

This month our historian, John Watson, looks at the issue of the sympathetic restoration of Series 2 and 3 cars.

THE STORY OF THE SEVEN

Chapter 21: Restoring Series 2 and 3 Sevens

From a restoration point of view, the Series Two and Series Three models, made in the years between 1960 and 1970, are similar in construction. These cars cost considerably less to restore than the earlier Series One models. A budget of £5,000/£10,000 should be allowed to achieve a good result. Working most weekends, you should be able carry out the restoration in under two years.

From the value point of view, the use of original parts, or at least parts of original specification is preferred when restoring a car. If a more modern specification is wanted then you have the wrong car for your purposes. Unspoilt historic Lotus Sevens are now rare. As with the Series One three basic rules should apply... 1: before doing anything the chassis frame should be well labelled with the chassis number and road registration number; 2: take plenty of good detail photographs; 3: nothing should be thrown away until well after the restoration is completed.

Chassis:

The Series Two/Three chassis body unit (CBU) is much simpler in construction than that of the previous model. Whilst, if you have the skills, it is perfectly possible to carry out restoration of the CBU yourself, there are pitfalls and too often old chassis frames need straightening, requiring heavy specialist equipment. The preferable option is to send the CBU to one of the original makers, Arch Motors or other specialists, for this work to be done. They will return an aluminium covered frame in new-like condition. It should be noted at this point that there are certain measurement discrepancies between the frames of the three original makers of these chassis and

there may be issues with the fit of the bonnet later. As with the previous model, any blind stamped identity numbers should be preserved at all costs, as it is essential to keep the car's history intact. At this point the addition of seatbelt mountings and even a rollover bar should be considered, particularly if you are planning to carry young passengers. The grey paint colour for these chassis frames is darker than that of the previous model.

Body:

At first glance the most noticeable difference between the Series Two and Three and the previous model is the construction of the nosecone and front and rear wings which are now made of glass-reinforced plastic (grp, also known as 'fibreglass') rather than aluminium. The rest of the body is clothed in 18-gauge aluminium in a fairly simple fashion which does not require any specialist's work other than a little tricky butt welding in a couple of places.

Glassfibre wings, axles and wheels:

Whilst the front wings and the nosecone are the same for both models, the rear wings come in three different widths depending on both wheel and axle type. The Series Two car had the Standard Companion rear axle. With 13" x 3½J Triumph Herald wheels, the narrowest

rear wings are fitted, but with the fitting of 13" x 4½J Lotus Elan bolt-on wheels, a slightly wider option is required, or there are clearance problems. The Series Three with its wider Ford Escort Mexico axle and 13" x 5½J Cortina wheels used much wider wings of a different profile. White plastic piping is fitted between the wings and the aluminium body of the car.

Front suspension:

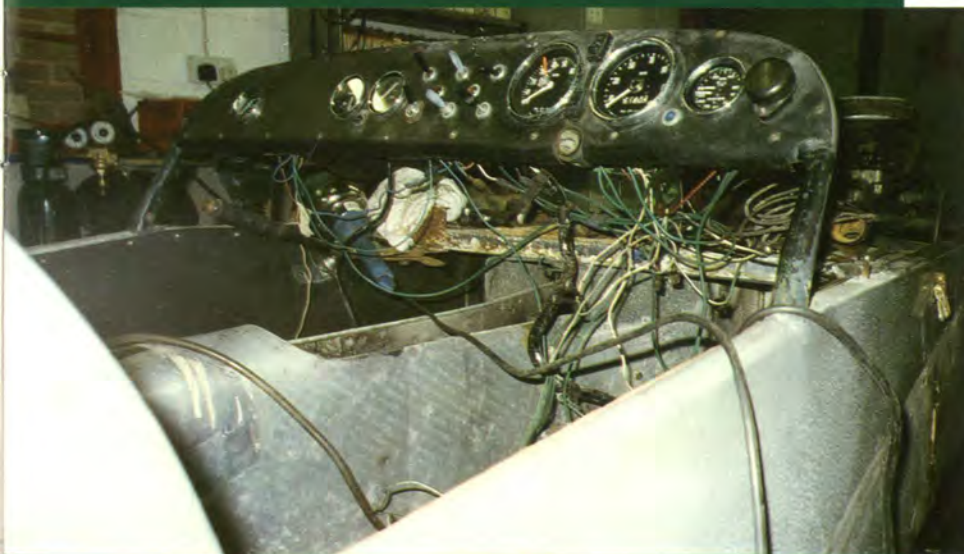
In most respects, the front suspension remains unaltered from the previous model. A pair of wishbones consisting of a Quinton Hazell top link with anti-rollbar for the top and a more conventional wishbone at the bottom but this time using later trunnions from the Triumph Herald. All suspension parts should be de-bushed, stripped of paint, thoroughly checked and repaired or remade as necessary. This work is best carried out by the chassis specialist. New Metalastic bushes are still readily available. Armstrong dampers are no longer made, but Spax make good replacements specially produced for these cars.

Rear axle and suspension:

The Standard Companion axle, as fitted in the Series Two, can be problematic. Not only is it not strong internally, being originally designed for use in a car with an engine rated at only 40bhp, it is fitted to the Seven in a way that puts twisting stresses on its casing. It's location, using a pair of top-mounted trailing arms at each end and a bottom-mounted A-frame under the centre of the diff, puts stresses on the casing that it was not designed for.



A rather sorry-looking Seven showing all the signs of prolonged neglect... and crying out to be 're-born'...



