

गठकथा

Part 9 of 9





Welcome to Get To Know Your 7. This is a download copy of a series of articles looking at the essentials of routine maintenance for your Seven. These first appeared in the Lotus 7 Club magazine 'Lowflying' between August 2010 and May 2011.

Each article will be a separate download and below is a table of contents as to which articles are in this series. The article you are currently looking at will appear in bold in the table of contents.

Contents

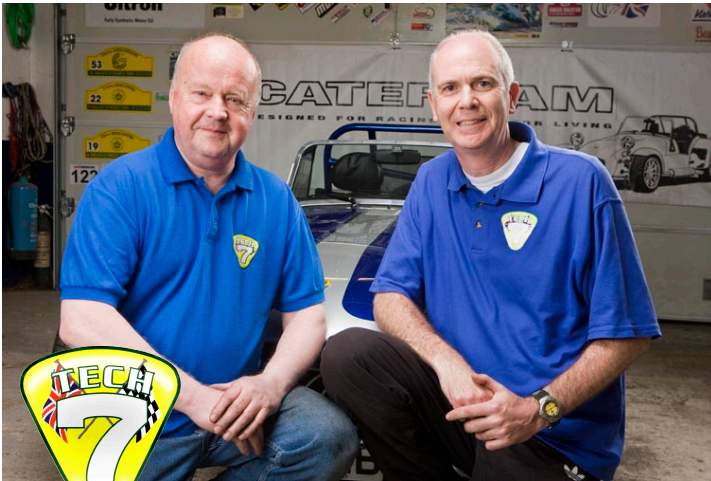
- 1 Introduction; Working safely with the car raised off the ground**
- 2 Oil and filter changes; plus a few words about wet and dry sump systems**
- 3 Transmission lubricants**
- 4 Front wheel bearings**
- 5 Brake pads and discs, tyres and wheel nuts**
- 6 Spark plugs and distributor; steering and driveshaft gaiters; steering column clamp; exhaust condition**
- 7 Suspension; prop shaft; air filter; fluid levels; fuel system; carburettors**
- 8 Auxiliary drive belt; bulbs and switches; battery condition; seat belts; general security of fasteners and mountings**
- 9 Windscreen wipers, and washers; headlamp alignment**

The Lotus 7 Club would like to thank the following people who all helped to produce this series of articles for the clubs membership.

- Andy Belcher (Tech 7) for his technical advice and loan of his workshop**
- Authors Rob Davis and Michael Calvert**
- Martin Bushaway for co-ordinating the whole project**
- Tony Pashley for his subediting for the Lowflying articles.**
- Jamie Jones for the Photography and PDF production**
- Barry Sweeney for arrange website hosting and access facilities**
- ©Copyright belongs the Lotus 7 Club and the original Authors and Photographers. All Rights reserved and not for reproduction without permission of the copyright owners.**

In This issue we begin a major series looking at the essentials of maintaining your Seven. Even if you don't want to become a home mechanic, we hope this will encourage you to learn a little more about your car.

The notes for this series are prepared by **Andy Belcher, Rob Davis** and **Michael Calvert**, and the photographs are by **Jamie Jones**. *So, let us begin...*



Road & Track
Engineering Solutions

Andy Belcher (left) and Rob Davis

Introduction

Owning a Seven can bring you a wide range of experiences; one of these is the opportunity to carry out the servicing of the car yourself. Although many prefer to entrust the maintenance of their 'pride and joy' to one of the many specialist garages available, carrying out your own servicing can save you money, provide immense satisfaction and bring you a step closer to understanding the running of your car.

Over the coming months, this series of articles will build upon the theme of the Get to Know Your Seven (GTKY7) experience days which have been regularly organised through the Club, and extend into providing an overview of the basic tasks and procedures required to maintain your Seven.

*The GTKY7 series of articles are the ©
Copyright of the Lotus 7 Club*

During this series, we'll be looking at the following:

Raising and lowering the car

- including front and rear axle stand positions and trolley jack lifting points

Engine and transmission oil

- oil change for dry sump and wet sumps,
- oil filter removal and re-fitting,
- checking and topping-up gearbox oil,
- changing gearbox oil (specific models),
- checking and topping-up differential oil,

Front wheel bearings

- checking bearings for excessive play

Wheel and tyres

- checking tyre condition and tread depth,
- wheel nut re-tightening torques

Brakes

- checking condition of discs,
- checking brake pad thickness,
- changing brake pads,
- handbrake operation

Suspension

- general suspension security checks,
- lubricating trunnions (where appropriate),
- A-frame bush

Prop-shaft

- greasing universal joints on prop shaft (Series 3 and SV)

Fuel system

- checking fuel lines for security and leaks
- changing fuel filter
- carburettor balance and idle settings

Fluids

- checking coolant, brake and clutch fluid

Air filter

- checking and changing air filters

General inspection items

- exhaust condition, lights and bulbs, CV gaiters, hose condition and security, drive belts, headlight alignment, battery condition, engine mounts, wiper condition, seatbelts

Steering

- steering wheel alignment and play in steering rack

Vehicle underside condition



Safety is a very important issue when working on the car, so you must take the appropriate precautions; specific examples of this will be emphasised as part of this series. It goes without saying that no work on any safety related area should be undertaken unless the person undertaking that work is fully confident in being able to complete the tasks to the required standard. Certain more complex jobs, outside of routine servicing, should only be tackled by a competent professional, or at least with experienced help. If in doubt, a request for help on BlatChat or at your local Club meeting is more likely than not to result in the offer of assistance.

