

1974-79 EXHAUST EMISSION SYSTEMS

Opel Catalytic Converters

All Models

DESCRIPTION

Opel models use a catalytic converter on all California and High Altitude models to reduce hydrocarbon (HC) and carbon monoxide (CO) emissions. A high temperature control and warning system may be used. Its purpose is to prevent overheating of exhaust system due to high temperatures created in catalytic converter. If temperatures exceed 1830°F (999°C), a warning light and buzzer warns vehicle operator. The catalytic converter system works in conjunction with the coasting richer system. See COASTING RICHER SYSTEM in this section for additional information.

OPERATION

HIGH TEMPERATURE CONTROL SYSTEM

While engine is coasting, high temperature build up in the catalytic converter is prevented by the coasting richer system. When converter reaches about 1350°F (730°C), secondary air (air injection) is dumped to the atmosphere to reduce the chemical reaction in the catalytic converter. The releasing of secondary air is accomplished through the vacuum switching valve and air switching valve.

Vacuum Switching Valve - Valve is activated when converter temperature reaches 1350°F (730°C) or more, intake manifold vacuum passes through vacuum switching valve and connects with air switching valve to dump air pump air. When de-energized, valve allows intake manifold vacuum to pass to air switching valve and connect normal passages of air pump-to-injection manifold.

Air Switching Valve - This valve is designed to switch air flow from air pump (secondary air) and is operated by manifold vacuum and air pump pressure which is controlled by vacuum switching valve.

THERMO SENSOR & THERMO CONTROLLER

Thermo sensor is inserted into converter to determine catalytic converter operating temperatures. The thermo sensor sends varying electrical signals to thermo controller. At about 1350°F (732°C), the thermo controller sends an on signal to energize vacuum switching valve. At 1830°F (999°C), the thermo controller turns on warning lamp and buzzer.

TESTING

VACUUM SWITCHING VALVE

With valve removed from vehicle, apply 12 volts to connector terminals and listen for clicking of solenoid as it moves inside valve. If no clicking is heard, replace valve.

AIR SWITCHING VALVE

With vacuum switching valve installed, apply 12 volts to valve and start engine. If air switching valve is okay, air will flow from atmospheric outlet of air switching valve. If not, replace valve.

THERMO SENSOR

Run engine at idle for a few minutes. Disconnect thermo sensor connector. Check for continuity between connector terminals of thermo sensor. If no continuity exists, replace thermo sensor.

THERMO CONTROLLER

If thermo controller is okay, warning light and buzzer will operate when ignition key is in "ON" position. Light and buzzer will go off automatically after a few seconds. If they do not activate initially, check wiring. If wiring is okay, replace thermo controller.