The addition of a substantial 'stegosaurus' plate along much of the length of the rear of the casing does much to cure the problem, but doesn't allow for big power increases or the use of wider, sticky tyres. Despite the problems, with care and thought these 40-year-old axles can give trouble free service in a Seven. The axle in the Series Three is located in the same way, but it is the much stronger item from the Escort Mexico and, within reason, the same degree of care is not needed. Rear suspension parts should be treated in a similar fashion to those at the front.

Steering:

The steering geometry is different from that of the early cars and similar to the modern Seven. Originally fitted to the Triumph Herald, the rack was most popular with the small car manufacturers of the 1960's. New racks can still be sourced from Triumph spares dealers. Bump steer can be eliminated by packing the height of the rack mounting on the horizontal platforms.

Wheels and tyres:

The Series Two had Triumph PCD stud centres (3¾") and the Series Three, Ford (4¼"). The factory fitted steel wheels for the first were either 13" x 3½J Herald or 13" x 4½J Lotus Elan bolt-on. The later car had 13" x 5½J Ford Lotus Cortina steel wheels which were stronger than the items used on the standard Cortina and were dated under the hubcaps. Incidentally these items were also used by Lotus on their Type 51 and 61 Formula Ford race cars. >

As an option, Lotus also supplied 13" x 5½J Dunlop cast alloy wheels made by GKN and also on a few cars similar wheels of their own Brand Lotus design. Strictly speaking tyres on the earlier model were usually crossplies which are unsatisfactory on today's roads. To be certain of clearing bodywork, radial tyres no larger than 135 x 13 should be used with the Herald wheels, 145 x 13 with the Elan wheels and 155 with the Cortina items. Wheels should be checked for 'true', silver painted and clear lacquered.

Engine and gearbox:

Correct engine and gearbox combinations for the Series Two cars are: 948 and 1098cc overhead valve BMC 'A' Series with associated 4-speed gearbox; 997 (105E), 1340 (109E) and 1498cc (116E) overhead valve pre-crossflow Ford with associated gearbox and, rarely in a Series Two Seven, the 1172cc (100E) sidevalve Ford with associated 3-speed gearbox. Series Three cars had the 1300 and 1600cc overhead valve crossflow (2255E) Ford unit with its 4-speed gearbox and for most of the thirteen Twin-cam ss cars, the Holbay-tuned Lotus engine. Most of these items are fairly easy to source spares and services for.

Exhaust system:

Unless the original exhaust can be restored, a new one should be fabricated. Mild steel is the correct material, however stainless may be found to be more practical. The pipework is of a much smaller diameter than modern systems so check that the fabricator has the equipment to carry out the work for you.

Electrics:

As with the Series One, why not make the loom up yourself? Whilst time consuming it is very rewarding and the finished job will be far neater than the spaghetti-like proprietary item. The Series Two was positive earth and the Series Three negative earth.

Lighting:

The home market cars produced before September 1962 used one Lucas SFT576 spot-lamp and one SLR576 foglamp as headlamps.

On dipped beam, just one was lit and for full beam the other came on as well. Legally, both lamps now require the same lenses and in addition, for a more satisfactory arrangement, a Lucas dual-element modification can be fitted. The later cars all used the Lucas s700 series bodies fitted with sealed beam units. Whilst sealed beam units for these units are still available, the Lucas brand are no longer made. The Series Two made for the home market did not have indicators. For safety reasons the fitting of these may be prudent. They can be mounted in a similar way to the Series Three car. Prior to August 1965 the rear lamps used were the now rare Wingard 1055 stop/tail items which are becoming increasingly difficult to find in good condition. For the remainder of Series Two production, and for all the Series Three cars, the Thorpe 675 units were fitted. These had a wedge shaped backing rubber to put the lamps in the upright position.

Instruments:

Original instruments are becoming more difficult to source too, so if you are lucky enough to have them in your car they should be cleaned and restored as necessary. There are many good instrument specialists around who will refurbish these items.

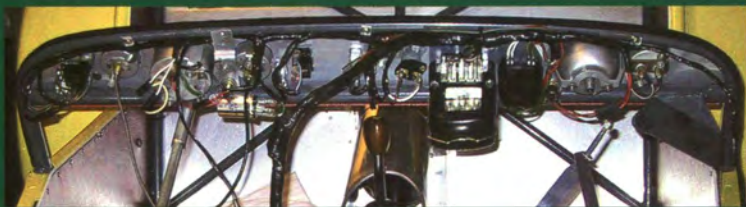
Interior items:

For the ordinary model this comes in a simple format. The Series Two used red plastic cloth for the seating and red plastic bonded steel for the side trim panels and dashboard. White piping was used. The Series Three was similar, in black, but the seating used a knitted pattern material with a horizontal 'finger' pattern formed by electric welding which can still be done.

Weather equipment:

Hood, tonneau, boot envelope and side-screens became regularly-chosen optional extras with the Series Two model. White and sometimes red embellishment piping would adorn the Series Two items whilst those for the Series Three would be all black. All can be sourced new from *Redline Components* of Caterham in Surrey. ■





Above and below:

Carefully restored Series Two and Three Sevens looking like new.

The relative simplicity, light weight and minimal bodywork make Sevens much more viable as manageable restoration projects than most other cars; if done with care you would be sure to be rewarded with a satisfying and sought-after car.

Useful information and services:

Lotus Seven Preparation / Restoration / Maintenance by TONY WEALE (1991) – out of print and now rare.

Lotus Seven Owners Manual (4th Edition has Series Three supplement) – still available as a reprint.

Arch Motors for CBU restoration and advice.

Redline Components for Lotus Seven parts and advice.

Coming next:

A Seven for the Seventies...

