come about in Detroit since their last visit in 1982. Gone was the bustle and panic and out-of-line schedules that had found the track unfinished the previous

year – now all was calm efficient friendliness. Pre-race publicity provided extensive coverage in all media forms, and you could not switch on radio or television or pick up a newspaper without news of the build-up to the race glaring or blaring out at you. Just 60 miles down the road was Roger Penske's Michigan Speedway and the rivalry between the two camps had obviously paid dividends for the Formula One circus.

The underground garage used in 1982 was replaced by a Long Beach style arena for the teams to work in and this was a gesture much appreciated although the new site was further away and could not be reached when running was in progress. Everyone enjoys the convenience of Detroit, which like Las Vegas, has the crew hotels inside the track and just walking distance from hotel room to "pits". Look out of your hotel room here and you have the sensation Gulliver has got his Scaletrix out as you watch the cars in plan view many storeys below.

Our French colleagues completely disregarded the fact they were in the home of Ford and the name Renault was literally everywhere. There were races for "5's", Renault circuit cars, the race tickets were printed by Renault – even the hairpin, horror of turbo cars, had been obliterated! All the more ironical therefore that a Ford won the race!

The first day opened with the now almost customary weather, the rain just hissing down on the poor crews situated in the "pits" marked only by painted lines on a standard road surface. The huge concrete blocks seen at

Long Beach/Las Vegas marked track edges and corners and also marked out the pit road boundary, the wide flat tops being ideal for laying out pit boards, lap charts and other equipment, although an ever observant Peter Warr could see the possible dangers at a glance. Regardless of his subsequent warning, some of our crew relaxed by sitting on the wall with their backs to the action – well, they did up until Laffite lost it alongside them and thumped the concrete punching our block back two inches! The instant movement of personnel was amusing to see and from then on no one got quite as close to the action.

But regardless of the wet track, the continuous rain and the huge puddles of water there were remarkably few shunts. In the first untimed session, Elio most agreeably took pole position with a 2.01.269 which was eight tenths of a second quicker than second man! Nigel was still feeling his way around and was back down the field. Both drivers were very happy with their cars – balance was good and mechanically the sun was shining. In the afternoon session, Nigel moved up to third spot but with a slower time than in the morning due to increasingly poor weather.

Saturday saw our cars continuing in good shape. The weather was dry and both Elio and Nigel were quick, Elio registering fourth spot (1.46.241) behind Piquet, Alboreto and Prost. Nigel recorded 1.46.665 for seventh spot and was second of the unblown brigade behind Alboreto who also had a new "Y" Cosworth engine installed.



'Duck' Martin stands nonchalantly by so the frantic activity must be under some control. Nigel doesn't look convinced though.

In the official session that followed, Elio retained fourth spot behind Arnoux (pole for the race), Piquet and Tambay with a 1.46.258 but the little Ferrari driver was a whole 1.5 seconds quicker! The official Renault entries were in 7th (Cheever) and 13th (Prost) with 1.47.334 and 1.47.855 respectively so we were well pleased with our day's work. Nigel was just behind Prost and had been baulked on his qualifying run.

### Race Grid

1.	Arnoux	1.44.734
2.	Piquet	1.44.933
3.	Tambay	1.45.991
4.	Elio	1.46.258
5.	Surer	1.46.745
14.	NIGEL	1.48.395

### The Race

Warm-up held a rude shock for us. There had been other races since our last appearance on the track and there was obviously more oil and rubber on the track; whatever it was we were not looking good. Then Pirelli supplied some new tyres to try and Peter Warr took the decision to run these in the race – there is always a 50/50 chance such a decision can be seen as foolhardy on hindsight but he felt he really had no alternative. On the warm-up laps immediately prior to the race, Elio wasn't too sure about Peter's decision – he felt they would prove to be efficient only some little time into the race but Nigel was delighted with his as he found he now had a lot more grip. Elio decided to have a big go and so started with a low fuel load so as to make the most of a quick start.

