Technology meets history

Latest tube laser cutting machinery is helping to keep down the costs of producing a UK motoring icon while keeping quality up. *Machinery* reports)

Based in Westbury, Wiltshire, Caterham Cars subsidiary Steel Fabrications uses a BLM Adige LT120 LaserTube with a capacity from 12 to 120 mm OD tube or box section to cut and profile steel chassis components prior to welding for the Caterham Seven (see box item).

Supplied by BLM Group UK and installed in the company's 12,000 ft^2 premises situated on the Brook Lane Trading Estate, the LT120 takes up to 4 tons of 6.5 m long tube in its bundle loader and nests finished parts cut to an accuracy of 0.1 mm at the other end. As well as cutting and notching tubes for chassis, wishbones and A-frames, the LaserTube's diffusion cooled CO_2 laser source pre-cuts rivet holes in the chassis components, reducing significantly the time taken to attach body panels.

Chassis components are stored in racks ready for making up a 'kit of parts'. Each chassis has to be delivered complete with body panels to the Dartford, Kent, assembly facility on schedule, within budget and to the agreed specification. Gideon Wigger, Caterham Cars' operations director, says: "We are, in effect, both the customer and the supplier, and it is essential that the two roles are managed so that the quality of the completed car is not compromised in any way."

Parametric CAD software is used to design the definitive chassis and to model its component parts, and this CAD data provides the basis for programming the Siemens Sinumerik 840D CNC of the LT120 tube laser cutting system. Joints between tubes that would have been impossible or too expensive to produce by traditional machining methods take just a few minutes programming for the tube laser, with prototypes and re-designs again requiring just a few minutes to program. And the inherent accuracy and repeatability of laser cut parts ensure they always fit the welding jigs without a further dressing.

The Caterham Seven story

June 2007 saw a Jubilee event held at Nottinghamshire's Donington Park circuit to celebrate the 50th anniversary of the iconic sports car created by Colin Chapman.

Launched as the Lotus Seven, it was re-named the Caterham Seven in 1973 when the former Lotus dealership headed by Graham Nearn purchased the manufacturing rights and production re-started. Today there are more of these 'race cars for the road' racing around the world than almost any other single marque. In fact, around 300 racing Caterhams and hundreds of road-going cars took part in the 50th birthday bash, making it the largest-ever gathering of Sevens since its unveiling in 1957.

An MBO in early 2005 saw Ansar Ali, formerly of Lotus, as managing director along with Gideon Wigger, Mark Edwards, engineering director, and Magnus Laird, motorsport director, acquire the company. This team continues the process of innovation begun 50 years ago by Colin Chapman, reflected in the introduction of the upmarket £31,000-plus Caterham Seven CSR. This features F1-style pushrod front suspension and independent rear suspension with a choice of 200 bhp or 260 bhp Cosworth Duratec engine, the latter powering the CSR from 0 to 60 mph in 3.1 sec.

Chassis components are designed for ease of fabrication, with tabs and profiles combining to minimise the time needed to assemble them in a welding jig prior to robot welding. Final assembly takes place at Dartford, from where more than half of annual output is exported, much of it to Japan, France and Germany. □