Graham Heeps spoke to leading auto lawyers to find out how test engineers can assist legal eagles when litigation happens, or better still, how they can help prevent disaster altogether

Courting disaster?

One could argue that it's not in lawyers' best interests to give guidance, particularly of a preventative nature. After all, if nothing ever went wrong, they'd soon be looking for another source of employment. But we found a number of lawyers in the automotive sector who are willing to do just that. So how can test and development engineers best guard against future litigation, or minimize its impact?

Product liability claims are a legal threat in the background of every vehicle development program. In the view of Susan Laws, an automotive lawyer from the London office of 550-strong US law firm, Duane Morris, engineers should think about product liability implications at every stage of vehicle development: "Look into a crystal ball and think: what can go wrong? What do we have to comply with in terms of current legal requirements? How do we guard against what can go wrong in terms of legal apportionment of blame, insurance, etc? And what happens if it does go wrong?"

Tom Manganello is head of the automotive group at Michigan law firm Warner, Norcross and Judd. One of his firm's activities is setting up risk management programs for suppliers and OEMs: "Avoiding the risk of product liability, violating government legislation, or recall liability, starts with the design of the product," believes Manganello, whose father spent 42 years as an auto engineer for the Big Three. "If engineers think about the ways the product could be used or misused, and try to design that risk out, that's for the best." He adds that companies can avail themselves of industry associations like the Product Liability Advisory Council to get upfront information on potential legal issues, whether by joining themselves, or using a lawyer to collect the information for them.

Several of the legal eagles we spoke to had been in on design discussions to help OEMs or supplier companies engineer out the risk. Indeed, they'd welcome the chance to play a similar role in the testing arena, says Laws' colleague in Duane Morris' automotive practise, Alex Geisler: "Classically the lawyers are called in long after things have gone wrong," he laments. "There's a lot of preventative input that lawyers could put into systems if invited to do so. And I think the in-house lawyers that I deal with would mostly say the same."

Whatever the testing process, attorneys cite documentation as an important way for development engineers to protect themselves and their employer in any future legal action. Says Geisler, bluntly: "The better documented the system, the better you'll be in court." Manganello, who once had to track down retired engineers for information on a component designed in the 1950s, agrees: "You should create a paper trail that closes the loop – if it discusses the problem, it discusses the solution. That saves a lot of headache and inconsistency, because the thing that will doom you later on is inconsistent information about the design, development, and testing of the product. It's a pretty simple thing to do, but it's surprising how few companies actually do it."

Let's assume the groundwork has been done: you've tried to design and test out the risk, tested to meet the legal requirements, and documented every

"LOOK INTO A CRYSTAL BALL AND THINK: WHAT CAN GO WRONG? WHAT DO WE HAVE TO COMPLY WITH IN TERMS OF CURRENT LEGAL REQUIREMENTS?"

The OEM engineer's view

Professor Richard Folkson (left) recently left the post of manager, product verification and testing for all Ford's European-designed products, to take up the new role of chief engineer, technical alignment. He'll be working to implement common testing methods across all of Ford's brands, but 'between jobs' he found the time to speak to us about the legal implications of testing activity.

Folkson says that European type approval regulations have real advantages: "We prefer the European system because the manufacturer holds hands with the authorities and says, we've reviewed this design and it meets the requirements," explains the former Ford Transit project engineer. "You get away from the open-ended regime that can exist if you haven't got a witnessed test to a requirement that both parties – legislators and manufacturers – have agreed is acceptable to go into production. The problem with the US system is that it's much more open to interpretation."

Folkson adds that, as advocated by 'our' legal experts, the Blue Oval has systems in place to ensure a comprehensive paper trail is established for all its products. "Documentation is key: recording what we did, with integrity, so that when people do come back to us afterwards, we can demonstrate that we acted with the highest propriety, and that the engineering was robust."

But while documentation is important, Folkson believes that thinking carefully about due care testing can in itself help guard against future legal difficulties: "Testing in its own right isn't the objective," he reasons. "We test to prove that the end product is fit for its purpose for the customers we're designing it for. I've always encouraged our engineers to think about why they're doing the test: is it going to guarantee that the condition we're trying to design for is actually met by the vehicle?

"If a customer does something with a car that we haven't anticipated that causes them or other road users a hazard, or prejudices the environment, then even saying that we met the legal test still means there's an issue in terms of not anticipating this other condition. So we always try to anticipate even the most bizarre real-world usages to make sure our products are safe in all circumstances."

"THE SOONER YOU GET THE LAWYERS INVOLVED, THE BETTER. THERE ARE CASES LITTERED WITH DOCUMENTS THAT I WISH HAD NEVER BEEN SENT"

step of the process. Let's also assume that despite this preparation, there's a subsequent incident involving the vehicle that could lead to litigation. Such eventualities aren't rare, as Laws points out: "We are becoming a more litigious society. People do tend to sue more." Now what do you do?

The legal experts are unanimous: "The minute that there's an issue, tell two people – your insurers and your lawyers," says Laws. It's a view echoed by Geisler: "The sooner you get the lawyers involved, the better. There are cases littered with documents I wish had never been sent. Once it kicks off, people either trash the documents, which is a disaster; try to fudge their way through, which is a disaster; fail to admit; or fail to recall. Lawyers will generally help them in those areas."

