



CLUB LOTUS ELAN SECTION



An Elan 1500 body being constructed on a rotisserie at Bourne's Nottingham works

Elan Bourne Bodies

In the autumn of 1962 Lotus contracted with Bourne to construct 1000 of the then new Lotus Elan 1500 bodies, a significant and prestigious order for the Nottingham company, which had only recently moved into GRP construction. At this time the use and application of GRP was very much in its infancy. The aero-industry were starting to experiment using it, as were boat builders. Lotus had already chosen the Bristol Aeroplane Company (BAC) to produce Elite bodies after Maximar failed to reach the required quality standards. Remarkably BAC at that time only made fibreglass pipes for civil engineering applications, including some experimental lamp posts!



Britannia Works in the mid-1900s, where the dark satanic mill produced state of the art GRP Elan bodies.
Photo courtesy Reg Baker

Bourne Plastics Limited was based at Bourne & Co's Britannia Works on Victoria Street, Netherfield in Nottinghamshire. The firm had started life in the early 1900's as cotton spinners, but as that market decreased, had changed their focus to experimenting in industrial plastics. In 1957 new plant was installed for the processing of acrylic fibres and GRP. They became particularly noted in the manufacture of boat hulls, achieving early success with the Bourne 35 foot river cruiser and the popular GP14 racing dinghy.



An early Elan body mould

On winning the contract, Bourne were provided by Lotus with master patterns, in GRP, as well as mould frames and master references so that they could begin to make the production moulds, which could be to their own specification and in sufficient numbers to fulfil the contract. These were then installed at the Netherfield factory to achieve the five part body-forming process. The specified weight for the fiberglass matt, resin and bonded in components that went to make up the body shells was 199 lbs/90 kgs, with the layup schedule also specified in the contract. The body shell was made as a single moulding, in a multi-piece split mould.



A good example of a Bourne body tag for the Elan Type 26

Bourne Elan bodies are identified by a distinctive, small black and silver identification plate, which is fixed to the engine compartment vertical bulkhead close to the starter solenoid. The plate has the Bourne name and address and is stamped with the body number. This takes the form of 26/0###, as in the photograph. All Bourne bodied Elans have a three digit number after the 26 type classification and first digit zero. Another distinctive feature of these bodies was that a grey (as opposed to the later black) pigment was used in the gel coat and resin for the engine compartment and interior of the boot compartment. The underside of the engine and boot covers were also finished in this grey colour. The bodies additionally had ribbed floor panels which were moulded in to give further strength in this area, a feature carried over until the end of Series 2 Elan production.



The underside of the bottom body mould, showing the strengthening ribs in the floor panels

Once the new bodies began arriving at the Lotus works at Cheshunt, it became clear that there were problems, not only with the quality of the work, but also because Bourne had difficulty producing sufficient units to keep up with demand. Ron Hickman recalled how the thickness of the fibreglass in the pedal box area was poor, leading to flexing when the brakes were applied hard. Remedial work to strengthen the area had to be carried out at Cheshunt. Owners reported that the standard of lamination left much to be desired. The contract with Bourne was therefore terminated early in

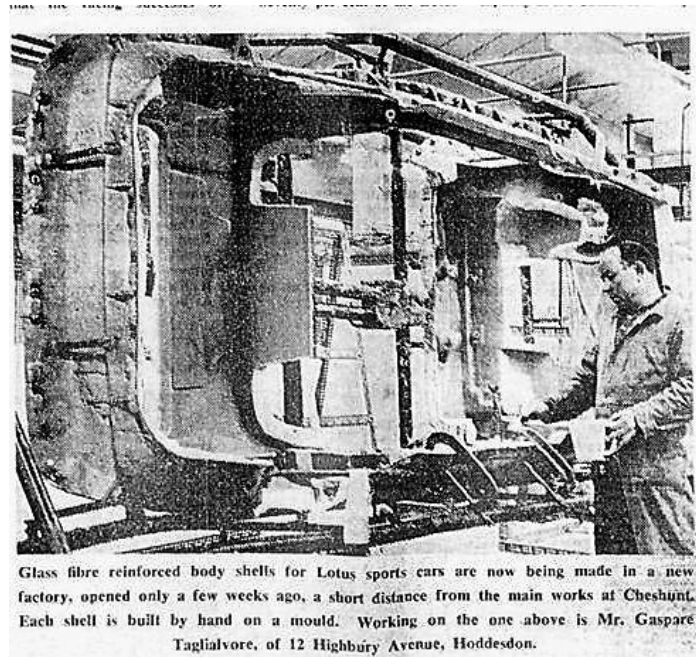
autumn 1963, when only some 438 bodies had been built. Bourne Plastics eventually went into liquidation in 1977.

