Eure!Car Tech Blog highlights

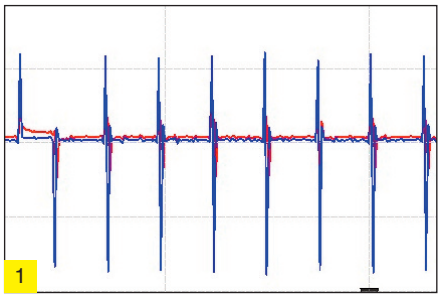
The Eure!Tech Blog covers a number of problems that mechanics are facing on a daily basis. The Blog, which is updated on a regular basis, can be read at www.euretechblog.ie. Here is a sample of a few items posted recently.

Opel Meriva, Agila and Corsa with Intermittent no start problem

On some Opel Meriva (1st generation), Agila B and Corsa D models, both in petrol and diesel, the engine will sometimes crank, but not start.

Diagnosis

- No CAN communication exists through the lines of the different units.
- When reading the failure codes via "K-LINE", no failures are recognised.
- Several components of the injection system may be replaced, without a positive result.
- CAN communication of the different systems is checked.
- When checking the multiplexing system with the oscilloscope, a disturbance is observed in the system's communication line. (Fig 1)



- After checking the electric wiring of the CAN communication system, the various control units involved in the CAN system are disconnected.

When the Power Steering Control Unit is disconnected, it is found that the CAN signal line is correct.

- If the engine is started with the Power Steering Control Unit disconnected, the vehicle starts properly and the failure caused by the Steering Unit no longer exists.

Remedy

The failure is caused by the interference in the CAN line through the power steering control unit, disturbing the starting authorisation to the ECU. The power steering control unit should be replaced to solve the problem.

Considerations on overrunning alternator pulleys (OAPs)

OAPs absorb belt drive system vibrations caused by fluctuations in engine speed that occur during deceleration, changing gears or when the engine is stopped. In such situations, the alternator creates a resistance to the rotation direction of the engine.

Such overrunning pulleys decouple the rotation transmission of the alternator, preventing the belt from sliding, vibrating or transmitting its resistance to the engine.

The advantages of using such pulleys are:

- Reduced vibration load on the belt, resulting in a reduction of tautness.
- Reduced transmission noise because there is only a gliding motion between the belt and the pulley.
- Allows higher rotational speed of the alternators.

Failures and Consequences

Damage to an OAP may cause the following consequences:

- Noise, or a possible broken drive belt.
- Alternator charging surges, causing a reduction of battery durability.
- Broken drive belt tensioner, due to excessive vibration being passed on to the tensioner.
- Damage and/or premature failure of the dual mass flywheel. In many cases, if the vehicle runs long enough with a defective OAP, it transmits vibrations to the engine itself, and also the drive belt tensioner and the dual mass flywheel.

Procedure and Solution

A noise in the belt drive system may be the first sign of an OAP problem. The following stored DTC may also be detected:

P1503 – Alternator charge signal (DF)

The OAP may also be damaged, without any recorded error.

To check the status of the overrunning alternator pulley, the following guidelines should be followed:

- Use your index finger and thumb to hold the inner shaft. Use your other hand to turn the pulley in the operating direction. If it spins, the OAP is defective.
- In a similar manner, rotate the pulley against the operating direction. You should notice a small resistance, but the OAP should move freely. Otherwise the pulley is defective.

The extent of the repairs will depend on the effects caused by the defect of the pulley. Regardless of this, when a defect is detected it is advisable to replace the following items.

- OAP
- Accessory belt.
- Broken drive belt tensioner

Replacing items in addition to those listed above and directly or indirectly related to them will depend on their condition, which should be checked carefully.