

Our club historian, John Watson presents an outline guide to restoring the last Lotus Seven, the Series 4. Well known Seven specialist Tony Weale writes...

THE STORY OF THE SEVEN

Chapter 25: Series 4 restoration

THE SERIES 4 SEVEN used similar, proven mechanical units to the S3, but the body, chassis and suspension are very different, many parts being unique to the S4.

A professional restoration would probably exceed the value of the car – on the other hand, there is no specialist aluminium work to be paid for, and jobs such as chassis replacement and fibreglass restoration are within the scope of the DIY restorer. The result should be a very satisfactory and enjoyable car – a piece of Lotus history, and much more worthwhile than one of the many Seven-styled kit cars.

It is best to aim for near-original condition, though some compromises may have to be made to overcome parts shortages and to improve practicality. The S4's construction is unusual and slightly eccentric, so study the design carefully, taking plenty of photographs, before taking it to pieces!

Chassis

This is part tubular spaceframe, part folded sheet metal. It is rugged but susceptible to rust in many areas. Only minor repairs are possible without removing the body from the chassis. The sheet metal areas are difficult to repair properly; a new chassis, still available from Arch Motors, is the best option and everything will 'bolt straight on'.

A chassis front-end is also available for crash repair purposes, but this is not really a DIY job.

S4 chassis frames, including the side panels, have always been painted satin black. They usually carry a frame number, but as with other Sevens, this only provides a clue to the history, and is not an entitlement to a particular chassis number.

Bodywork

This is built up from self-coloured glass-fibre inner and outer mouldings, bonded together and bolted to the chassis. Bonnet and front wings are of course separate items which are easily removed, rusty bolts permitting. In theory the body can be taken off the rolling chassis without totally stripping the car, but in practice the job usually escalates into a full rebuild.

The body can easily be lifted by two people, but takes up quite a lot of floor (or garden) space once removed. New body mouldings are still available, but will probably require painting to obtain a good finish. Many S4's were painted when new for this reason. It seems logical that the colours listed – orange, red, blue, white, golden yellow, lime green – would have been contemporary Lotus stock.

Front suspension and steering

The Triumph uprights, trunnions and disc brakes, plus Ford PCD hubs are identical to those used on the preceding S3 Seven, but the wishbones and dampers are derived from the Lotus Europa. The top wishbones pivot on long bolts through the chassis and these can be difficult to remove.

The steering rack was as fitted to some (but not all) Mark 1 Ford Escorts, and the steering column is of Triumph Herald pattern, including the switch gear. There should be no problem with parts availability. The steering geometry is good, and the car should not suffer from bump-steer.

Rear axle and suspension

The axle is essentially 'English' Ford Escort, as fitted to the earlier Series 3 cars, but with

A fairly extreme restoration prospect here, but, as with other models of Seven, by no means impractical

different brackets to accommodate the four-link suspension. With this form of location the axle does not require a bracing plate and is generally trouble free. It is relatively easy to remove from the car since there are no chassis members below it.

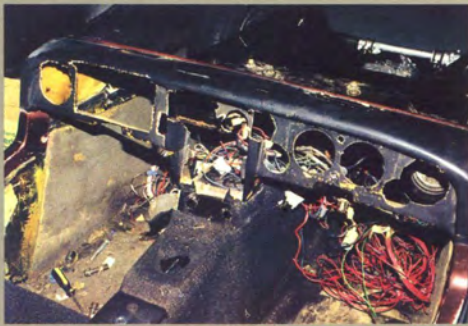
As with the front suspension, springs, dampers and bushes are readily available. The rear brakes are 9" drums and the automatic adjusters may give trouble.

Wheels and tyres

These are either silver-painted Lotus Cortina/Formula Ford 5½J x 13" as on the Series 3 or 'Brand Lotus' alloys. The maximum tyre size which can be accommodated under the rear wings is 165 x 13; nothing larger should be necessary.

Engines and gearboxes

The Series 4 options of 1300 or 1600cc Ford Xflow, or Lotus twin-cam continued for the Series 4, but with differences in mountings and exhaust systems. The gearbox is also the familiar part of Mk1 and Mk2 Cortina origin. All of these items are reliable if well maintained with parts that are still available. It may be mentioned that Steel Brothers in New Zealand built at least one Series 4 with a 2-litre Lotus 907 engine and 5-speed gearbox. This is a complicated conversion, not to be undertaken lightly! >



Below: refurbishment of the glassfibre bodywork is underway here, but replacement mouldings are available



The panelled steel chassis is still available as a replacement item





Sympathetically restored, and with minimal compromise on originality, the Series 4 makes a satisfying and worthwhile sports car with an authentic Lotus pedigree



Electrical system

This uses the normal Smiths and Lucas components of the period. The rather small battery is located tidily, but inaccessibly, in one corner of the rear luggage area.

As for the previous Lotus Sevens, the wiring loom is not over-complicated, but the area behind the dashboard is difficult to reach, and clearly all electrical units on the plastic body require separate earth wires.

Bad earths and bodged repairs are the main cause of electrical problems and a new loom, properly installed, will vastly improve reliability. It makes sense to fit a battery master switch.

The original S4 instruments were of Lotus Europa S1 style and may not be easy to source. The rocker switches on the dash are also difficult to find, but similar ones were used on some 1970's Fords.

Tail lights are also rare, originating from the Hillman Minx / Hunter range.

Interior trim

This is minimal and consists basically of two non-adjustable seats, covered in black vinyl, again similar to the S1 Europa. This material should still be available, but the seats have hardboard bases which suffer from damp and may need extensive re-building. However the design is simple.

Some cars came with black vinyl-covered

padding on the transmission tunnel, incorporating an ashtray. Black floor carpets were also available.

The dashboard was either left in outer body colour, or given a sprayed or moulded "crackle-black" finish. Elsewhere the interior finish was the plain black fibreglass of the inner body moulding.

Weather equipment

Replacement hoods are readily available and most sensibly have rear quarter windows which did not feature in the original design. Windscreen frames, pillars and sidescreens (all originally finished in black) are a problem area for S4 restorers. The parts are unavailable, and re-manufacture in original form would be prohibitively expensive. The only option seems to be a custom-made windscreen assembly in S3 style – not cheap, but an acceptable compromise. ■

Sources and further reading:

Lotus Seven Preparation / Restoration / Maintenance by TONY WEALE (1991)

Lotus Seven S2, 3 and 4 Owner's Manual reprinted for REDLINE COMPONENTS LTD (see inside front cover for contacts)

Next instalment:

The baton is passed on...