
Nissan Sentra

Emission Overview

The Nissan Sentra was introduced to the U.S. market in 1982 and quickly became one of Japan's biggest-selling subcompacts. Taken individually, its emission control systems aren't that complicated. It's only when you put them all together under the hood of a small car that they start to look confusing. It's often been said that you can't fix something until you understand how it works. This article will improve your understanding of the 1982-83 Sentra's emission controls.

A special high fuel economy model called the M.P.G. was offered during 1982-83, but its emission

systems were considerably different and won't be covered in this article.

Blown Engine Control Fuse

Remember that when Nissan deleted the catalyst warm-up system in 1983, it installed a mixture-heating system at the base of the Sentra carburetor. Whenever the engine control fuse blows, check for melted connections at this mixture-heating element. Sometimes, the element's power feed shorts out against the manifold.

**1**

HIDDEN PCV VALVE

The Sentra's PCV valve is hidden below the carburetor at the back of the intake manifold. Kinks or blockages in the long PCV hose that runs to the valve cover will force oil back through the breather element and into the air cleaner.

**2**

EVAPORATIVE EMISSIONS

The Sentra uses a garden-variety charcoal canister to control evaporative emissions. The canister's mounted toward the left side of the firewall. It holds vapors released by both the carb and the fuel tank.



3

VACUUM CONTROL CENTRAL

Once the engine has warmed up, this thermal vacuum valve (TVV) allows it to purge and burn canister vapors. Located on the intake's right side, the TVV also controls vacuum to the EGR valve and the vacuum advance. Always test the TVV for sticking.



4

EGR'S MYSTERIOUS BALL BEARINGS

Sometimes, ball bearings just seem to fall out of the sky and into the EGR's vacuum hose. After this bearing lodges itself inside the hose, the engine that never pinged before begins pinging. Underhood systems are designed to work together!



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EGR-VVT OPERATION

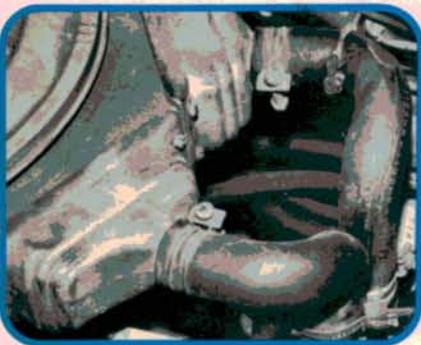
A venturi vacuum transducer (VVT) valve monitors exhaust backpressure and venturi vacuum. Then it regulates the amount of EGR accordingly. Corrosion at the bottom of the VVT can disable it and create an exhaust leak.



6

FREE LUNCH

Thanks to the air induction system (AIS), the Sentra doesn't need a power-robbing air pump. Exhaust pulsations create a vacuum that draws secondary air into the exhaust manifold. Additional air helps burn up HC/CO emissions.



7

AIS INTAKE FILTERS AND VALVES

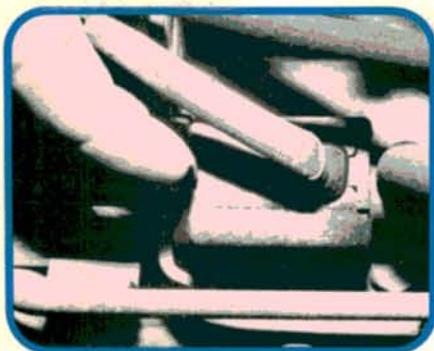
AIS draws air through two separate filters and check valves on left side of the air cleaner housing. Filters must be clean and unobstructed. Check valves must allow air flow only in the direction of the exhaust. Inspect them!



8

RUNAWAY ENGINE

On '82s, Nissan used this diaphragm to raise the idle speed and advance the timing during cold engine operation to help light off the converter sooner. People complained about this system because a cold engine racing at 3000 RPM didn't seem right.

**9****CATALYST WARM-UP CONTROLS**

If the high warm-up idle doesn't drop when you shift out of neutral, check the vacuum solenoid on top of the intake. A faulty TVV or engine thermostat can also prolong this high warm-up speed. This system was deleted on the '83 model.

**10****FUEL SHUTOFF**

This shutoff solenoid cuts off fuel to the idle circuit under two conditions: when the key's turned off and during deceleration from high engine RPM. If the engine won't idle, check the solenoid before you condemn the carburetor itself.

**11****SPARK TIMING CONTROL**

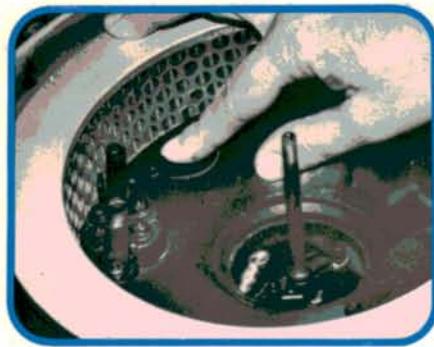
This delay valve controls vacuum to the distributor at all temperatures. When the engine's cold, the TVV allows full vacuum to the distributor. At intermediate temperatures, you get partial advance. Full advance returns when the engine warms up.

**12****LOSING YOUR BEARINGS**

The control valves seldom cause problems in this system. If you encounter an advance problem, check inside the distributor. Sometimes, the breaker-plate bearings fall out and jam the plate so it can't advance.

**13****ANTI-BACKFIRE VALVE**

If this anti-backfire (AB) valve sticks open, the engine will have a rough idle, or it won't idle at all. If the AB valve sticks closed, the engine will backfire between upshifts when the throttle is closed suddenly.

**14****TESTING THE AB VALVE**

Rev the engine to 3000 RPM and put your finger over the AB valve inlet here. You should feel suction only when you close the throttle suddenly. Suction at any other time means the valve's stuck open.

—By Lou Reichardt