

PREPARATION FOR COMPETITION

Due to the difficulty - and illegality - of using the Caterham Seven's full power on the public roads, many owners choose to use their cars in competitions, such as autotests, sprints, hillclimbs and circuit racing.

Caterham Cars, in conjunction with the British Racing and Sports Car Club (BRSCC), run a circuit racing championship specifically for Caterham and Lotus Sevens, which are essentially road going cars.

This is run in three separate classes so that there is no reason why a standard car, straight from the showroom, cannot be raced as long as some basic safety orientated modifications are made.

This section of the manual seeks to explain how to prepare a car for competition and details the organisation and administration required before you can take part.

Section 16.1. How to enter - driver requirements.

16.2. Preparation for the Caterham Cars/BRSCC racing championship.

16.3. Preparation for hillclimbs and sprints.

16.4. Performance Options

PREPARATION FOR COMPETITION

16.1. Driver Requirements for Competition

1.1 In order to take part in any form of motorsport, it will be necessary to obtain a competition licence from the RAC, who co-ordinate all motorsport in this country.

For Autotests, Sprints and Hillclimbs you will need a 'Speed licence' and unless you intend to contest a national championship, a 'Restricted licence' will suffice. No special qualification or experience is needed for a 'National licence', however.

For circuit racing, a Restricted Race licence will be needed and in order to be issued with one of these, you will need to visit your doctor with the licence application form for a medical check up. He will probably charge you a nominal sum for this. No specific level of fitness is needed but unless you have a history of heart disease, mental instability, a wooden leg, or VERY bad eyesight, you are unlikely to be disqualified.

Licence application forms are obtainable from RAC MOTOR SPORTS ASSOCIATION LIMITED, 31 BELGRAVE SQUARE, LONDON SW1X 8QH. TEL: 01.235 8601.

1.2 Before taking part in motorsport, it will also be necessary to join an RAC affiliated Car Club. Because of the 'Restricted' licence, only members of invited clubs may participate in meetings. Unusually, no more than six clubs are

PREPARATION FOR COMPETITION

invited, so it is important to joint the correct club.

For hillclimbs and sprints, we recommend that you join the BRITISH AUTOMOBILE RACING CLUB (BARC) who are invited to most hillclimbs and sprints in the UK and who also run their own championship. Their address is BARC, THRUXTON CIRCUIT, ANDOVER, HANTS SP11 8PN TEL: 0264 772696.

If you wish to participate in the Caterham Seven championship, it will be necessary to become a racing member of the BRITISH RACING AND SPORTS CAR CLUB (BRSCC). Their address is BRSCC, BRANDS HATCH CIRCUIT, FAWKHAM, DARTFORD, KENT DA3 8NH TEL: 0474 874445.

There is another racing option for Seven owners, which is the Roadgoing Sportscar Championship run by the 750 MOTOR CLUB. This caters for all makes of road registered sports cars, from Porsches to Triumph Spitfires, run in appropriate classes. If you wish to join the 750 MOTOR CLUB LIMITED their address is 16 WOODSTOCK ROAD, WITNEY, OXON OX8 6DT TEL: 0993/2285.

1.3 Once you have joined a suitable club and obtained a competition licence, the next step is to obtain entry forms for your chosen events. These can be obtained from the organising clubs and should be submitted in good time before the closing date. You should note that hillclimbs in particular tend to be oversubscribed, so get entries posted early in order to avoid disappointment.

PREPARATION FOR COMPETITION

The organisers will send you an acknowledgement of entry, normally by return, which will tell you whether your entry is accepted, rejected or placed on a reserve list. If you are told that you are a reserve, telephone to find out why, and what chance you have of actually racing.

1.4 When you receive your competition licence you will also receive a copy of the annual RAC Blue Book which contains all the regulations pertinent to motor sport in this country. In it you will find the specification for approved crash helmets which are mandatory for hillclimbs, sprints and circuit racing. Seven drivers will also need either goggles or a helmet visor. Although open face helmets will be allowed in 1987, only full face helmets will be permitted from 1988.

You should wear fireproof overalls, long johns (both tops and bottoms) and gloves, although balaclavas and boots are a matter of preference. However, it is advised to use all protective clothing available. You will not be allowed to race without the proper clothing and overalls should be considered as the minimum.

1.5 At each competition meeting there is a routine which must first be observed by all competitors. Firstly, you will have to 'sign on'. You will need to present your competition licence, club membership card and (for road going classes) current MOT and insurance certificates. You should also hand in a completed commentators' information sheet. Assuming that all your

PREPARATION FOR COMPETITION

documentation is in order, you will next be issued with a scrutineering ticket which should be taken, with your car and crash helmet, to the scrutineering bay. Your car and helmet will be checked to ensure that you have observed all regulations. New helmets will need an RAC sticker to be applied. These are available from the scrutineers at the meeting if not supplied with the helmet already.