As they lined up, Peter Warr noticed a race steward (the same official who acts as Clerk of the Course in Canada), Roger Peart, taking a keen interest in our black and gold car. In Detroit he was acting as start-line judge and as Elio was obviously keen to make a real flyer of a start Peter duly warned him he must ensure a clean getaway. At yellow light time de Cesaris was seen waving his arms about and so the first start was aborted. Peter noticed Peart hadn't taken his eyes off us in the meanwhile and



'Duck' Martin stands nonchalantly by so the frantic activity must be under some control. Nigel doesn't look convinced though.

again warned Elio about his getaway. As it turned out, Peter could have saved his breath – Elio made a scorching getaway regrettably before he should have done and the "penalised one minute" note was delivered to our pit just as Elio ground to a halt with a toothless crown wheel and pinion. The only good news was that he was in third place at the time!

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were pushed into the required position. Colin did have a ten-and-sixpenny (52p) Vernier gauge which enabled him to get down to "two thou". There was no lathe or any other machinery, so when any welding or brazing had to be done, he co-opted a local welder. He would assemble the pieces to be fitted together and dash down to the other chap's workshop, where he would hold them for the expert.

It was not long before the neighbours began to voice the opinion of the banging that went on far into the night. Mrs. Williams however managed to placate them with promises of an early finish to the project. One next door neighbour however did not complain, in fact he helped on the construction of the car on occasions. This was Rodney Nuckey, who later accompanied Colin as passenger on several of his "Trials" outings. Rodney became a firm friend and, he himself, later took part in motor racing, driving a Cooper 500 and then both Cooper/Bristol racing and sports cars.

Progress on the construction of the car was slow as Colin was learning as he went – applying theories which he had read of and filling in the gaps by trial and error. The Austin 7 engine, gearbox, axles and braking system were retained. The Austin 7 had the undesirable vice of over-steering which might have been acceptable at moderate speeds but was hardly to be tolerated in a more sporting guise. The reason for the oversteer was obvious. The back springs sloped downwards when in a static position but as soon as the car was cornered the outside spring flattened and moved that end of the rear-axle backwards. At the same time the other end of the axle moved in the opposite direction. Together, this slewing of the axle helped steer the car into a corner. Colin was building a Trials car so he could not sacrifice ground clearance by fitting the "sports model" straight springs – instead he turned the axle upside down so bringing the suspension links to the top and flattened the springs at the same time. The cure worked perfectly and the oversteer was eradicated, without any loss of ground clearance.

A great deal of thought and design went into the building of the body of the car. Plans were drawn up at the University – no

doubt during Colin's "mechanical drawing" lectures! Being interested in all forms of motion Colin was in the University Air Squadron and naturally he read about aircraft construction principles. These principles he applied to his first car. It is interesting to note that this application of aircraft practice has continued throughout the life of Lotus, so "lifting" the marque a little above the more conventional earth-bound vehicles.

A stressed framework with three bulkheads was built up of alloy-bonded-plywood. The construction was based on the basic principle of simplicity giving rigidity. The body, being hand-made, was rather angular but meticulously executed. No sharp edges – where a panel finished, half an inch of wood would be scooped out, and the two skins of alloy folded together, so giving a smooth rounded finish. It now appears that in ten years a complete cycle has been turned, for today we see the latest Lotus again using advanced aerodynamic construction principles and obtaining its strength from another bonded section – this time glass reinforced plastic.

Trials cars at this time often suffered damage to their wings. Colin had no desire to indulge in this expensive pastime so fixed the wings of this car with wood-screws and Rawlplugs. On making solid contact the wings could leave the body instead of crumpling and then by renewing the Rawlplugs and a little attention from the screwdriver the vehicle was as good as new. The back of the body was extended so that two passengers could be carried, or alternatively ballast for Trials Hill-climbing. Provision was made for two spare wheels. For a finishing touch a radiator cowling, rather resembling that of the Rolls-Royce, was hand fashioned out of copper sheet.

The brakes received special attention. The Austin linkage was modified and special actuating cams were fitted. The engine required the expenditure of much labour and after a thorough overhaul the compression ratio was increased and double valve springs were fitted. Colin decided that the Austin carburetter was not satisfactory – in fact, as he put it in the jargon that develops during the long hours of tinkering, it functioned on the principle of "suck and hope". A special inlet manifold was made

holding 14th place, his progress being a matter of ups and downs on the lap chart until from 16th place on Lap 12 when he felt the car come "on song" he started to move up through the field, being 12th on Lap 22, 10th on Lap 31 followed by an upward progression from then to Lap 39 when he took and held sixth place to the end. In the closing stages he was catching Laffite for a possible fifth place by 2 seconds a lap but Jacques got a warning signal of the danger behind him and held Nigel off.