The bodies were mated to the innovative folded steel chassis on the production line at Cheshunt, the chassis being another key component that was made under contract for Lotus by John Thompson Motor Pressings Limited of Wolverhampton. This firm was already well established as a supplier of chassis to many motor manufacturers, so the relatively simple to manufacture backbone chassis presented them with few production problems. Apparently the volume cost was some £10 per unit, each of which weighed 75 lbs/34 kgs. Eventually this firm became GKN Thompson Chassis, making Land Rover Discovery chassis units.



In what today would be termed a challenging health and safety environment, chopped strand matt is resin-ed into the front of an Elan

At Cheshunt Colin Chapman and his leadership team were again faced with finding a solution to their recurring road car body production problems. Lotus had been a late entrant into hand-laid composites production compared to their competitors Jensen and Reliant. Chapman asked Reliant's managing director Ray Wiggin for help, with the result that their specialist Ken Wood was bought in to assist Lotus to take body moulding in-house. A new facility was set up in a building along the road from the main factory for the bodies to be produced. This eventually housed the state of the art Unimould body manufacturing process, attributed to John Frayling and developed by Ron Hickman and Albert Adams. For some eight weeks at the beginning of 1964 both remaining stock of Bourne bodies and Lotus produced bodies were fitted to cars on the production line. The Lotus bodies were numbered from 3000 and rarely have their body number visible on a finished car. The number can be seen crayoned in on the underside of various body components though.



A photo dated January 1964 in the local Cheshunt paper reports on the new body facility at the factory

With body production safely bought under control and in-house, Lotus could start to introduce improvements to their manufacturing process. Notably these included the use of black paint for the inside of the engine and boot compartments. Another difference was the removal of the return lip over the headlight pod aperture and the absence of any filling between the upper and lower parts of the body in the engine compartment, a feature utilised by Bourne.



One of the very earliest Type 26 Elan 1500s

Just to round up this look at the very first Elan bodies, it is worth considering the four development cars used by Lotus before commencing production of the Elan in January 1963. In 1959 a development mule was built to test the backbone chassis concept, drivetrain and suspension components. Onto this chassis was popped a proprietary Falcon Sports Car GRP open two seater body shell. Apparently during an eighteen month period this mule covered over 50,000 miles before being broken up. Chapman gave Ron Hickman the thumbs up to work on a product development Elan prototype. In November 1961 Hickman rendered the alluring Elan body and began to build

models. Once these were approved, Williams & Pritchard were asked to help with making up the master body moulds. In mid-1962 the first body shell was fitted to a backbone chassis along with an early development Lotus twin cam engine. This was the first of three M2 Elan pre-production prototypes. For the sake of brevity we have called these cars A, B and C. A, despite being left hand drive, was registered for the road as 3208 NK and subsequently used in some of the very earliest promotional material. Oddly the car had a later chassis number, but did have body number 0001. Car B was fitted with the fourth 1498cc twin cam development engine being used as a test bed prior to the October 1962 Motor Show reveal of the Elan. Car C probably led a very much harder life, possibly being tested to near destruction. B was chassis number 0005; we do not have a record of the number for C, though we do know it was fitted with a 1500 twin cam engine, numbered S283431E. It is believed that all three of these development cars were eventually broken up.



M2 Development prototype Elan A, actually a LHD car, but rendered here in RHD

Daimler's SP250, TVR, Turner and even the Chevrolet Corvette GRP body designs all boasted scallops and ridges. However, the Elan, as well as its predecessor the Elite, gained rigidity from within, allowing for an aerodynamic, smooth and altogether better looking car. In a 1980s Motor Sport article on the Elan, they wrote: "To paraphrase the architect Ludwig Mies van der Rohe, less is more difficult in automotive design, and the ultra-simple Elan is one of those near-perfect cars which have no flaws from any angle. The profile is 'right', with no false wing lines or strakes to reduce the apparent waist height. There is nothing which is purely decorative except the badges, and the standard indicator units used at the front do not distort the styling as often happens with proprietary items."

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