



Can a service cause poor running?

In some cases, servicing a car can result in it running very poorly, to the extent that it can enter “Limp Home” mode. TEXA’s Dave Gordon explains how this can happen to you.

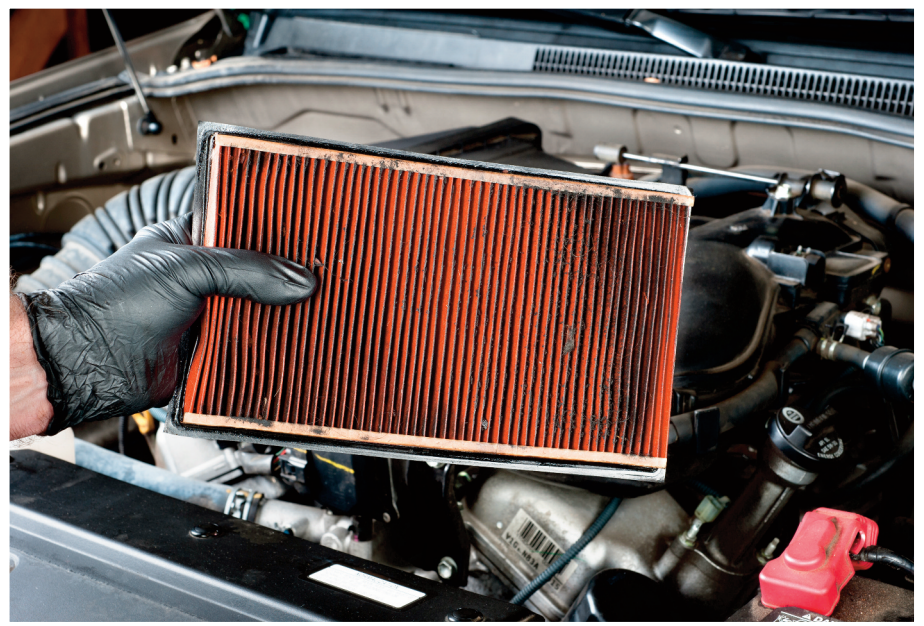
The advancement in the ECU’s ability to control ever increasing amounts of variables is usually a good thing, and it results in the more efficient operation of the engine. What you might not realise is that there are many things that the ECU considers in making adjustments, to keep the engine running as perfectly as is possible. Each manufacturer is different in their approach and implementation. When you know how a particular sensor works on one make, it may be slightly different on another, or even on different models from the same manufacturer.

In this particular example, a customer had left their Mercedes Sprinter 313 CDI 906 in a garage for a service. There was no mention that the Sprinter was running poorly, and when it was driven the short distance from the yard into the garage, nothing unusual was noticed. The mechanic went about performing the service. The service was completed and all of the correct parts were used and the Sprinter was returned to a happy customer.

The next day, the Sprinter returned to the garage after it had developed power loss symptoms. During the short drive from the garage, the Sprinter began running very poorly and was noticeable lacking in power. Eventually, the poor running resulted in the vehicle going into “Limp-Home” mode, with the MIL on.

This is always a tough spot to be in. The customer hadn’t had any running problems before you worked on the vehicle. It’s possible that the poor running had occurred before and wasn’t noticeable, or it may have just started coincidentally. Or it was something you did, or didn’t do. Your customer isn’t happy, and neither are you, as you try to solve the problem as quickly as possible.

A preliminary scan with diagnostic equipment revealed errors relating to EGR, MAF Sensor, and Turbo Pressure Too High. These error codes are enough to trigger any mechanic on a hunt for the cause and a solution. Another call to the customer confirmed that they had not experienced



You might think that replacing this dirty air filter would be simple and wouldn’t have any knock-on effects. You might be wrong and may be heading for a poorly running engine.

any running problems prior to the service.

Delivering bad news to a customer is never easy, and if you dove in to diagnose this running problem, you’d find out that you had caused the problem. Not by something you did, but by a step you had overlooked.

Live data was checked using a TEXA Matrix recorder. The data showed that the Actual Air Mass value exceeded the Desired Air Mass value by quite a considerable amount. The ECU was seeing that too much air was being delivered to the engine. Further live data showed that the Air Filter Clogging Percentage was high. However, when checked, the air filter had indeed been replaced. It was the correct filter, and it was perfectly normal in every way.

Some research revealed that the new air filter was the root cause of the problem. There wasn’t anything wrong with the air filter, or the way in which it was installed, it was not informing the ECU of the new air filter that was the problem. The ECU

needed to be informed about the new air filter by performing an Air Filter Wear reset. This tells the management ECU to zero the air filter wear, essentially allowing it to reboot and reset the air flow values. The ECU was suddenly seeing higher volumes of air in the intake system, but couldn’t self-trim the problem away, as the volume was in excess of the adjustable parameter. Faced with this situation, the ECU decided it had a problem with one of the components measuring air intake, and resorted to limp home mode for self preservation.

As with a lot of things, when you understand exactly how a system you’re diagnosing works, the fix was relatively simple and straight-forward. Once the Air Filter Wear parameter was reset, the air flow readings returned to normal in the live data. Because of the issues experienced, the Air Mass and EGR sensors were also reset at the same time.

