| **Rotating Electrics** | Alternator | Smart Charging | Ford |

Smart charging alternators on Fords

On many new Ford models the alternator fitted has a 'smart charge system' that regulates the output of the alternator to ensure the battery is being charged efficiently and only when needed, reducing emissions and improving performance.

The alternator is controlled by the PCM (power control module) which monitors certain parameters such as the engine temperature, battery temperature and electrical demand. If the alternator does not receive a signal from the PCM, the battery light is illuminated on the vehicle. This can sometimes be misdiagnosed as an alternator failure.

There are some checks that can be made to see if the alternator is at fault or, if there is an issue with the PCM or its wiring.

- The first thing to check is if the battery is the correct type. Smart charge systems **are designed to be used only with** a silver calcium battery not the lead acid type due to the voltages used which may damage a lead acid battery and give incorrect readings.

- If you disconnect the 3 pin PCM plug from the alternator and it is charging again, this will show the alternator is being controlled by the PCM. This will check if the alternator is still functioning. The 3 pin plug will need to be reconnected immediately after the test to avoid any damage to the vehicle. **This test is a temporary check only and is not a resolution to the fault. Disconnection and reconnection of the 3 pin plug should be done when the engine is switched off.**

If the battery is of the correct type and the alternator is found to be charging, the next part to check is the continuity of the wiring loom from the alternator to the PCM. Due to the location of the alternator in relation to the PCM, the wiring can become chafed or the insulation melts from being too close to a heat source. This is **a** common **reason** when the battery light is illuminated and a new loom will be needed.

This is listed for the Ford Connect, part no.1421293, but can be modified for other models.

Alternator on Ford Focus showing location of smart charge plug and the initial loom path

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