



Hyundai I-Load “starts & stalls”



By Clinton Brett

This year we experienced a run of the same fault on the aged 2007 to 2011 Hyundai I-Load.

I had this starting and stalling fault in previous years but this year, was more than usual.

The fault is related to the Exhaust Gas Recirculation (EGR) system on vehicles with and without a fault code. Starting and stalling issues are rare to be caused by the fuel system of a Common Rail diesel (CRD) and so most of the time when the job is logged, the technician has already stated replacement of a fuel filter and fuel system testing. With little experience, the diesel engine intake and emission system are easily misunderstood.



i-load

This misunderstanding and the illegal tampering of emission systems was the motivation behind our most popular training for our 2023 courses DPF & EGR Diagnostics and testing.

Previously delivered as a webinar during Covid, running our face-to-face training continues to be in high demand in Australia with almost all the sessions held, being sold out.

Online is great, but to be able to touch, feel and smell diagnosis, that technology does not exist—not that I am aware of. I'd love to be the innovator of such a tool, as it could enhance Diesel Help over the phone diagnostics to the next level. Explaining the smell of a bad running diesel is about the best I can do online, but at training, I can create the smell and clearly helps for future diagnosis.

The failure I am referring to is an EGR stuck open or combination of a stuck EGR and/or a blocked EGR cooler. In some cases, the vehicle has experienced poor performance or runs rough and/or throws a P0401 EGR Flow Insufficient fault code. Often the insufficient flow code informs us that the EGR cooler is restricted. The restriction is often caused by the buildup of carbon which is why it is important to remove such items for correct and thorough cleaning.

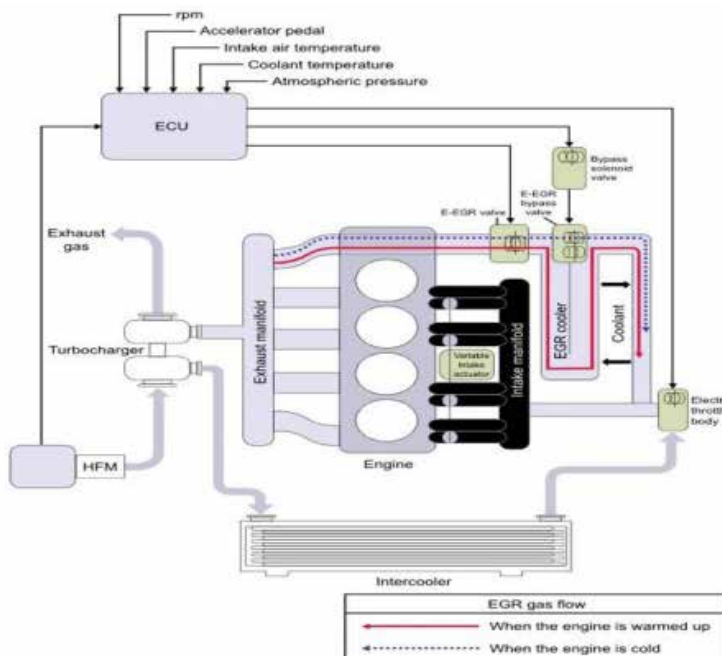
The 2 key check points I ask our Diesel Help member to confirm: The actual fuel rail pressure and the exhaust pipe during cranking of the engine. The fuel rail pressure can be viewed on the scan

tool. We must confirm it reaches MY desired minimum fuel rail pressure of 200 bar during cranking, which must be achieved within 1 to 3 seconds of the engine cranking time.

BTW the scan tool desired rail pressure is often somewhat different. It is referencing what the manufacturer expects whereas my desired pressure is exactly the point in which there is adequate fuel pressure to start a CRD engine. The other test is during cranking, is to observe and smell the diesel exhaust; I recommend that you have someone else crank the engine as some diesels fitted with a DPF can cloud your judgement.



FRP desired V actual



EGR flow can have a direct impact on the MAF readings. EGR open will decrease the amount of air passing through the MAF and EGR closed will increase the air quantity.

Typical MAF readings taken at idle only

EGR open position: 1.8 to 2.25 g/s per cylinder

EGR closed position: 3 to 3.5 g/s per cylinder

Typically for common 4-cylinder engines at idle

EGR open position: 7 to 9 g/s per cylinder

EGR closed position: 12 to 14 g/s per cylinder

TB1192 reference



Often when a fault like this is related to induction and the rail pressure is adequate, the smoke will be of white/light blue to grey colour. This white smoke is a result of the diesel fuel not burning to its full desired temperature. It can be referred to as cold burning, incomplete combustion, or unburnt fuel. As a result, the high pressure atomised fuel exiting the injector is expected to be burnt completely during its injection in the combustion chamber but instead, air intake is insufficient, resulting in the incorrect chemical reaction. If ignored for too long, eventually results in washing the bores of flooding the cylinder, causing no combustion.

Adversely this will create blue smoke as the bores are washed, the oil is mixed with the diesel fuel. This white smoke is also a deadly chemical reaction referred to as hydrochloride acid, that can cause cancer and other related lung diseases.

BOLD>Diagnosis and/or early detection of the fault: If the vehicle is running and appears to be hunting at idle, running rough and blowing excessive white smoke, we have a great technical bulletin which has helped hundreds of members namely TB1192-egr-cooler-restriction/ to confirm if the MAF data indicates a restricted EGR cooler or stuck open EGR valve.

If the vehicle is experiencing starting difficulties including starting then stalling, confirm the rail pressure reaches its minimum desired rail pressure within 1 to 3 seconds and observe any smoke from the exhaust. If yes, then to observe an engine starting without stalling, remove the EGR pipe from the intake and attempt to start the engine.



EGR connecting pipe in place EGR connecting pipe removed for testing



Solution: Remove and replace EGR valve with a genuine component, clean the EGR cooler and intake manifold whilst it is off the engine.

Special notes: Those who know me are aware that I am cautious when endorsing products, however in this instance I have found for a reliable and safe clean of an EGR and intake systems, we recommend using TUNAP 925-egr-system-cleaner and/or the TUNAP 926 Carbon remover.

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