More than the sum of its parts

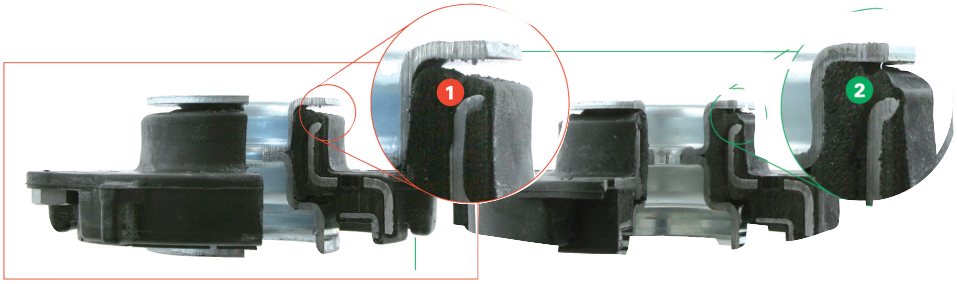
For Independent repairers, choosing the correct replacement parts for the plethora of choices now available, is a time consuming business. Febi Bilstein provides a few tips on how to tackle these daily decisions, and allow the repairer to give their customers the best service possible.

The technical design of modern cars is getting more and more advanced. Empirical and design development data, collected over many years, is going into the technical design of cars, and each and every single component is engineered to a very specific purpose, fine-tuned to perfectly work as a whole, which, in this case, truly is more than the sum of its parts. Each component relies on the specific design and precise operation of adjacent or related components.

For service and repair professionals in the independent aftermarket, it is becoming more and more important to not only have the necessary skills and knowledge, but also purchase the correct parts to fit to the vehicle. The independent aftermarket offers a vast choice of replacement parts: For independent repairers, it is just one of the daily challenges to make the right choice of parts. And it is not an easy choice, as the market is flooded with parts claiming to be as OE, cheaper than OE, or even better than OE. To make the right choice easier, here are a few tips for professional technicians on how to tackle these daily decisions, so they can offer their customers the best possible service.

Firstly, what you fit to a vehicle should match the part that was fitted at first production; This means that it is absolutely crucial to use parts that meet exactly the same specifications as the part originally fitted to the vehicle by the manufacturer.

Aluminium control arms are a prime example: Aluminium components were developed by the vehicle manufacturers for the reason of reducing the weight of the vehicle and therefore allowing improved fuel economy, better performance and enhanced safety. Replacing an aluminium wishbone with a cast iron part, can result in an increased weight of up to 40% to the originally fitted part. This can have adverse effects not only on the vehicle's performance, but also on associated parts in the suspension.

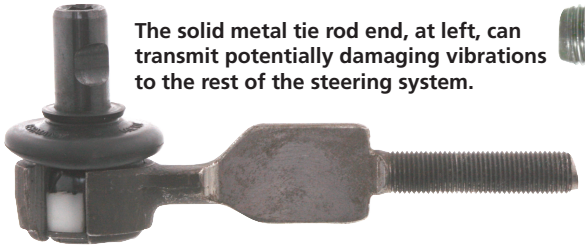


A proper, secure rubber to metal adhesion at right compared to a sub-standard one on the left

Another steering component which is crucial to the complete system is the tie rod end. Many are designed to absorb vibrations from the wheels by a rubber core, the tie rod end ensures a comfortable and smooth driving experience. Some track rod ends in the independent aftermarket lack this rubber core, and are instead made of solid metal. This might increase the service life of the tie rod itself, however does not fulfill the purpose of the part; dampening vibrations. In fact, vibrations are being transferred to associated parts in the steering system, causing premature wear and failure, which could result in costly repairs.

Rubber metal components are fitted to various areas of a car to avoid vibrations being transferred to other areas, for example to the interior of the car or the steering wheel. To reliably fulfil these requirements, rubber metal parts must consist of the correct rubber compound (hardness) to be able to absorb the vibration, and this rubber compound must be securely attached to the metal. For strut top mountings, for example, it is crucial to meet these quality standards, as inferior rubber creates higher loads on the shock absorbers and other components in the suspension system, which can lead to increased wear and premature failure.

As these examples show, each component in the vehicle has its own purpose and at the same time affects other parts in the system. Design changes, which might lead to a cheaper price or a longer service life of one component, do often not make sense when you look at the bigger picture. Therefore professional technicians base their choice of parts on the vehicle manufacturers' original design and technical specifications – and can be assured that the customer's driving experience and safety are guaranteed.



The solid metal tie rod end, at left, can transmit potentially damaging vibrations to the rest of the steering system.

The one on the right is as designed and originally fitted on the car.