A just reward for Nigel's effort – his first point of the season. It might not seem much to an outsider but they're not standing where we are!



Is this a sales haggle or mere admiration of an exciting motor car? Picture shows a Lotus Seven in a street adjoining Colin's original works in Hornsey, London.

and a Ford down-draught carburetter fitted.

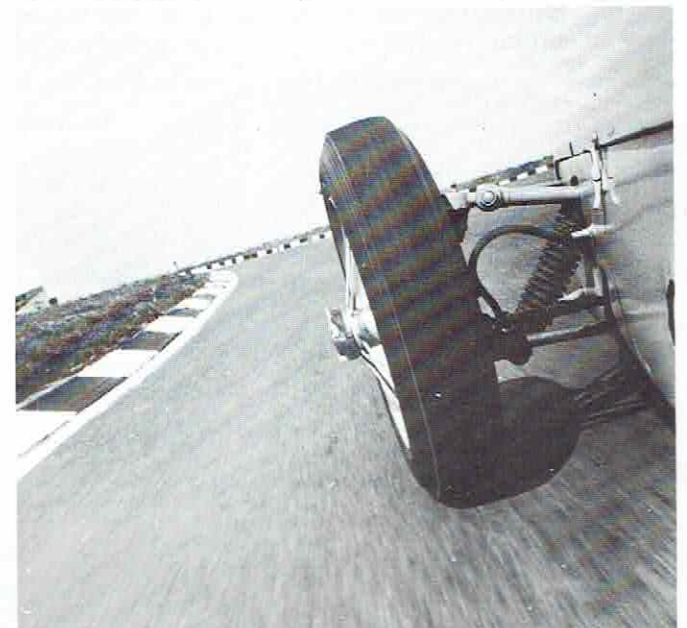
The first trial run of the car was entirely unplanned and most hair-raising. One Saturday, Colin was at work in the lock-up with an estimate in his mind of a fortnight's work before completion date, suddenly a friend, Derek Wooton, arrived, took one look at the car declared "we'll have it going today". He proved to be right, for working as a team, Derek sat on the bonnet and worked the throttle control by hand, there being no pedal, whilst Colin steered. Unfortunately the "accelerator" chose to sit facing the driver with the result that his burst of speed did not suit Colin who, at best, was only getting a very restricted view of the road. Although rather hazardous this preliminary dash down the hill from the lock-ups proved promising and so PK 3493 was registered in its new guise and became OX 9292. As Colin did not want to own another "Austin Special" his new creation was declared as a Lotus – and so Mark 1 was born.

Two Trials were entered in the spring of 1948 with the gratifying reward of two class awards. Hazel was now just old enough

to drive the car legally but had to be content with the role of passenger and "bumper" on the tricky sections.

1948 was a busy one at College for Colin and as exams were looming up there was not much time for competition work on the Lotus. The few appearances, however, brought out certain weaknesses in the basic design, as a result of which two important alterations were made to the car. Firstly, the rear wheels were changed to Ford disc units so that larger section tyres could be fitted. Also in search of extra traction, the front axle beam was split and pivoted in the centre, so providing independent wheel suspension. The curtailment of his hobby paid off, and towards the end of the year the name Colin Chapman could be followed officially by "B.Sc. (Eng.)".

The celebration which followed the announcement of this degree very nearly ended in a visit to jail for the driver of a certain Lotus which flashed past a police car at over 50 mph. On being overhauled by the law, the very happy lawbreaker was informed of his speed to which he replied, "Was I really – I didn't know it would go that fast".



Colin organised continuous development programmes on his cars right from the start. Here is one of a series of Louis Klemantaski shots taken from the passenger seat at Brands Hatch (running the opposite way round you will notice) recording front wheel movement and angles coming up the hill to Paddock Bend.

We had had another serious drama at the start. In the rush to clear equipment off the starting grid a compressed air bottle had rolled off the top of the protective concrete blocks crushing new lad Colin Watts' fingers. It obviously caused Colin great pain (he is still receiving treatment two weeks later) and the injury called for hospital attention but instead the circuit doctor was called and temporary medication given. Colin is one of our refuellers and it was immediately obvious he would be unable to take part in planned race procedures.

Nigel made a good start