A fouled Astra and a hot & cold Mondeo

In this month's troubleshooting guide, we are going to be looking at a 2004 Opel Astra and a Ford Mondeo of a similar age. The Astra was worked on, but not repaired by, a garage that overlooked the fundemental basics. The Mondeo had a fault that was easy to diagnose using a clear, simple diagnostic process.

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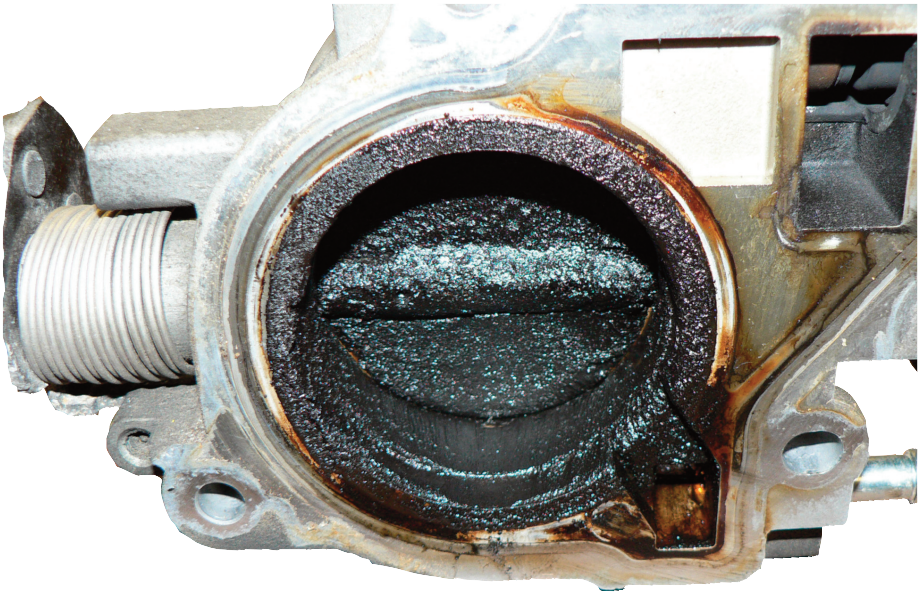
A rough idling Astra

The Astra was presented to the garage with an inconsistent idle speed and a tendency to stall on a regular basis. A previous garage had replaced one or two parts, but the customer could not be certain as to what they were.

Our first task was to check for any ECM fault codes; upon this we did discover one code, the airflow meter was below the minimum value. Prudence tells us we should check the actual value of the airflow meter with our known target value and this confirmed our first thoughts- that the airflow meter was perfectly okay (I am sure you will recognize that this fault code is often recorded, due to the fact the engine has stalled at some point in time).

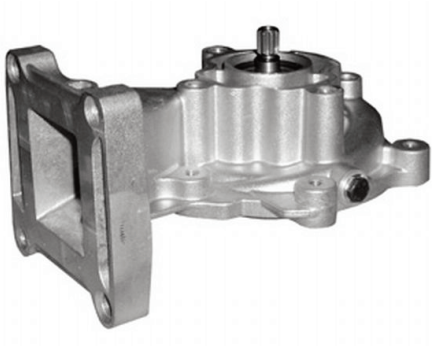
Whilst our diagnostics were connected, we checked validity of the throttle potentiometer, which gave us a full clean sweep from 9% to 100%. At the same time, we were able to confirm that the engine ECM was receiving the command: "idle, part load, and full load". Remember most ECM's have different engine mappings for each of the three conditions mentioned, meaning that a different set of control conditions will be applied during these very different engine operating conditions. Like most modern vehicles, the system employed on this Astra was drive-by wire, where the engines idle is controlled by the throttle butterfly, which receives commands by the engine to the ECM to vary the degree of opening, thereby increasing or decreasing idle speed as appropriate.

Once the intake air ducting pipework had been removed, the problem was plain to see. The inlet manifold and throttle body were very contaminated and sooted up. Although this was a low mileage vehicle, most of those miles had been done around town and on the school run. Whilst most competent garages may consider this inlet and throttle body fouling fault very routine, it is worth noting that this car had been to a previous independent garage that had indeed changed the airflow meter. More worrying than this was the fact that they had diagnostic equipment and software, that was able to change the engine's idle speed. They probably changed the idle speed in some misguided belief that this would cure the car's idling problem. This was discovered after the throttle body and inlet manifold were cleaned and the engine idle came close to 1100 rpm. This was obviously corrected before the vehicle left the workshop.



A hot & cold Mondeo

The next vehicle in question is our 2004 Ford Mondeo TDCI. It was presented to the garage with inadequate vehicle heating. After checking all the engine and dashboard information, it became apparent that although it was not overheating whilst driving at moderate speed, the temperature would rise dangerously high if held stationery at high idle, whilst no heating was available to the interior of the vehicle.



As I'm sure you're aware, for some particular reason, a splined shaft drives the water pump on this vehicle from the power steering pump. It would appear that as the miles pile on, the male splined shaft of the water pump is manufactured from material less durable than the female output shaft of the power steering pump. As a result, the splines on the water pump shaft are eventually rounded off, with the inevitable result that the impeller does not rotate. On contacting the local Ford dealer, they confirmed that they are now moving significant numbers of the pumps for this very reason.