The CSR benefitted from many technical developments over Caterham's more traditional variants, including inboard front suspension, independent rear suspension (and a Cosworth-developed engine); the csr presents certain particular servicing considerations over the more familiar Series 3 cars. But as far as possible this series is targeted at the broad spectrum of Caterham owners across Series 3, SV and CSR variants.

Undertaking a yearly service will require you to have a basic knowledge of the workings of the car—however it does not require you to be a mechanic or expert. This series of articles will take you through the service procedure, identifying any specific tools and parts required. Relevant pictures will add to the understanding of the steps, along with particular safety instructions. For owners who have not undertaken such tasks before, or maybe are not confident at this stage, we hope to provide encouragement in understanding the workings of the Seven and a better understanding of what a garage would do on your behalf as part of the service regime.

We begin with a resumé of the main chassis types of the various Caterham cars—as those differences in configuration can dictate some differences of procedure.

The essential differences...

The Caterham Seven has many different chassis and engine variants, so it is not possible to comprehensively cover every type here in great detail. Therefore, we will discuss general procedures and checks which should be applicable to most cars, highlighting where they are relevant only to certain cars. The most important thing to understand initially, therefore, is which car chassis and engine type you have...

The Series 3 chassis has traditionally been the main version supplied by Caterham, but many designations have been used for different models within the Series 3 range, based on combinations of engine, major components and interior—these include the model names such as Supersprint, hpc, Classic, Supersport and Superlight.

The basic dimensions of Series 3 chassis can trace their origins to the Lotus Seven Series 3, although improvements such as the option of a 'Long cockpit' chassis from 1982, to improve comfort for the taller driver, and the introduction of the 'de Dion' rear suspension from 1985 in place of the 'live axle' were just some of the changes implemented by Caterham over the years.

Engines offered with the Series 3 chassis have been many and varied, but most popular over time have been Ford Crossflow (or 'Xflow'), Vauxhall 16v and 8v, Rover K-series, and most recently Ford Sigma.

The SV ('Series 5') chassis, whilst sharing similar external proportions to the Series 3, has increased length and width to provide added cockpit and storage space. These cars also use the de Dion rear suspension and are powered by Rover K-series and Ford Sigma or Duratec engines.

The CSR represents the latest chassis development (apart from subsequent detail changes to the s3) introduced in 2005 and is of different construction to the Series 3 or SV, with fully independent rear suspension and inboard, push-rod type, front suspension. The engine fitted to this car in the uk is the 2.3 litre Ford Cosworth Duratec; internationally, the 2.0 litre is now also available in eu4 variant.

In this final issue we will be looking at Windscreen wipers, and washers; headlamp alignment

Part 9: Postscript...



A reprise! Following last last issue's 'conclusion' and summary to this series on maintenance routines, we have a postscript –detailing a couple of procedures rightly belonging with those miscellaneous checks.

They are items which come under scrutiny during MoT checks but, for safety, are worthy of attention regardless of the legal requirement.

Windscreen wipers and washers

Examine the condition of the windscreen wiper rubber blades by running you finger along the length looking and feeling for cuts or general wear. Don't forget to top-up the windscreen washer level if necessary.

Headlight alignment

The headlight alignment can be checked relatively easily. To do this, the car must be on a level surface and parked 25 feet from a wall (tall enough for the headlamps to shine onto).

Using a tape measure, project a line down the centre of the car and mark the positions on the roll bar and windscreen with masking tape (The nose badge might help you check that this is indeed along the centreline. Ed.).

Standing behind the car, sight along the centre of these marks and onto a corresponding position on the wall. Mark this position on the wall with tape.

Now measure the distance between the car headlights, halve it and place a vertical strip of tape on the left and right of the centreline mark on the

Safety Points:

A few precautions need to be observed for your vehicle and your own personal safety –when attempting to work under the vehicle:

- Never, under any circumstance work underneath a vehicle when the lifting jack is the only method of support.
- Make sure the jack and axle stand positions are on firm and level ground.
- Position the axle stands appropriately, to secure a stable vehicle.
- When the car is raised, it may be advisable to place a spare wheel under the car for added security should an axle stand become dislodged or fail.
- When using a trolley jack, the car should have the handbrake off, and be out of gear. As the car is lifted or lowered, either car or the jack's wheels need to be free to move as the end being lifting follows its arc.

Equipment required:

- Four axle stands, safe lift-capacity 2 tonne per pair.
- One hydraulic trolley jack (two jacks are advised for the CSR)

wall. Finally, measure the distance from the ground to the centre of the headlight; mark that distance on the wall with a horizontal strip of tape.

You should now have two crosses of tape on the wall; these represent the maximum height and alignment of the headlights (the centres of the lamps' beams if they were shining horizontally and exactly straight ahead, and so are good reference points.

Switch on the headlights and check their alignment relative to these two centre positions. If adjustment then is required, this is achieved by relaxing the large nut on the underside of the headlight, realigning and retightening when complete.

Unless you have flared wings or the more recent lamplamp stays which also afix to the top suspension bolt, the rotational position of the stay will effect vertical alignment of the lamp, so the position and tightness of that might be checked first.



We hope you find working on your car rewarding and that it enhances the 'Seven experience'. Andy Belcher and Rob Davis; photography by Jamie Jones.



Road & Track
Engineering Solutions

