

# SUM OF THE PARTS

In today's increasingly technology-led industry, can a case be made for fleet operators to conduct their own comparative testing of consumable components? By Peter Shakespeare

We all know that genuine OE (original equipment) parts and consumables, such as brake discs, brake pads, oil and fuel filters, lubricants and tyres, come with a premium cost. Replacement parts from the OEMs can be slightly cheaper, and remanufactured parts are an even lower price alternative again. At face value, low-cost items from non-OE, or budget suppliers can seem a way of making significant savings.

So, could running your own comparative product testing programme be the best way to eliminate all the ifs and buts, dispel the myths and select the most cost-effective consumables for your fleet?

If you believe this could be a way forward, there are several things you need to consider. You need to design and follow a testing regime. You will need to establish a set of evaluation criteria; see an example in the box item. Then you need to establish a testing methodology. In September 2010 the IRTE published a guide on evaluating interventions - mechanical, electrical and additives - designed to reduce fuel consumption ([www.is.gd/vahawi](http://www.is.gd/vahawi)). The methodology it sets out is relevant to testing consumables. The first consideration is the manufacturer's warranty. If changing a component or filter invalidates the warranty, it is probably wise to call it a day at that



## PRODUCT TESTING EVALUATION CRITERIA

- **RELIABILITY** - the degree to which repeated measurements produce the same or similar results
- **CONFORMITY** - the degree to which measurements with different products with the same characteristics produce the same or similar results
- **REPRODUCIBILITY** - the degree to which repetition of the measurement of the same product produces same or similar results
- **VALIDITY** - the degree to which measurement reflects the functionality of the product
- **MEASURABILITY** - the degree to which the product functions can be translated into useful data
- **INTERPRETABILITY** - the degree to which the test results can be translated into different aspects of the functionality of the product

Source: University of Geneva

point. In terms of testing, the guidance advises to check what testing has been done by the manufacturer, and ask yourself if the tests and data are reliable.

In the case of testing on your own vehicle(s), absolute consistency is paramount. This means: same vehicle, same driver, same weather conditions, same load and route. Or you go to the expense of using a rolling road, or test track. The guide concludes with a 12-step, start-to-finish methodology that highlights if an intervention, new tyre or component is adopted following a trial; ongoing performance measurement is important to ensure the expected benefits are being delivered. Finally, comparative testing can only be useful if you have previous data to compare your results with. This means you need relevant data from the vehicle(s), driver(s), tyres, etc, you decide to use for the trial, going back several months.

There is no doubt that comparative product testing, if done correctly and scientifically, can be informative and rewarding. But any worthwhile testing

is very expensive, in terms of time, human resources and money. And advances in vehicle technology mean that often parts cannot be tested in isolation. Explaining why is Tim Ford, head of aftermarket sales and customer service at brake manufacturer Knorr-Bremse. He says: "Large bus companies run a lot of vehicles of the same type and age on the same routes, so have consistent data about their usage," he explains. "We know of some who have run their own tests on consumable parts. One who remains nameless wanted to fit some of our OE products back on to the vehicles where it had previously replaced them with non-OE parts. They then wanted to test them to see if there was any improvement in performance and wear. We told them that it wouldn't work, because they had changed so many other related parts on the vehicles to non-OE that they weren't working to the standards at which the overall system was originally designed to operate. Products, especially within braking systems, are designed to work together and not as individual components."

### ECE R90 TESTING - SUFFICIENT?

In 1999, the EU introduced legislation specifying the design, construction and performance requirements and testing protocols for replacement brake linings. ECE R90 tests include bedding in, performance checks, brake tests, cold performance equivalence and speed sensitivity tests. Non-OE brake linings must pass these tests by law before they can be sold to consumers. Tim Ford points out that Knorr-Bremse puts its brake linings through far more exacting tests to gain OE approvals. The investment required to develop these premium parts and to test them is significant, he contends, so comparing them against non-OE brake linings that



meet the minimum ECE R90 standard would be like comparing apples and oranges. He adds that EBS systems have the coefficient of friction of the OE brake linings programmed into them. If the linings are changed for non-OE, then the EBS system could apply the incorrect brake force, which can affect safety.

Highlighting the risks of do-it-yourself testing is Adam Pearce, Parker Racor's filtration product manager (see also pp18-19). He says: "The ISO cleanliness code Parker Racor aims for is between 12/9/6 and 12/8/0. If you look into this, that is a very clean system. This cleanliness is achieved by the selected combination of pre-filter grade and final filter grade, with a fuel of a cleanliness several codes dirtier than the supply industry norms (which is 18/16/13). With a fuel supply significantly outside of these norms, then injector system cleanliness will suffer. A customer may test filter service life, or one set of filters versus another. However, they will not know the injector cleanliness, and therefore the consequential risk. A 'will-fit' filter supplier could supply a pair of filters that last longer, but have less efficiency, and therefore put the system at risk. Even if this supplier has tested against OE filters during development, it is likely that the OE will respecify and upgrade its filters during a vehicle lifespan based on warranty feedback."

If having read this far, you have

reached the conclusion that conducting your own product evaluations is not for you, all is not lost. Philippe Colpron, WABCO's vice president of fleet solutions, says original parts are not the only option. "At WABCO, we understand that customers will always want to have an alternative.

That is why we offer not only original parts, but also remanufactured solutions as well as our own spare parts range, ProVia." Colpron explains that the range you choose should depend on the lifetime you expect from your vehicle. If you want to keep it for 10 years, WABCO recommends OE replacement parts. The company's other two ranges, ProVia and Reman (remanufactured original parts) offer different specifications that meet the differing requirements of fleets.

Knorr-Bremse also offers 500 lines of lower-cost remanufactured and service replacement parts. Tim Ford argues in favour of servicing and repair kits. Rather than fitting consumable parts and using them until they fail or wear out, consider instead investing in properly maintaining and servicing them. He highlights brake callipers as one component that can last a long time if serviced regularly. [TE](#)

## ANALYSIS

It may be that the OEMs' increasingly intelligent vehicles and control systems have got operators over a barrel in terms of replacing components. Weighing up the pros and cons, the sensible option seems to steer clear of self-help testing: leave it to the professionals. Instead, invest some time in properly understanding what you want from your fleet and in thoroughly researching the market.

-Peter Shakespeare