As general advice, always arrive in plenty of time. Although the final instructions issued a week or so before the event will give signing on, scrutineering and practice times, be prepared for queues or problems with your car. If the scrutineer fails to pass your car, you will need time to remedy the situation before practice.

Under no circumstances will you be allowed to practice without a scrutineering pass and you will not be allowed to race if you miss practice. Occasionally it is possible to practice in a later session with a different class, which means that you will be able to take part in the event, BUT YOU WILL NOT BE TIMED which means that you will have to start at the BACK of the grid with a ten second penalty to boot!

16.2. Preparation for Circuit Racing

Before a car can be raced, it will be necessary for it to be scrutineered. Two factors are taken into consideration during scrutineering; safety and eligibility.

This manual does not seek to cover eligibility, except to say

PREPARATION FOR COMPETITION

that a Caterham Seven purchased in component form, or built up from a kit using a current specification engine will be eligible for one of the classes in the Caterham Cars BRSCC Road Going Championship. Detailed regulations are available from Caterham Cars or the BRSCC.

2.1 Rollover Bars

The standard Caterham bar is not suitable for racing and needs to be replaced by the competition bar. This is mounted to the rear suspension towers and is braced to the upper tube at the rear of the boot and on De Dion cars by a removable diagonal which locates within the passenger compartment. If you do not specify this bar when ordering your kit, do not worry since the threaded mounting for this brace is provided on all chassis and can be found one inch below the joint where the dashboard mounting tube is welded to the upper chassis rail on the nearside of the cockpit behind the trim panel.

The De Dion bar is specifically designed to fit underneath the hood, but drivers over six feet tall should note that the top of a helmeted head must be at least two inches below the top of the bar. If this not possible a rollover bar specialist such as John Aley should be consulted.

The bars available for short and long cockpit cars are considerably taller but will not fit under the hood.

PREPARATION FOR COMPETITION

2.2 Seat Belts

The standard lap and diagonal belts are not suitable for racing and should be replaced by a four or six point competition harness. This uses the standard lower seat belt mountings, but the shoulder straps mount to the top rear crossmember where suitable threaded holes are provided.

By some quirk in the law, these belts are not technically legal on the road and although the police are extremely unlikely to pick you up on it, some MOT testing stations may be particular.

Full harness belts designed for the Seven and manufactured by LUKE are available from Caterham Cars.

2.3 Fireproof Rear Bulkheads

RAC regulations state that there should be a firewall between the cockpit and petrol tank. In long cockpit and De Dion cars, the rear of the driving compartment is fully panelled anyway, but short cockpit cars will need plating up with aluminium sheet or similar material.

The other area that will need attention is the boot floor. The carpet should be removed and the wooden floor covered with aluminium sheet. A box will also need to be fitted around the petrol filler.

Caterham provide an aluminium boot floor and fuel filler cover for this which are held in place with self tapping screws.

PREPARATION FOR COMPETITION

Ideally the edges where these parts meet the existing aluminium boot floor and sides should be sealed using glass fibre, but in practice, scrutineers appear happy if the gaps are carefully sealed with tank tape.

2.4 Emergency Cut Off Switch

Should your car be involved in an accident or become stationary on the circuit, the Marshalls will wish to isolate the battery and ignition circuits. An isolator switch must be fitted which enables this to be done from outside the car and we suggest that this is mounted within the triangulation of the windscreen stay on the offside. These switches, along with full wiring kits, are available from Caterham Cars. They also have the advantage of acting as very effective theft deterrents since they have a removable key. You will need to affix a warning sticker with an "OFF" arrow in the immediate vicinity of the switch.

2.5 Fire Extinguisher

It is also a requirement for all cars to carry a 2.5 kilo BCF or equivalent fire extinguisher which should be securely mounted within reach of the driver. We suggest that the best location for this is bolted to the cockpit floor on the passenger side. Fully plumbed in systems are expensive and not mandatory. A hand held extinguisher will suffice.

2.6 Throttle Return Spring

Cars must be fitted with an alternate means of closing the throttle in case the normal return spring on the carburettor

PREPARATION FOR COMPETITION

fails. Weber DCOE carburettors contain a small spring within them but since these are very weak and frequently break anyway, scrutineers are not happy to approve them. It is therefore necessary to fit an additional throttle spring acting directly on the butterfly spindle in some way.

