

Diesel: 4JJ1 SCV

Common Fault

4JJ1 3.0L

Holden Rodeo RA 2007-2008

Holden Colorado RC 2008-2012

Isuzu D-Max 2008-2015

A blocked, stuck or dirty Suction Control Valve (SCV) can cause a number of engine driveability problems, such as lacking power and hard to start.

The engine light will usually come on and the ECM will log any of the following fault codes:

- P0087 - Rail Pressure Limiter Operation
- P0088 - Abnormal Rail Pressure
- P0093 - Fuel Leak or Rail Pressure Sensor Performance Abnormality
- P1093 - Rail Pressure Insufficient at High Load
- P1094 - Fuel Rail Pressure Too Low

Note: It is important to rule out any other common problems before replacing the SCV. These will include repairing the cause of any other fault codes, and checking on items such as fuel lines and filter as well as fuel quality issues.

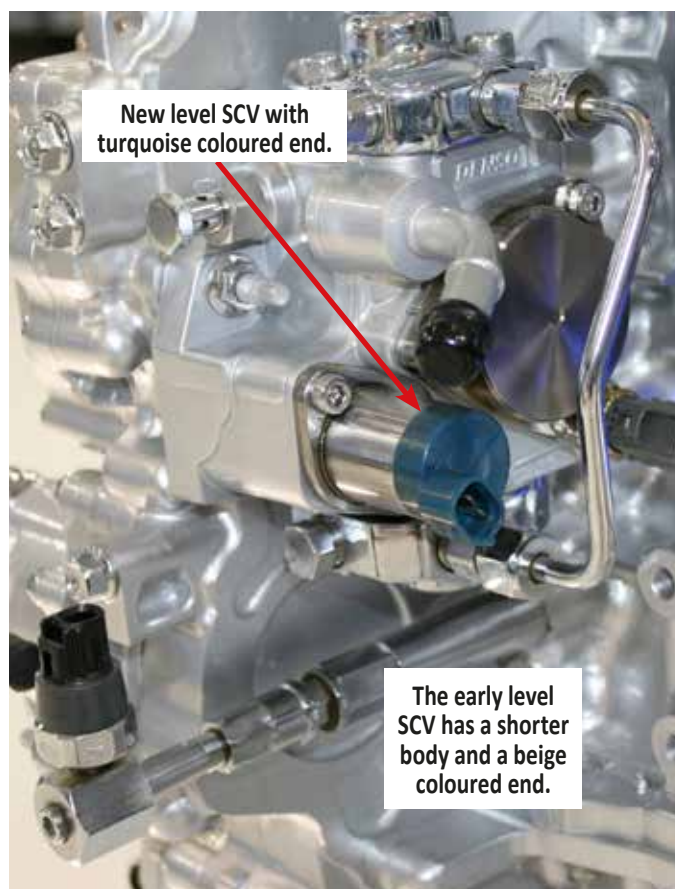
The early level SCV is highly susceptible to sticking, and should be changed if still fitted. However, new level SCV can also have problems, especially if the fuel has been contaminated. The new level SCV was introduced as part of vehicle production by the middle of 2009.

SCV Identification

The early level SCV has a short nozzle and body, and has a beige coloured end for the electrical connector.

The later level SCV has a longer body and a turquoise coloured end for the electrical connector. The nozzle has a different shape and is about 5mm longer.

Engine hard to start and lacking power can be caused by a stuck or blocked Suction Control Valve.



The pump is different for each SCV design. Therefore, if retrofitting a new SCV to an old pump design, then you also need to fit a 5mm adapter plate and a spacer to fit onto the end of the nozzle. An old style pump will have either an old level SCV or have a 5mm adapter plate between the valve and pump. ▶


Note: If you are replacing an SCV that has already been upgraded to the new level part, it is best to replace the adaptor and spacer as well. You will need to pry the nozzle spacer out of the pump opening with a pick or similar.

SCV Replacement

1. Use well fitting sockets and Allen keys to avoid causing damage to bolts and screws.
2. Remove vehicle battery from tray.
3. Disconnect the SCV electrical connector.
4. Move the wiring harnesses away from the pump and out of the way.
5. Disconnect the fuel and leak-off hoses.
6. Remove the leak-off pipe and hose.
7. Clean area surrounding the SCV and then remove.
8. Apply engine oil to the large O-ring between the spacer and the SCV, (if using a spacer).
9. Install the smaller O-ring into the groove in the pump.
10. Fit nozzle adaptor to SCV (if required).
11. Carefully install the SCV, ensuring that the O-rings do not move from their positions.
12. Refit leak-off pipe and hoses.
13. Connect new SCV and re-secure wiring harnesses.
14. Refit battery.
15. Carry out fuel supply pump relearn.

Pump Relearn

The parameters of the new SCV will need to be calibrated to the pump. If this is not carried out correctly then it will log fault codes or cause running difficulties.

1. With a suitable scan tool, turn the ignition on and go to "Fuel Supply Pump Learn Resetting" or "Supply Pump Initialisation" under Engine - Programming.
2. Carry out steps shown by your scan tool.
3. Start engine and let it idle until it reaches operating temperature.
4. Check the "Fuel Supply Pump Status" PID. It will change from "Not Learned" to "Learned" once the operation has completed and the parameters are stored in the ECU. 

Note: Depending on built date etc., the pump resetting item may not be available as a separate option. These vehicles will also not have a 'Fuel Supply Pump Status' PID. In these cases, you will need to start and run the engine at idle until it reaches operating temperature. Check system for fault codes and correct operating pressures with your scan tool.

Caution: Clean all surrounding components and immediately cap the ends of all pipes and hoses every time you open any part of the diesel fuel system. Modern common rail diesel fuel systems have extremely fine tolerances. Any dirt or dust entering the system will cause either immediate damage or long term wear.



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