

## Renault Trafic R9M 1.6 Bi-Turbo Non-start

A customer's Renault Trafic was given to the junior tech to change the clutch, as he had previously shown he was capable in completing this task to a high standard. But after the work was completed, the vehicle refused to start.

A second technician was assigned to investigate why the Trafic wasn't starting. After going over what work had been carried out, some tests were completed with the usual scan tool. No fault codes were present, and the serial data looked to be in order.

They had little experience with an oscilloscope, but they did manage to get a Cam and Crank signal. The problem was that they

were unsure what they should look like.

I was called in to assist with the diagnosis, and we began with the injector process. It was found that there were no signals after one single pulse on cranking the engine. Because the trace they had was from a budget scope, a Picoscope was used to confirm the correlation of the 2 timing signals. This did not conform to any known timing wave forms for this engine. We used the Picoscope waveform library to reference a known good signal.

When the flywheel was removed to check fitment, it became apparent the flywheel was 180 degrees out, but the locating hole in the crankshaft and flywheel do not have a locating dowel fitted from new, and the inexperienced technician missed this, even though he had compared the new flywheel and tooth count to be correct, as he had previously been shown to

be vitally important when replacing any timing related component.

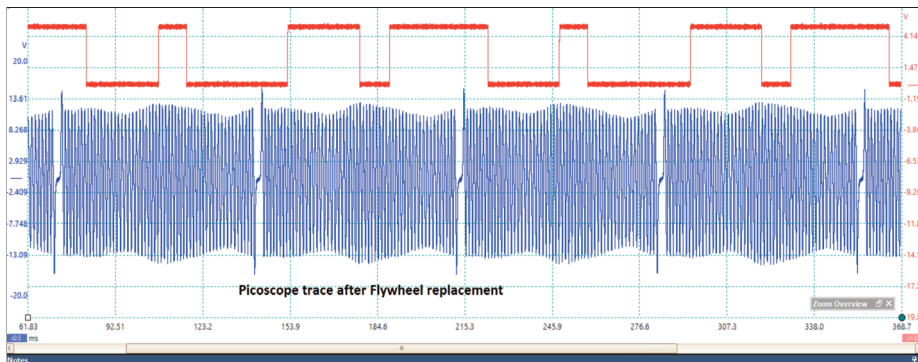
The flywheel was refitted with the alignment corrected, and the engine started on the first turn of the key.

This proves that sharing known good information can improve how we work together, and databases like the Picoscope waveform library are proving invaluable. Signing up is free to Picoscope users.

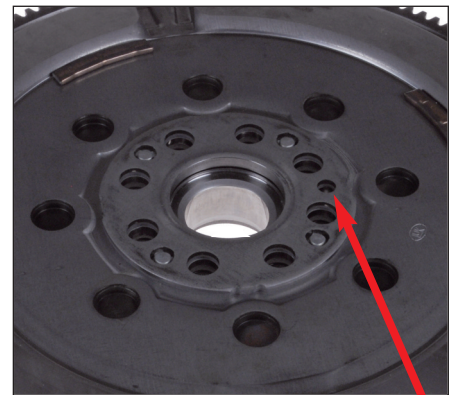
It is worth noting that this engine is also fitted in various Renault, Opel/Vauxhall and Nissan models.



Tim Stock



The scope trace from the cam and crank sensors, after the flywheel was re-installed



An alignment hole on a flywheel, at arrow

## 2008 Citroen Relay/Jumper III 2.2 HDi with EGR problems

Recently, I have had several cases of the 2.2 Puma engine fitted in various Makes, including Ford and Citroen, exhibiting the same symptoms. Firstly, the fault codes were the same and the drivability issues where also very similar.

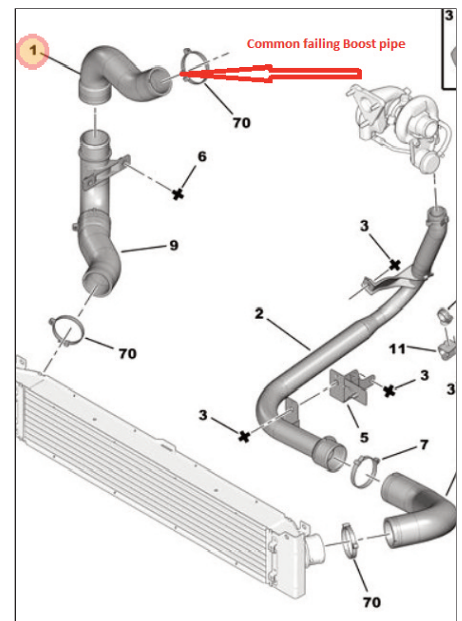
Codes for EGR flow PXXX were present in all cases. The vehicle would stumble on

acceleration, and when going into full boost, would then go into limp home while logging the codes. In each case, the garage replaced the EGR valve, as they were carboned up and considered due for replacement.

This did not solve the running and fault code issue, so it was decided to test the control and feedback circuits for the EGR system. A test plan was given to the garage to follow and then report back.

The technician reported all wiring tests passed the test plan given. As the code referred to low flow and the passage ways to the EGR appeared clear, a smoke test was performed.

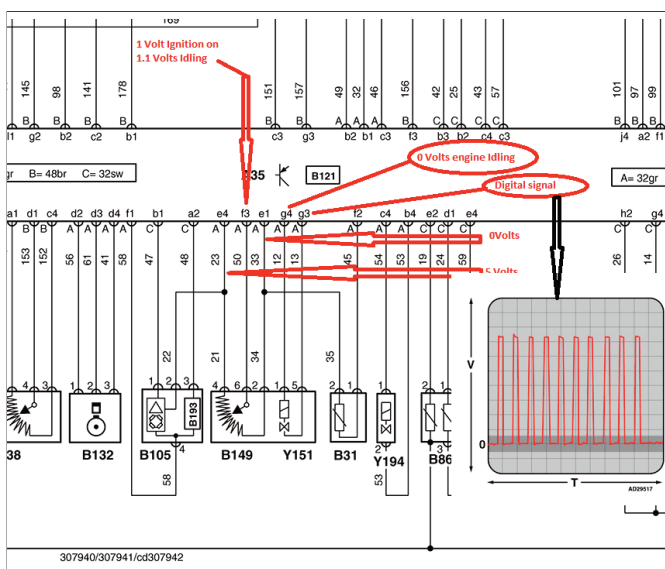
Then the actual fault was found, A split pipe from the EGR valve to the intercooler/boost pipe had been missed when fitting the valve, this feeds the Exhaust gas



The hose, at red arrow, that has been found to be split on many 2.2 Puma HDi engines

from the EGR valve into the intake system.

This info was passed to several garages with similar vehicles. On checking their problem vehicles, they also had the same split pipe. So, this is coming up as a common issue to vehicles fitted with the 2.2 Puma HDi based engine.



EGR waveform and connection points for scope leads