

Exhaust Emission Systems

1971-72 CHRYSLER CORP. NO_x SYSTEM

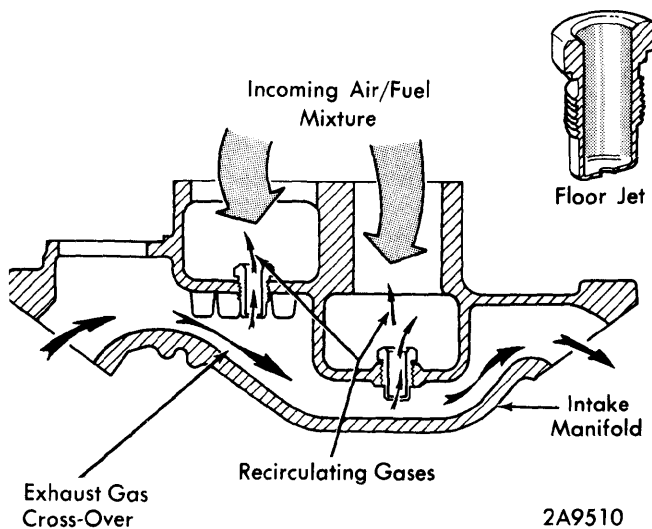
NOTE — Chrysler Corp. NO_x System is installed on all 1971-72 vehicles assembled for sale in California.

CHANGES, CAUTIONS, & CORRECTIONS

CORRECTION FOR ROUGH IDLE, SAG, OR STUMBLE — May be encountered during periods of light acceleration on models equipped with 225" engine. Condition can be corrected by replacement of intake manifold floor jet #3614386 (.125" diameter orifice) with jet #3698683 (.104" diameter orifice). Adjust basic engine timing to 2½° BTDC. Adjust carburetor idle mixture to obtain 14.1 air/fuel mixture ratio.

DESCRIPTION

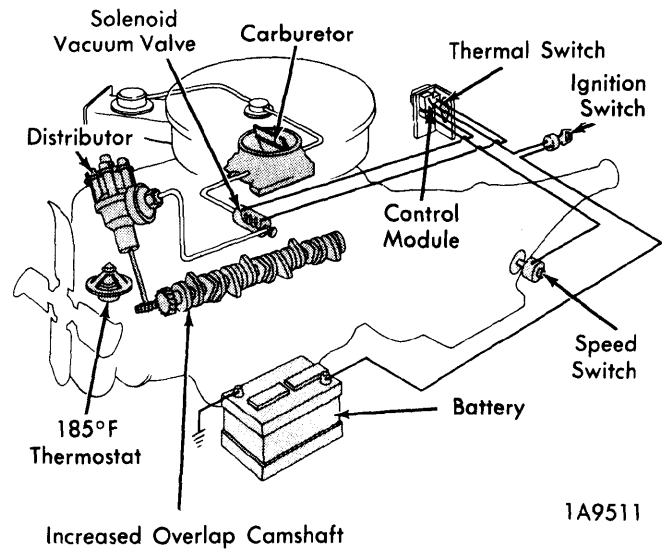
Chrysler Corp. NO_x System is designed to reduce emissions of oxides of nitrogen exiting to atmosphere by elimination of distributor vacuum advance in lower gear ranges. NO_x System consists of a special camshaft designed to give increased valve overlap, 185°F coolant thermostat, a solenoid vacuum valve, and on 1972 models, Exhaust Gas Recirculation (EGR) System. Depending on transmission used, following components controlling operation of solenoid vacuum valve are also used:



EXHAUST GAS RECIRCULATION (EGR) FLOOR JET SYSTEM

Manual Transmission — In addition to equipment described, all vehicles using manual transmissions incorporate a switch in transmission housing to sense gear selections. 1971 models also utilize a thermal switch.

