



# Case study

## Expert witness: Vehicle braking system

### THE CHALLENGE

Frazer-Nash was asked to provide expert witness evidence following a road traffic accident to defend a negligence claim. As the van involved was overdue its service it was claimed that the driver had allowed it to become defective causing the accident.

The driver had applied pressure to the brakes of his van in response to traffic slowing. The vehicle suddenly skidded sideways into the path of an oncoming passenger car causing a major collision. At least three vehicles were involved and several people were hospitalised with serious injuries. Witnesses reported that the back brakes of the van locked up and smoke came from both back tyres.

### OUR SOLUTION

A forensic examination carried out by police showed that the rear wheel brakes were satisfactory but one of the critical valves had seized in the laden position, distributing the braking force incorrectly. When the driver applied the brakes the van's rear wheels locked causing the van to veer into the oncoming traffic. At the time the police took no action against the defendant.

The forensic analysis had highlighted a faulty load sharing valve which was commonly fitted to commercial vehicles. After confirming that such a valve could be responsible for the behaviour of the van during the incident, we analysed the design of the valve to identify the possible causes of seizure, and the type of maintenance required to counter them. To corroborate this analysis we purchased a similar valve and sectioned it to confirm the failure modes that were likely to have caused the seizure, which later resulted in the reported 'lock-up' of the van's rear wheels.

We compared our findings to the manufacturer's maintenance schedule for the van and found that no maintenance had been called for in relation to this particular component. The component's failure was therefore most likely to be independent of any servicing actions.

### THE OUTCOME

Our findings constituted critical evidence in this case which resulted in the claim being rejected. Although the defendant's vehicle was at fault in this incident, we could conclude that the defendant himself could not be held responsible.

#### Client

Firm of UK solicitors.

#### Business need

To provide expert engineering advice on the likely cause of a road traffic accident.

#### Why Frazer-Nash?

Frazer-Nash has over 20 years experience in the analysis and assessment of vehicle accidents.



Figure 1: Faulty load sharing valve

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