On cars fitted with twin Weber DCOEs or equivalent Dellortos we suggest that, since the spring in the Caterham installation works on the rear carburettor, you fit an extra spring on the forward one.

Please contact Caterham Cars if you have any problems achieving this.

2.7 Oil Catch Tanks

When racing, an engine's tendency to lose oil through its breathing system is amplified. It is therefore a regulation that the breather output should be routed into a translucent catch tank of at least two litre capacity. Caterham can supply an additional screen washer bottle and bracket for this purpose.

2.8 Headrest

It is a requirement that a head restraint should be attached firmly to prevent the driver's head moving back in an accident. Suitable restraints are available from Caterham and clamp to the diagonal of the roll cage.

PREPARATION FOR COMPETITION

2.9 Ignition Switch

The ignition switch should be clearly marked with an arrow indicating the "OFF" direction. A suitable sticker affixed to the dashboard above the switch will suffice.

2.10 Lamps

To prevent glass getting on the track in the event of an accident, all glass lamp lenses should be taped over. The only glass lenses on a Caterham are the headlights and reversing lights, so it will not be mandatory to tape over rear lights, indicators etc. although many people do so.

2.11 750 Motor Club Road Going Sports Car Championship

Generally a car prepared for the Caterham Cars BRSCC series will also be eligible for this championship. However, the 750 Motor Club permit a car to be run in a more modified form and we suggest you study both sets of regulations carefully.

2.12 RAC Blue Book

All these requirements are contained in the Blue Book which is updated annually. Sections Q, QS, QA, QG 9 (Production Sports Car Formula) and relevant sections of QM should be referred to. This book also gives details of event programmes, circuit addresses etc and is sent automatically to a registered licence holder.

PREPARATION FOR COMPETITION

16.3. Preparation for Hillclimbs and Sprints

3.1 A car prepared for racing will be fully eligible for hillclimbs and sprints provided that the vertical strut specified in 16.3.3 is fitted.

3.2 The following items in section 16.2. are NOT mandatory for cars competing in hillclimbs and sprints:

2.4 Emergency cut off switch

2.5 Fire extinguisher

2.8 Head restraint

3.3 A vertical timing strut must be fitted to the nosecone of the vehicle which must be opaque and non-reflecting. Viewed from the side it must measure 10 inches high and two inches wide and be fitted in a position so that its base is eight inches from the ground and its top 18 inches from the ground.

An ideal material for this is sheet aluminium, painted matt black and this can easily be attached to one of the front numberplate mountings.

PREPARATION FOR COMPETITION

16.4. Performance Options

Caterham Sevens can be specified with optional features that improve their track performance without compromising their day to day use on the road. This manual does not cover engine tuning since this is very much a matter of budget, taste and class eligibility. Due to the three types of engine used by Caterham Cars (Ford 2265E Pushrod, Lotus Twin-cam, Cosworth 16 valve BDR), such information would require a manual on its own.

4.1 Lowered and Up-rated Springs

These are available for both live axle and De Dion cars and sharpen up the handling in exchange for a stiffer ride. Definitely recommended for competition purposes and can be specified instead of standard items when ordering kits.

4.2 Adjustable Abutment Shock Absorbers

These dampers are a direct swap for the standard items and have identical characteristics except that they have adjustable spring platforms which allow the ride height to be altered. Where competition springs and lower than standard profile tyres are fitted, these allow normal ride height to be regained for road use whilst deriving handling benefits from low ride height on the track. These are available under Caterham part numbers or can be incorporated within the kits at extra cost.

4.3 Rear Anti-Roll Bar

For circuit use, standard De Dion cars will suffer excessively from understeer. This feature is generally an aid to stability

PREPARATION FOR COMPETITION

and makes safer driving on the road, but will probably prove too much on the track. Caterham Cars have therefore developed an adjustable anti-roll bar which can be added to the rear suspension kit which enables the cars handling balance to be changed to suit the driver's individual preference. Anti-roll bars are not available or considered necessary for live axle cars.

4.4 Negative Camber Front Wishbones

These are a straight replacement for the standard items and provide 1° of negative camber at normal ride height. Again these can be ordered at the same time as the front suspension kit and provide better turn in characteristics at high speeds.

4.5 Axle Baffling

Under racing conditions Ital/Marina rear axles can suffer oil surge due to being subjected to G forces not anticipated by their designers. To overcome this problem we fit special baffling inside the axle and ideally this should be done whilst the axle is being modified initially. If you intend to use your car for competition purposes we strongly suggest that you have this done in order to avoid premature wear and possible failure.