Automatic Transmission — NO_x System includes a speed switch in line with speedometer cable and mounted on transmission housing. NOTE — On some applications, speed switch is attached mid-cable with speedometer drive, and attaches to frame member by bracket providing electrical ground. Control unit, a combination vacuum-temperature switch, is mounted on engine firewall. In addition to NO_x System described, all 1971 383" 2-Bbl. engine applications with automatic transmission, but without air conditioning, also incorporate a Thermal Ignition Control Valve to by-pass NO_x System when engine starts to overheat. See Chrysler Corp. Thermal Ignition Control (TIC) System.



NO_x SYSTEM SCHEMATIC, TYPICAL AUTOMATIC TRANSMISSION

OPERATION

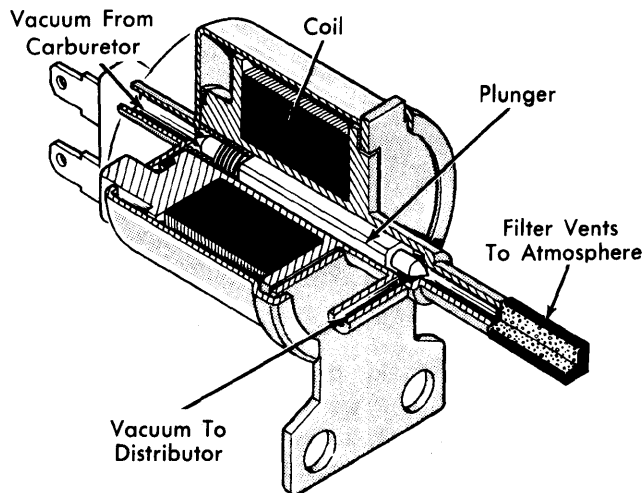
Solenoid Vacuum Valve — Connected in hose between carburetor and distributor vacuum advance unit. When solenoid is de-energized, spring loaded plunger shuts off vent to atmosphere and allows normal vacuum advance. When solenoid energizes, plunger is drawn to opposite end of travel, action of plunger shuts off vacuum from carburetor and allows vent to open to atmosphere. Vacuum advance is prevented, and any vacuum trapped in distributor advance unit is released to atmosphere. Solenoid Vacuum Valve is identical for both manual and automatic transmission applications, but utilize different control components as follows:

Manual Transmission — Solenoid valve is controlled by transmission switch. Switch remains closed in any gear selected below top, or high, gear and opens whenever high gear (three-speed transmission) or fourth gear is engaged. When transmission is in lower gear range, an electrical circuit to ground will be completed, energizing solenoid valve and cancelling out normal vacuum advance. When high gear is selected, circuit will be broken de-energizing solenoid valve and allowing normal vacuum advance. On thermal switch equipped 1971 models, switch will open if ambient temperature is below 70°F, making NO_x System inoperative. At temperatures above 70°F, NO_x System will function normally.

Automatic Transmission — Temperature switch in control unit assembly opens at ambient temperatures below 70°F rendering NO_x System inoperative. When ambient temperature is above 70°F, switch will close, routing circuit through to speed switch and vacuum switch. At speeds below 30 MPH, speed switch will be closed completing circuit to ground, and energizing solenoid vacuum valve to shut off vacuum to distributor advance unit. At speeds above 30 MPH, speed switch opens to de-energize solenoid vacuum valve allowing vacuum to reach distributor advance unit. Vacuum switch, located in control unit assembly, is controlled by intake manifold vacuum. Switch is energized during periods when manifold vacuum is low, as in acceleration, causing solenoid

1971-72 CHRYSLER CORP. NO_x SYSTEM (Cont.)

vacuum switch to cut off vacuum to distributor advance unit. In summation, when ambient temperature is above 70°F at speeds below 30 MPH, or during periods of acceleration, there will be no vacuum to distributor advance unit.



