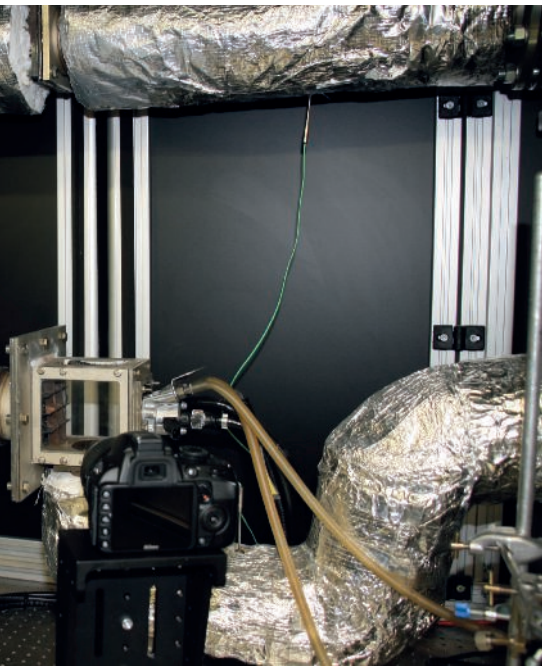

So at least two other systems are being developed to deal with this problem.

In Germany, where the banning of older diesel passenger cars from the most polluted cities is looking increasingly likely, TwintecBaumot has been touting its Next Generation B-NOx System (see diagram, top of p20). This bleeds off a small quantity of exhaust gas from its hottest point between the engine and the 'hot' side of the turbocharger, and uses it to heat the AdBlue as it passes through an ammonia generator, which is also fitted with an electrically-heated catalyst to complete the task.

The resultant ammonia is then injected into the exhaust stream between the diesel oxidation catalyst and the SCR. TwintecBaumot claims it takes just 100 seconds for a cold engine to be dosed with ammonia and for NOx control to commence after start-up. The system could be retrofitted to update older diesels to current or even future standards. However, its commercial uptake is currently on hold, thanks to the political crisis in Germany.

An alternative is the ACCT (Ammonia Creation and Conversion Technology) system being developed at Loughborough University's Wolfson School of Mechanical and Manufacturing Engineering (see diagram, bottom of p20). This involves

TEST DRIVE

In the aftermath of the VW diesel emissions scandal, DVSA tested petrol cars and diesel vans, trucks and buses in 2017. Its report has just been published.

Testing generally included both laboratory work using engine bench dynamometers and RDE (real driving emissions) cycles using PEMS (portable emissions monitoring systems). The unit compared the results of both to produce a 'conformity factor', which is a measure of the difference of the regulatory limit and the amount measured. The current NOx compliance limit for heavy goods vehicles is 1.5.

Five Euro VI trucks were tested. All were equipped with diesel oxidation catalyst, SCR (selective catalytic reduction), DPFs (diesel particulate filters) and EGR (exhaust gas recirculation), with the exception of the Eurocargo, pictured above, which was not fitted with the latter.

The IVECO truck was found to emit nearly double the legal limit of NOx (see below). After further investigation, the OEM confirmed that DVSA had discovered an issue of which it was unaware. IVECO proposed a software recalibration, to be carried out under an official recall, as a fix. VCA tests of the modified truck found that NOx emissions fell within legal limits. Still, DVSA reported that there were 5,803 affected vehicles registered in the UK (and more in Europe). Having released the upgrade in December, 40% of the vehicles had been updated by mid-March.

An IVECO spokeswoman adds: "We are grateful for the collaborative approach from the DfT in providing access to the detailed data on the subject vehicle, which enabled the rapid identification of the root cause. The thermal management control on the vehicle has been optimised to take into consideration all possible configurations and missions."

In 2017, DVSA also tested light diesel vans. They were: the Ford Transit, VW Transporter, Citroen Berlingo, Vauxhall Combo, VW Caddy and Renault Trafic. All were Euro 5-compliant, except the Trafic, which was Euro 6B-compliant. All passed, except the Transit, whose findings from the official NEDC test (from cold) were more than double legal limits. After some research, Ford attributed the result to testers' use of sixth gear during the high-speed portion of test. That high gear was optional at the time of type approval, so was not included; further tests found it passed in fifth gear. However, DVSA points out that new requirements for RDE testing, plus a new lab test cycle (WLTP) after this September, will not allow OEMs to dictate gear choice (see also *https://is.gd/uzexaz*).

Buses were also tested. Two ADLs, an Enviro 200 and 400, both fitted with Cummins engines, and a Wrightbus model fitted with a Daimler engine, were all found to be compliant.

The report's authors conclude that, although most UK vehicles comply with type-approval requirements, their real-world performance is often significantly worse than official figures might suggest. These findings support the introduction of RDE legislation and stricter lab test procedures. TE