



Subaru Diesel Secondary EGR Fault



By Clinton Brett

As soon as someone mentions Subaru Diesel, most mechanics instantly think- Oh that's easy, DPF issue, split intake pipe. But not me.



When you are diagnosing most of the country's diesel issues on a daily basis, you soon learn not to make assumptions of what the fault will be. Sure, Subaru often do have DPF related faults, but we have also witnessed a high volume of these Subaru diesels with the original DPF still fitted after 300,000kms.

As most of my regular readers would know by now, DPF faults are quite simple once you understand the system you are working with. That's what brings me to share this diagnostic with you.

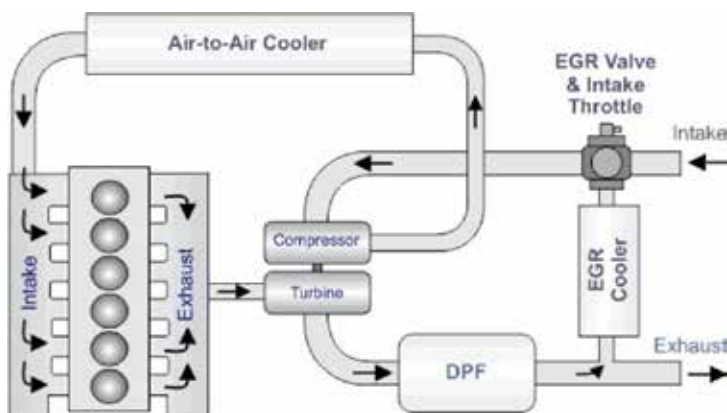
Late in 2014 Subaru released the Euro V version of their Subaru Diesel range, and a significant change was made to the emissions system by introducing secondary EGR.

The models that are fitted with this later Euro V design include Subaru Outback and Forester 2.0L EE20Z F4 16v DOHC I/C Turbo CRD 110kW, Auto (CVT) or Manual BS, B15 BSD 12/2014~12/2020.

Remember when discussing EGR, we are referring to the entire Exhaust Gas Recirculating System, not just the valve..

This can also include connecting pipes, sensors, intake manifolds and EGR coolers. The secondary EGR system on a diesel is referred to as the Low Pressure EGR and is located after the Diesel Particulate Filter (DPF). This design is not somewhat a modern innovation. The USA heavy vehicle industry was using this in the early 2000's to assist reducing nitrogen of Oxides (Nox) at minimal expense compared to the more expensive system we are all very familiar with- AdBlue. The cost of storing AdBlue was the US government's biggest hurdle and key stakeholders came up with this Low Pressure (LP) EGR system as a cost-effective alternative.

Looking at this image below provided by diesel Net, the LP schematics are easy to understand.



Low Pressure Loop EGR

One of the key features of this LP EGR is a fine gauze fitted in between the DPF and the EGR itself. The stainless steel gauze filter reduces excess carbon build-up around the EGR valve and EGR cooler. This can extend the service schedule for intake manifold cleaning.



LP EGR gauze

Unfortunately, this service does not occur very often and the gauze easily becomes blocked, triggering a P049B EGR B Flow insufficient fault code and the vehicle goes into derate status as a result of this code. By the way, using any on-vehicle intake clean is not the correct service method. Anyone with diesel knowledge and experience would be well aware this cleaning process has no chance of getting close to the EGR and in several cases, has created the opposite effect—blocks this LP EGR.

Diagnosis and/or early detection of the fault:

EGR B as it's known on the Subaru, has several lengths of steel tubing to direct the flow. One section of this tubing contains a fine gauze filter. This section has been described to look similar to an exhaust cat convertor, see picture.

When diagnosing this fault code, we advise to check this gauze first for any restriction. To locate this section, follow the EGR



EGR connecting pipe

bypass pipe from the passenger side across to the driver's side and you'll find the small cat converter design with a 2 bolt flange on either end. See pic of filter section removed.



Section removed under car

Remove and inspect for blockage. The filter is a fine stainless steel mesh and a quick confirmation can be done by pouring water into one end and observe if the water flows from the opposite end. If it is a slow flow, then it's restricted. Excess carbon and soot can be seen in the image.

Solution: Clean the section with a reputable cleaner. We don't make a habit of endorsing products but we do recommend TUNAP 925 EGR system cleaner as it works very well.

If it's a high km car and DPF condition and intake manifold condition is unknown then it would pay to clean these also. The MAP sensor has been known to build up with excessive carbon too and must be removed and inspected. If severe, do not clean the MAP sensor, replace with genuine only. The MAP sensor is located in the bottom section of the 2 piece intake manifold. It is important that both upper and lower intake manifolds are removed and thoroughly cleaned.



Blocked gauze

On a side note, for some time our Diesel Help Members have successfully cleaned this filter without a return fault. That was until we experienced a repeat offender. The vehicle returned after a week of driving approximately 500kms. The gauze had blocked very quickly and required removal and cleaning again- 3 times in 2 weeks. Further investigation found that this vehicle had a new DPF fitted by the local Subaru dealer BUT, for some strange reason, the dealer opted for an aftermarket DPF over their OEM preferred DPF.

With this and another repeated offender case, we came to the conclusion that the aftermarket DPF was not sufficient for this engine and was allowing excessive soot to pass through the DPF substrate filter. This would also mean it's possible that the DPF is not doing the task required, ie Reducing Emissions. Adding fuel to fire, in one of these cases, the technician opted to remove the gauze. This of course is going to lead to other issues down the track- Blocked EGR cooler, EGR clogged and intake restriction. It's going to require a more expensive repair and possibly damage in the long run.

If any Aftermarket DPF manufacturers or suppliers are reading this article, I welcome further discussions on this matter.

For more info or to find out about our Diesel Help membership, visit www.dieselhelp.com.au

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Included in the range is the EVC2KW 2.4KW EV Emergency Charger, which allows owners to daily or emergency charge their vehicles at the home or in the garage by plugging into a regular mains socket. The charger features an ergonomic design for comfortable use, and an LCD screen displays charging information.



Also available are the EVCBT2T2 and EVCBT2T2-3P 7.2KW and 22KW EV Charging Cables which are suitable for charging Type 2 vehicles at a Type 2 charging station; these chargers come with a choice of either single or three-phase cables. For owners with older Type 1 vehicles, the EVCBT2T1 Type 1 EV Charging Cable is a must-have, allowing

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All chargers are ergonomically designed, are weatherproof and built to endure high frequency use; they also feature caps that prevent water and dust ingress and are certified to IK10 ratings for impact resistance to ensure durability. For safe and convenient storage and transportation, the charging cables come with a hard-wearing EVA case.

Projecta also offers a selection of convenient charging adaptors, including the EVAPT1T2 Type 1 to Type 2 Adaptor for charging a Type 2 vehicle at a Type 1 charging station, and the EVAPT2T1 Type 2 to Type 1 Adaptor for charging a Type 1 vehicle at a Type 2 charging station.

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