

EGR Stepper Motor General Description

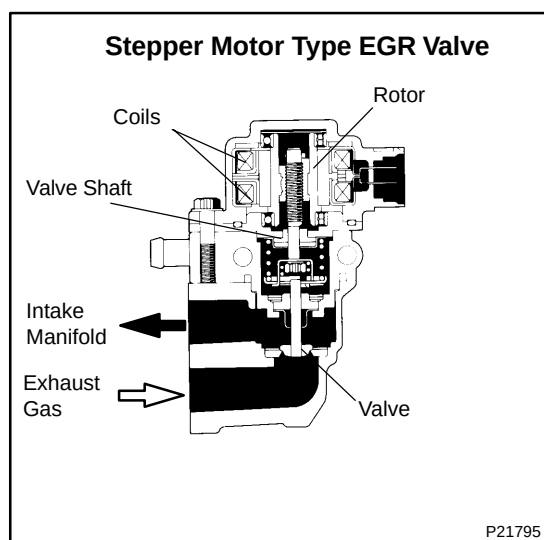
MONITOR DTC TABLE

DTC	Document Title	See Page
P0401	EGR Flow Insufficient Monitor Description	Eg-39
P0402	EGR Flow Excessive Monitor Description	Eg-42
P0403	EGR Valve Monitor Description	Eg-44

NOTE:

Some DTCs may have different meanings from those listed above depending upon the EGR Monitoring strategy. To identify which strategy is used on each model, refer to EGR Monitor Summary (See page [Eg-1](#)).

GENERAL DESCRIPTION



The ECM senses the opening of the EGR valve using the EGR gas temperature sensor. If there is low variation in the temperature of the EGR gas flow, the ECM will conclude that there is a fault in either the EGR valve or the EGR gas temperature sensor. The ECM will illuminate the MIL and set a DTC.

The EGR system is used to lower combustion temperatures and thus reduce the quantity of NOx generated in the combustion process. Without EGR, under high load conditions, the combustion temperature would be high and large quantities of NOx would be generated. With the EGR system, exhaust gas is “recirculated” by diverting a percentage of the exhaust back into the intake manifold. The recirculated exhaust lowers the combustion temperature and NOx production is reduced. In some driving conditions, EGR gasses can affect driveability. In these driving conditions, the ECM commands the EGR stepper motor to close the EGR valve. Closing the EGR valve stops the recirculation of the exhaust gas to the intake manifold.

1. EGR Flow Insufficient Monitor (DTC P0401)

The ECM senses the opening of the EGR valve using the EGR gas temperature sensor. When conditions for EGR flow are met, the ECM monitors the EGR gas for temperature variation. If there is low variation in the temperature of the EGR gas flow, the ECM will conclude that either the EGR valve did not open or the EGR gas temperature sensor is malfunctioning. The ECM will illuminate the MIL and set a DTC.

2. EGR Flow Excessive Monitor (DTC P0402)

The ECM senses the closing of the EGR valve using the EGR gas temperature sensor. When conditions for closing the EGR valve are met, the ECM monitors the EGR gas for temperature variation. If there is low variation in the temperature of the EGR gas flow and there is engine misfire present, the ECM will conclude that the EGR valve did not close. The ECM will illuminate the MIL and set a DTC.

3. EGR Valve Monitor (DTC P0403)

The ECM senses the duty-cycle of the control signal applied to the EGR valve stepper-motor. If the duty-cycle is 100 %, the ECM will conclude that the EGR valve stepper-motor is malfunctioning. The ECM will illuminate the MIL and set a DTC.