‘10 THINGS YOU DIDN’T KNOW ABOUT THE LOTUS 49’ (12, ACTUALLY)

The design brief for the 49 was ‘something simple’, to minimise disruption while the engine was sorted.

The DFV concept was tested – and proven – by a 1.5 litre, straight four cylinder engine, called the Four Valve, or ‘FV’ for short. Effectively the three litre V8 was realised by mating two off these together i.e. a double four valve or ‘DFV’.

Colin Chapman was very much the driving force behind the whole project, and it was Team Lotus Chief designer Maurice Philippe who schemed the car and did most of the detail design drawings. A classic example of elegant and effective design is the four simple bolts that attach the engine to the monocoque; this method was used throughout the DFV’s F1 life, from 1967 through to 1985. Right first time!

The increase from 1.5 litre to 3.0 litre demanded a significant fuel capacity of the monocoque, whilst keeping the frontal area to no greater than the engine profile, in order to minimise drag at a time when this was the principle aerodynamic concern. This led to a very narrow cockpit, to such an extent that, to accommodate the driver, ‘elbow dings’ were required and the steering wheel was offset to give the driver adequate room for gear shifting.

The Venturi windscreen directs a curtain of accelerated air upwards, in front of the driver, to realise a greater reduction in buffeting for a given height – and therefore lower drag – windscreen.

The 49 started life without seatbelts, but the increased power caused the drivers to slide up in the seat, to such an extent that Jim Clark had installed an aluminium shoulder panel, to hold him down. In 1968 the drivers elected to start using seatbelts; arguably more for performance considerations than safety.

The Lotus 49 realised the greatest ever step in performance, year on year, as measured by the Pomeroy Index, for Grand Prix racing cars from 1906 to today. Will it ever be beaten?

At the 1968 Tasman Championship, the Lotus type 49 became the first Formula One car to be fitted with a wing; albeit a somewhat Heath Robinson device fashioned from a helicopter blade, sourced by the Team Lotus mechanics from an Antipodean scrap yard. Reportedly, Colin Chapman was not impressed and had it removed.

The performance of the DFV was such that Team Lotus accepted that the engine should be made available to other teams. Within two years it was powering three quarters of the teams, most of them British. This proved to be the foundation for Britain to become the leading nation of Motorsport.

1968 witnessed the arrival of aerodynamic downforce in Formula One and soon the cars had sprouted large aerofoils mounted high above the car - in clean air - and attached directly to the uprights, thereby loading the tyres directly i.e. bypassing the suspension. Team Lotus was the first to make the wings driver adjustable – reduce drag on the straights, increase downforce for the corners – with a rudimentary fourth pedal in the footwell. This led to the banning of moveable aerodynamic devices; a rule which was to have numerous implications during the subsequent years, in relation to unforeseen, future innovations.

Mario Andretti made an impressive Formula One debut when he put his type 49 on pole position for his debut Grand Prix at Watkins Glen in 1968. Many assumed this outstanding achievement had a lot to do with circuit knowledge, but in fact this was Mario's first time at Watkins Glen.

Graham Hill linked the 49 and Monaco together forever by winning back to back in 1968 and 1969, and in the same car – 49R5/R10 – which is the only twice Monaco GP winning chassis in the history of this most famous race. (Team Lotus lent a Works 49 to Rob Walker for Hill to race at Monaco in 1970; coincidentally it was 49/R10, yet again.)