



“I’ve replaced the SCV and the fault re-appears!”

In this issue, not so much is a fault code always present, the symptoms of stalling, runs rough, surges or does not start and/or does start and then stalls again are evident which points the technician to the Suction Control Valve (SCV). However, read on to find out how a \$2 component (which in some cases only takes 5 minutes to rectify) fault is becoming more common in all common rail diesels (CRD).

If present a variety of codes may include, P0087, P0088, P0089, P0090, P0091, P0092, P0093, P0094, P1089.

Back in my early days of common rail diagnostics, we experienced endless occasions when mechanics would send a European common rail diesel to us after they had replaced the rail sensor only to have the same fault re-occurring.

Before the introduction of SCV fitted to Denso CRD, we never experienced such faults. The European manufacturers Bosch, Siemens & Delphi use inlet metering valves, fuel control valves and pressure regulation valves that had a low failure rate. The Denso common rail diesel system was different to that of the European designed common rail systems and came with a new set of guidelines to diagnosing.

I’m referring to around 2005 when I become the part owner of a diesel fuel injection business on the Gold Coast (QLD). We had every local car dealership on our customer list including Toyota, Mitsubishi and Nissan to name a few.

In those early days it looked like it was a never ending stream of SCV faults which often were a result of the different fuel qualities from state to state meaning the manufacturers had to make some modifications to suit our conditions.

As years passed eventually they (manufacturers) got it right, yet we still were experiencing SCV faults that were not always the SCV failing. This is where correct diagnostics of diesel systems using your years of mechanical knowledge comes into play.

Fault codes or no fault codes.

This is what happens after the SCV has been replaced and the fault re-occurs. Yes they do fail and you need to be sure your diagnosis was correct the first time. Some vehicles after a new SCV is fitted will leave the workshop, travel a couple of days or a few hundred km’s and the same fault would occur again. Air in the fuel system is one of the contributing factors.

One of the biggest enemies in a diesel fuel system is AIR. Air can enter into a fuel system easily in many different areas. The



SCV & PCV- how do you tell the difference?

scan tool won’t tell you the system has air in the fuel. Air will not compress in diesel fuel system. I’ve witnessed entire fuel systems being replaced only to find out a \$2 fuel filter drain tap O-ring was the cause.

Diagnose to replace, not replace to diagnose.

I hear this all the time, “I’m going to replace the SCV because I’ve read it’s a common fault, they’re not expensive and it will probably be due for one”.

I am going to provide you with information on how to perform one of the easiest low cost diagnostic procedures which will help determine if it really is a failed SCV.

Diagnostic procedure- Detecting air in a fuel system



Option 1- Install what I call, ‘The Eliminator’ - a separate fuel supply unit *. Be aware that a separate fuel supply is not adaptable to all diesel systems. (We may cover this in a future issue)



Option 2- Replace the existing fuel hose with clear tubing.

Use enough length to route outside the engine bay to be visible whilst driving between the fuel filter assembly and the high pressure fuel pump. Also run another clear tube replacing return of the pump to either the tank or fuel filter (depending on the engine design).

Route the clear tube around the side mirror which keeps it secure without obstructing your vision. You will be driving and observing for large air bubbles when the fault occurs.



FINDINGS:-

Air is entering on the low pressure side between high pressure pump & tank. Check list below:

- Fuel filter seals.
- Fuel filter Drain tap O-ring. (As recommend in my diesel diagnostic training courses to be replaced every 2nd service).
- Perished fuel hose.
- Quick release fitting seals failed.
- Cracked fuel tank pick up.
- Blocked fuel tank pick up or internal tank hose dislodged. (certain vehicles described during my training courses)



Many of these rubber seals will only have a life span of approx. 6 years. Combined with diesel fuel in constant contact, harsh conditions including heat these rubber items do not last and must be replaced at regular intervals. Prevention is better than cure.

Air is visible on the return clear tube but no air is entering the pump.

- Radial seal/drive shaft worn in high pressure pump.

Air will not only create faults, it can also contribute to increase wear of the fuel system such as the rail, injectors and high pressure pump. Air is a non-lubricant and all diesel systems rely on full flow of diesel through the system. I have a motto I use - Aeration causes cavitation results in devastation.



*Products mentioned here are available from Diesel Do At and this is just one diagnostic procedure demonstrated when you attend my training courses delivered throughout Australia & New Zealand. More in-depth explanation of these and many more faults in CRD & non CRD are explained in my diagnostic training courses. For more information or to join my Diesel Help Membership (phone guided diagnostic assistance), diagnostic test equipment or CRD parts visit www.dieseldoat.com or email me clinton.brett@dieseldoat.com or mobile 0432 738003.

WorldSkills Winners



WorldSkills Australia aims to develop and nurture the skills of young Australians. Their purpose is to promote and build a skills culture by inspiring young people, celebrating skills excellence and providing them with an opportunity to showcase their trade and skill talent. Their aim is to achieve this goal through competitions held on a regional, national and international level.

Hundreds of Australia's finest young people have been recognised for their determination and talent recently at

the WorldSkills Australia National Competition. Over three long days they pushed their limits to perform a range of challenging tasks. The Automotive results are shown here. More info go to www.worldskills.org.au

SKILL	MEDAL	NAME	REGION	TRAINING PROVIDER	EMPLOYER
Auto Electrical	Gold	Scott Shearan	Sydney West	TAFE NSW Western Sydney Institute	Powers Road Auto Electrical
Auto Electrical	Silver	Connor McCue	Brisbane	TAFE QLD SkillsTech	Hastings Deering
Auto Electrical	Bronze	Luke Budd	Gold Coast	TAFE QLD Gold Coast	Mullumbimby Auto Air and Electrical
Autobody Repair	Gold	Jade McSorley	Sydney West	TAFE NSW Western Sydney Institute	Welch's Highway Smash
Autobody Repair	Silver	Damien Kleyn	Perth South	South Metropolitan TAFE	Cronic Customs
Autobody Repair	Bronze	Matthew Brandt	Hunter	TAFE NSW Hunter Institute	Branxton Greta Smash Repairs
Automotive Mechanics	Gold	Jake Hiscock	Northern Rivers	TAFE NSW North Coast Institute	Lismore Car Repairs
Automotive Mechanics	Silver	Jordan Repetto	Sydney West	TAFE NSW Western Sydney Institute	Advanced Steering & Mechanical
Automotive Mechanics	Bronze	Robert Jory	Brisbane	TAFE QLD SkillsTech	All Trades Queensland
Heavy Vehicle Mechanics	Gold	Louise Azzopardi	Illawarra	TAFE NSW South Western Sydney Institute	Cummins South Pacific
Heavy Vehicle Mechanics	Silver	Simon Nelissen	Perth South	South Metropolitan TAFE	Skipper Trucks
Heavy Vehicle Mechanics	Bronze	Cameron Lennox	Perth North	South Metropolitan TAFE	Cunninghams AG Services
Vehicle Painting	Gold	Dusti-Lee Franchi	Perth South	South Metropolitan TAFE	Edward Fitzgerald
Vehicle Painting	Silver	Jac Ulrich	Gold Coast	Work Skills	Miami Smash Repairs
Vehicle Painting	Bronze	Crystal McLaren	Central Victoria	GOTAFE	Jacobs Body & Paint



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Clinton Brett provides phone assistance for mechanics working on diesels. I will assist, guide and work with you through simplified diagnostic procedures to help get your customers diesel vehicle back on the road as quickly as possible whilst aiming to keep the expense minimal.