

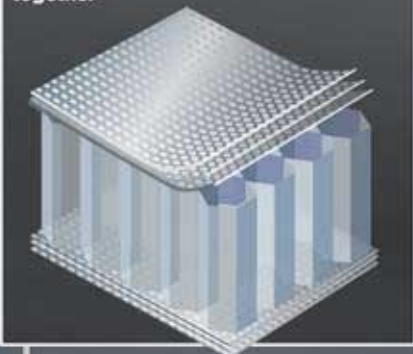


Design of the car must also include an impact-absorbing structure at the rear, behind the gearbox

Monocoque

1 The single most important part of the car for drivers' safety. Colin Chapman designed a lightweight metal casing for his Lotus in 1962 and McLaren started the process of the safety cell we see today by introducing a carbon-fibre version in 1984

The rigid shell of the monocoque is made of several layers of carbon fibre sandwiching a honeycomb of aluminium plates. The layers are joined using epoxy resin and then baked at high temperature several times to bond them together



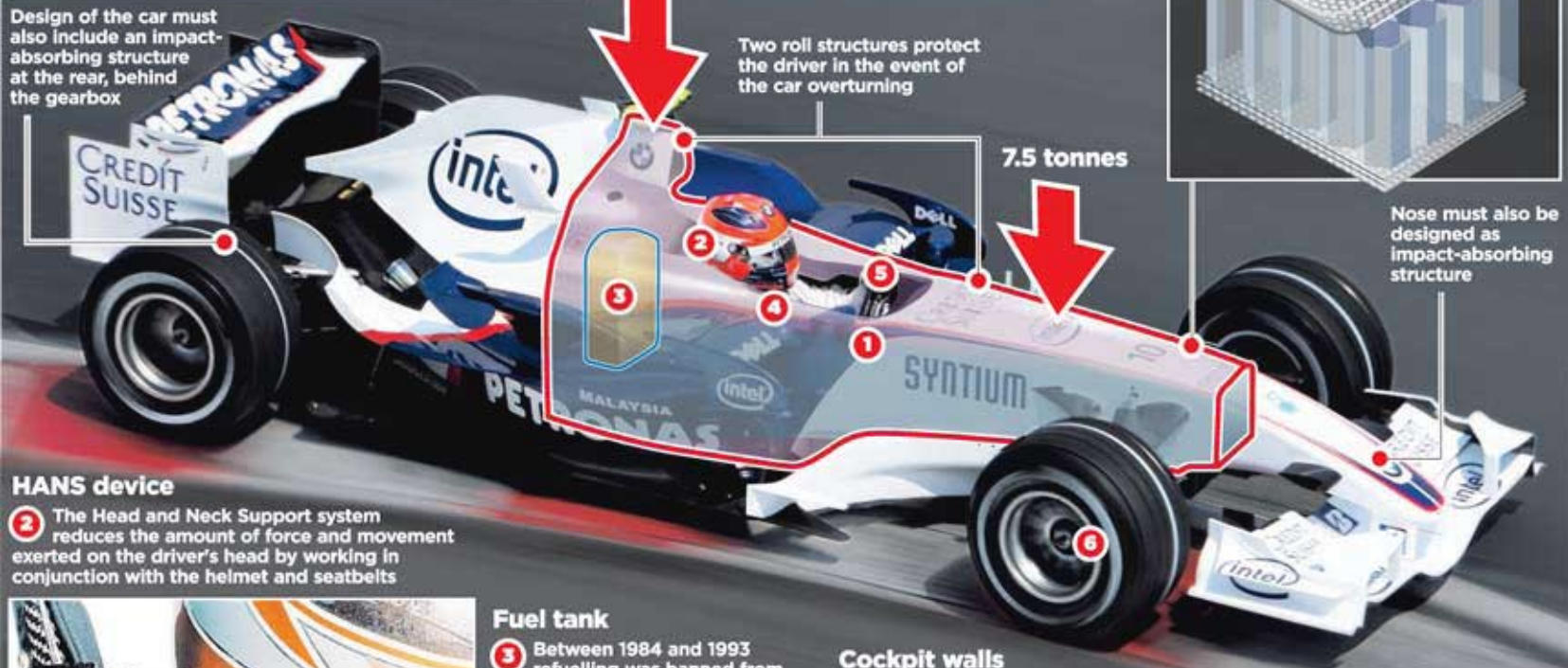
Nose must also be designed as impact-absorbing structure

12 tonnes

The safety cell, which joins the front and back axles, must meet minimum size requirements and be capable of withstanding 12 tonnes of pressure behind the driver's head and 7.5 tonnes ahead of him

Two roll structures protect the driver in the event of the car overturning

7.5 tonnes



HANS device

2 The Head and Neck Support system reduces the amount of force and movement exerted on the driver's head by working in conjunction with the helmet and seatbelts



Fuel tank

3 Between 1984 and 1993 refuelling was banned from all Formula One races, but the return of refuelling brought massively increased safety procedures, including fireproof clothing and helmets for the pit crew. The refuelling equipment is provided to each team by the FIA and the teams are not allowed to interfere with it. This equipment is regulated to pump only 12 litres per second into the single fuel bladder

Cockpit walls

4 Are now taller and tougher to provide more protection for the driver's head in the event of an accident

Steering wheel

5 Has to be removable. Formula One regulations stipulate that a driver must be able to get out of the car in five seconds without removing anything but the steering wheel

Wheels

6 Wheel tethers are used to prevent wheels from flying off the cars, but they also need enough elasticity to stop the car becoming airborne with the wheel