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SOLENOID VACUUM VALVE

Temperature Operated Vacuum By-Pass Valve — Purpose of valve is to sense change in coolant temperature. When coolant temperature indicates overheating, valve opens to allow manifold vacuum to pass to distributor and advance ignition timing. Engine RPM will increase to promote better cooling, condition will continue until overheating situation is corrected, then valve will shut off vacuum to distributor and allow NO_x System to resume normal operation.

Exhaust Gas Recirculation (EGR) — On some 1972 applications, exhaust gases are introduced into intake manifold through floor jets located in bottom of manifold. An orifice in each jet allows a controlled amount of exhaust gas to be drawn in via engine vacuum to dilute incoming air/fuel mixture. On six cylinder applications, exhaust gases are taken from exhaust manifold plenum chamber below carburetor heat riser. On V8 engines, gases are pulled from exhaust crossover passage in intake manifold.

TESTING

Manual Transmission — *NOTE* — To test system for operation be sure ambient temperature is above 70°F. Place transmission in Neutral and turn ignition on. Disconnect wire from B+ terminal of ballast resistor while holding solenoid vacuum valve. You should feel valve de-energize. Reconnect wire and you should feel solenoid energize. Place transmission in high gear, solenoid should not energize when wire is disconnected or connected. If system does not function correctly, check as follows:

1) Remove electrical connector from solenoid vacuum valve. Place a jumper from piggy back connector on ballast resistor to one of solenoid vacuum valve terminals. Place a second jumper from remaining vacuum valve terminal to ground. With ignition switch on, solenoid should energize, if not, replace solenoid vacuum valve.

2) Remove electrical connector from thermal switch. Using a short wire, jump electrical connector. Place transmission in Neutral and turn ignition on, solenoid vacuum valve should energize. If temperature is above 70°F and solenoid vacuum valve does not energize when thermal switch is connected, but does energize when plug is jumped, thermal switch is defective and should be replaced.

3) Place transmission in Neutral and turn ignition switch on. Remove electrical connector from transmission switch. Using a piece of wire, connect transmission switch connector to ground. If solenoid vacuum valve functions when this is done, replace transmission switch. *NOTE* — Make sure transmission switch is properly torqued to 180 INCH lbs. to insure proper grounding.

Automatic Transmission — With engine at normal operating temperature and ambient temperature above 70°F, check as follows:

1) Using suitable "T" fitting, place vacuum gauge between distributor and solenoid vacuum valve. Raise rear wheels. Disconnect and plug vacuum line at vacuum switch on control unit assembly. Start engine and run at fast idle (above 850 RPM). Vacuum gauge should read zero. Remove electrical lead from control unit "T" connector, vacuum gauge should indicate vacuum. Reconnect wire, gauge should drop to zero.

2) Unplug and reconnect vacuum line to vacuum switch and disconnect single wire lead from control unit to speed switch. Gauge should indicate vacuum. A sharp acceleration will cause vacuum gauge to drop to zero sharply. Limit speed to 40 MPH. As engine RPM stabilizes, vacuum should be restored and gauge should indicate vacuum advance. Reconnect speed switch lead.

3) Disconnect and plug vacuum line at vacuum switch. Vacuum gauge should be zero. Accelerate engine to above 30 MPH, vacuum gauge should indicate normal vacuum advance when about 30 MPH is reached.

If no solenoid action occurred in foregoing procedures, replace control unit assembly. Repeat tests to be sure problem was corrected. Reconnect vacuum lines as before test and be sure all wires are securely connected.

Exhaust Gas Recirculation — Testing of this system is not required. After first 24,000 miles, inspect floor jets for deposit buildup. With engine off and air cleaner removed, hold choke and throttle valves open. Using a flashlight, visually inspect floor jets through carburetor. If jet is plugged, remove, clean and reinstall. This procedure should then be repeated every 12,000 miles. *NOTE* — Floor jet is anti-magnetic stainless steel material. Care should be taken so that jet will not fall into intake manifold ports during removal and installation.