compressed air to nitrogen. First and foremost though the landing gear is a shock absorber; its job, to absorb and dissipate kinetic energy at landing; get that right and everything else follows on – usually.

But, during the latter phase of test flying as Concorde spread her wings abroad, runways with long shallow undulations were encountered. The combination of firm suspension, aircraft weight and a high speed encounter with just such an undulation at the wrong time was enough to provoke a continuous oscillation at the airframe’s natural frequency. In the flight deck, cantilevered so far forward of the gear, the effect was of a lateral shake combined with a violent plunging motion of increasing amplitude. It was a wild ride.

It was found that for the take-off case the aircraft would benefit from softening of the air spring stiffness and easing the resistance to vertical movement in the oleo. Such modified main landing gear, the two-stage oleo, was introduced shortly after entry into service. However, a residual effect still remains. Taxying at heavy weight at Heathrow, the discontinuities between concrete sections would set the aircraft bouncing. Passengers would have been amused to see what looked like three gentlemen out for a trot. Once started, the only exit to the condition was to brake to a halt then begin again.

Gear location and dimensions, though critical are compromise. It is far from ideal to place the nose gear 40ft aft of the pilot; think turning at a taxiway, T-junction or following the centre line into an arrival gate between two other aircraft.

Landing gear lengths are defined by keeping the rear of the aircraft clear of the runway at take-off and touchdown and then, in the case of the nose gear, stowage has to be found to cater for upwards and forwards retraction; backwards retraction is cut because of the need to plan for a free-fall mechanism.

In the main gear case, location was a real headache. At the only logical position, the legs would have collided as they retracted upwards and inwards, they were too long. So they were shortened – sort of. Whenever the gear was down and locked they were full length, but during the retraction process a mechanical linkage gradually and completely pulled up the