Manganello stresses the importance of a law team getting the cooperation of key employees. In his experience, the tone is set at the highest level: "If management says we're proud of the product we've designed and sold, and it's the responsibility of every employee to do their best to defend it and support our lawyers, you're way ahead of the game."

Such scenarios demand that lawyers and engineers work closely together to get the desired result. This isn't always straightforward, Geisler admits: "Engineers don't generally understand litigation as a process, because it's not a science, and vice versa – lawyers don't always understand engineers." Nevertheless, the legal brains all agree that they can't do the job properly without input from the development engineers: "The engineers are the single greatest source of valuable information," says Manganello.

Audi made changes to its TT coupé after a spate of accidents

Test cases

Alex Geisler of law firm Duane Morris trawled the casebooks from his 20 years as an automotive lawyer to uncover some cautionary tales for test engineers.

Case 1: Defective test equipment

"The accelerometers used by a client doing crash testing for emerging airbag technology were wired back to front. Initially, the data that the client got from the crash and sled tests looked fine, but later in the process, engineers in Germany analyzing it worked out that the back of the car appeared to be ahead of the front. When the case went to court, the supplier's defense was: how do we know the rest of the system was flawless? We couldn't demonstrate that it was flawless but we did demonstrate that it was adequate. They settled."

Lesson: A system with some redundancy or backup is a good thing because you might be able to salvage the test. In this case, not all the tests had to be redone, because information was gleaned from the photographic records.

Case 2: The wrong test specification

"The painting process for a strut was wrong, but the error was compounded because the wrong spec was used for the subsequent salt-spray test. When the struts on customer vehicles began to fail, a fight arose between the manufacturer, the supplier, and the test facility. One end of the chain was demanding a recall in case of potential fatalities, but the manufacturer didn't want to for financial and reputational reasons. It settled with money changing hands but not with the full recall I recommended. Instead, new struts were fitted when vehicles came in for service. Had we gone to court it would all have come out in disclosure, and it would have been catastrophic. Luckily there haven't been any serious incidents."

Lesson: Check the test specification – a bad test will mask a bad design.

Case 3: Absent test

"Each piece of the fuel level sensor on a North American-spec vehicle had been tested, but the angle of the bend in the arm wasn't right, so it showed fuel in the tank when there wasn't any. The OEM hadn't taken the vehicle out and run it to empty to see what the fuel gauge did; now people were running out of gas in the desert. The vehicles already sold were recalled, while those in transit were met at the port of entry by a team of mechanics who opened the fuel tank and physically bent the arm.

"In the truck industry, I often see situations where every part is satisfactory, but the whole is not because different people build the chassis, body, and, in the case of a dustcart, the lifting equipment. I did a dustcart case where, once it was full, the front wheels came off the ground and it was stuck. It was a coastal town, so the temporary solution was to drive to the beach each morning and put sandbags in the cab. Extraordinary."

Lesson: Ensure there's an adequate system test.

Case 4: Airbags – a legal perspective

"I see a lot of airbag litigation. Most of the testing has been to stop them going off, which is fine, but no court has ever approved these deployment criteria. When I defend them we argue that we can prove that the airbag didn't meet its deployment criteria; in the lesser cases the judge says OK, but sooner or later a judge is going to say, they may be your criteria, but they're not mine.

"OEMs also get sued for injuries when the airbag does go off; in those cases we defend on the opposite basis – that it was meant to fire. Occasionally it triggers when you put the key in the ignition; we just pay those. We get a lot of applications for pre-action disclosure – such as when people want the entire engineering history of the airbag to understand the deployment criteria. We always resist."

Lesson: Through testing, the industry has decided the deployment criteria, but the courts have yet to give their verdict.

"Typically the opponent in a product liability case has an engineer who claims to be an expert in everything, but is a master in none. Conversely, you might have a handful of engineers who've worked in that product area for 30 years.

"You don't want the engineers' information filtered," he continues. "You want to have a one-on-one conversation and get a full understanding of how the product was designed, how it operates, all the good points, and if there are problems that have surfaced, you want to know what they are. You don't want to get blindsided by any skeletons popping out during litigation."

Now that the engineers have played their part, it's down to the lawyers to get stuck in. Geisler offers this explanation of the relationship between testing work and the courtroom: "The beauty of engineering claims is that they are won and lost on the laws of physics, not on the laws of the land. But the one true law is Murphy's law, and anything that can go wrong in a test will go wrong.

"I like engineers as witnesses because they tend to be quite reliable and exact, but it's not the same with judges – they're an art form, not a science. A judge is bit like a resistor – you can select it, place it in a circuit, but you can't bench test it; there's always an element of uncertainty in how it's going to perform. A courtroom, in lab-speak, is not a controlled, real-world environment, and that's where the lawyers have to help the engineers by being a conduit between the science and the legal art." ■

From top: The legal minds that are Alex Geisler, Tom Manganello, and Susan Laws