



Imagine being able to predict the wear rate of a key component on one of your trucks while on the road. That would enable you to book it into a workshop before the offending part fails, leaving you with a stranded vehicle and the costly headache of unplanned downtime. Stop imagining: with real-time remote vehicle condition monitoring (RVCM), you already can - and, over the next decade, it will play an ever-increasing role in the battle against breakdowns.

Should anyone doubt it, consider Volvo Trucks' recent pronouncement: "Volvo's aim is that unscheduled downtime should become a thing of the past, thanks to ... on-line connectivity in trucks, which creates an entirely new scope for preventive maintenance." How does it work? In Volvo's case, the company used data gathered over a five-year period from 3,500 trucks with Euro 4 and 5 engines built between 2007 and 2008, all with

an accessible service history and each having covered more than 120,000km a year. The OEM then carried out simulations to analyse how, why and when trucks suffer hitherto unexpected downtime.

Clearly trucks break down for all sorts of reasons, though most of us could probably name the usual suspects - batteries, starter motors, alternators, water-pumps... But these are all first-stage componentry to which vehicle manufacturers already connect. For RVCM, if you can put a sensor on it, you can monitor it. And by tracking a truck's usage and status, you can make maintenance planning more responsive, and hence better. How much better? "We think we can reduce unplanned downtime by around 80% if the truck is serviced in time, and in response to actual needs," answers Hayder Wokil, Volvo Trucks' director of quality and uptime. That's a lot of time saved at the roadside.

Volvo has been connecting to its trucks since 2013. Using its own telematics gateway (TGW) and remote workshop tool (RWT), this OEM's service technicians can remotely check and monitor the condition of the brake pads, battery, clutch and air dryer filter on any FH16, FH, FM and FMX, as well as log any diagnostic fault codes and confirm miles covered and engine hours. From that data a dealer can create an online service plan for a specific vehicle.

#### **PREDICTIVE MAINTENANCE**

It's not the only manufacturer pursuing RVCM. Using statistics gathered from its Scania Assistance roadside breakdown service in Sweden and OnBoard telematics, Scania is developing what it calls its Preventative Replacement programme, based on predicting, in real time, the lifecycles of components such as water pumps, turbochargers, alternators,



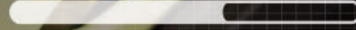
## RECEIVING DATA

VOLVO FM, 11 litre



Location: Spain

VOLVO FH, 13 litre



Location: Sweden

VOLVO FH, 16 litre



Location: Australia

Could real-time condition monitoring of trucks on the road avoid costly unplanned breakdowns? Brian Weatherley examines the trend towards 'connected' lorries

# DISTANCE

batteries, starter motors and air-driers. Based on the monitoring data, Scania operators will get early-warning alerts before components fail.

As a first step towards wide-scale roll out, Scania says it is already talking to several UK contract operators about early adoption. The Preventative Replacement programme will ultimately sit alongside Scania's current Flexible Maintenance scheme applied to routine servicing.

MAN has also launched a new telemetry package called Fit to Go, which, as head of fleet management David Lester explains, is now standard on every vehicle. Within the package, MAN Check provides "real-time visibility of vehicle health and diagnostic data", he says, with red/amber alerts directing emergency remedial servicing.

By integrating it with MAN's e-workshop system, downtime is kept to an absolute minimum, insists Lester.

"The justification for fitting this to every vehicle stems from the availability of the DTC [diagnostics troubleshooting codes] remotely via the connection to the vehicle's OBD2 port."

## COST SAVING

Other chassis manufacturers will doubtless follow suit, for as Iveco UK's product director Martin Flach confirms: "It's the way to go for the customer and for us to know our vehicles better."

Clearly, with RVCM there's plenty to play for. Volvo's study suggests that on average an unplanned stop in Europe costs a haulier €1,000 (£725). That figure includes direct costs, such as towing and repairs, administrative fees and lost revenue, but not the cost of lost cargoes or business, nor that most elusive of intangibles, reputation. Interestingly, though, Volvo's Wokil reckons RVCM is still very much in its infancy. "We're just scratching the

surface ... Connected vehicles are the route to zero unplanned downtime in the future."

Controlled temperature operators, meanwhile, have long embraced real-time remote monitoring of fridge performance and load conditions. Typical of the genre is Schmitz Cargobull's S.KO Cool Executive reefer fitted with the German trailer maker's own fridge. Its TrailerConnect interface is said to be capable of providing an "unparalleled" level of monitoring. The system uses temperature sensors to build a picture (humidity and fuel level are also available) and transmits the data to Schmitz Cargobull's European service centre in Germany, which, in turn alerts drivers and transport managers before potential issues become problems.

The system can also advise on the location of the nearest service centre, with drivers contacted by text, email or phone.

Arguably, the greatest impact of RVCМ, however, might be around HGV safety inspection periods. If you can monitor the condition of a truck's key components in real time (including brake wear), does it need to return to base every six weeks for a physical inspection? What does DVSA (Driver and Vehicle Standards Agency) think? "The potential for remote vehicle monitoring is being explored, particularly in relation to brake performance," comments a spokesperson. "However, telematics monitor systems with an electronic interface to the vehicle management systems - so mechanical components still need to be inspected."

It's certainly the case that any changes to DVSA's Guide to Maintaining Roadworthiness would need to go through a consultation process involving all stakeholders. However, the next review is planned for 2016, "when we will have more

information about the potential for remote vehicle monitoring systems". So, watch this space. And, if in the meantime you believe your RCVМ warrants longer safety inspection intervals, DVSA's advice is to put your case to the traffic commissioners. "Ultimately, the operator needs to demonstrate a robust preventive maintenance system where vehicles are being consistently operated in a safe and roadworthy condition," insists the spokesperson.

**THINKING AHEAD**

Whatever part RVCМ may play in future safety inspection regimes, though, there remains a strong argument in favour of retaining industry average six-weekly periods - not least because technicians might well spot problems that, though not safety-related or on the checklist, could cause unscheduled downtime. Whether such issues could be dealt



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*Hayder Wokil*



With Scania's preventive replacement scheme, technicians will be able to monitor key components remotely

with on the spot would depend on workshop flexibility. But with RVCМ in place, operators could certainly book workshop time in advance to tackle all known work, rather than incurring multiple visits.

That said, for all its attractions, if RVCМ is to be effective, two important issues have to be addressed. First, operators have to get used to bringing trucks in to workshops to have an apparently sound component replaced on the grounds that - according to the system - it soon won't be. Secondly, since fleet engineers don't have time to wade through megabytes of data to find exceptions, RVCМ systems must allow operators to make informed decisions fast.

With those caveats, however, there's no doubt that RVCМ is set to solve the old problem: "If the wheels aren't turning, the truck's not earning." **TE**