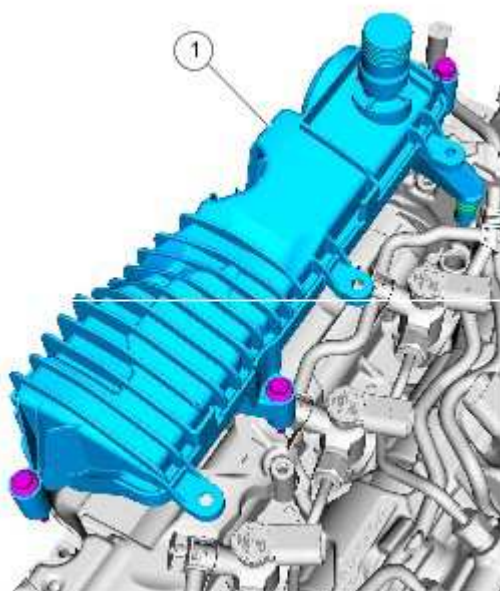


Description and Operation

Crankcase Ventilation System



E235918

Item	Description
1	Oil separator

NOTE: Do not permanently remove or render inoperative any part of the vehicle emission control system including related hardware.

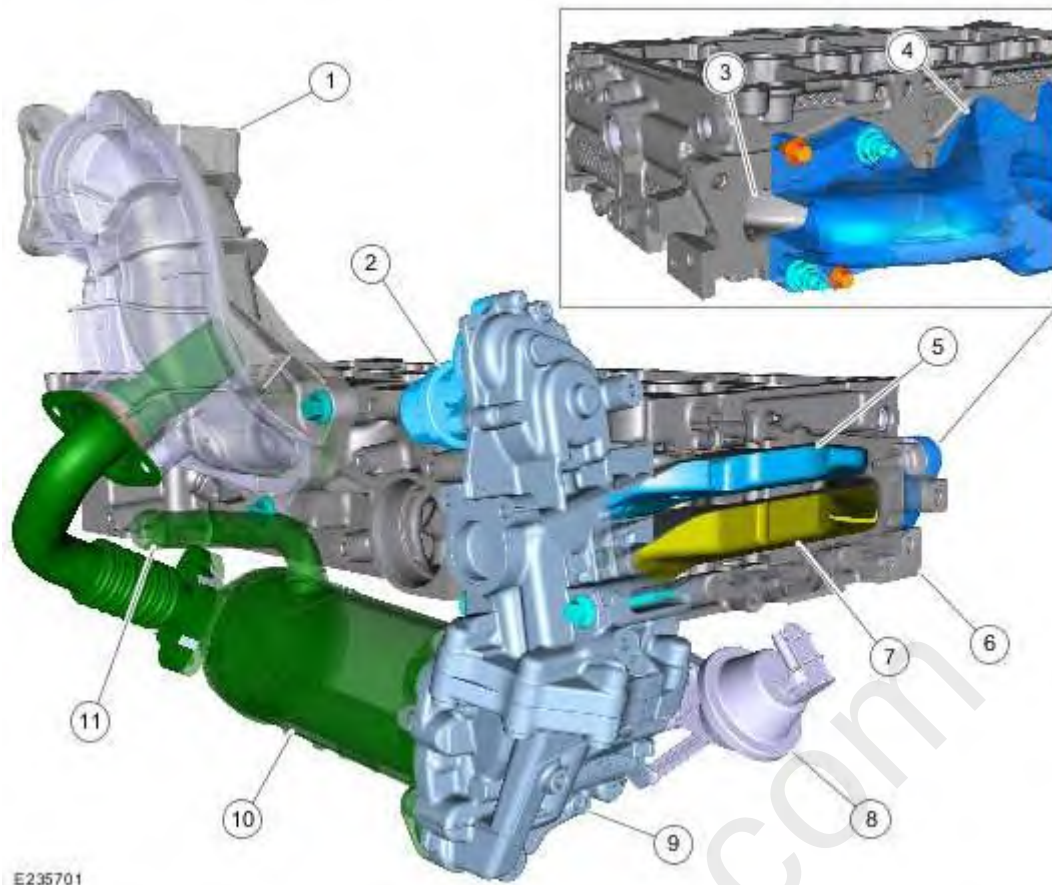
The crankcase ventilation system cycles crankcase gases back through the intake air system and into the combustion chamber where they are burned. The system regulates the amount of ventilated air and blow-by gases to the intake manifold. An oil separator is used to separate the oil from the blow-by gases, preventing them from entering the intake air system.

The oil separator on the Panther engine is directly mounted on top of the camshaft module using four bolts and consists of an impactor plate with fleece.

One side of the crankcase ventilation hose is fixed to the spigot on the oil separator and other is connected to the clean air duct.

The oil captured by the oil separator flows down an isolated drain channel through the cylinder head, block and ladder frame to the engine sump.

Exhaust Gas Recirculation (EGR) System



Item	Description
1	Inlet housing
2	Electric EGR (exhaust gas recirculation) valve
3	Cylinder head integrated EGR exhaust tube
4	Exhaust manifold
5	Cylinder head coolant tube (to EGR cooler)
6	Cylinder head
7	Cylinder head integrated EGR exhaust tube
8	Pneumatic EGR cooler bypass actuator
9	EGR assembly
10	EGR cooler
11	EGR cooler coolant pipe

The EGR system is used to control Nitrogen Oxides (NOx) emissions from the exhaust system. Small amounts of exhaust gas are recirculated back into the combustion chamber to mix with the air and fuel charge. This causes the combustion chamber temperature to be reduced, lowering NOx emissions.

The panther engine uses a duct integrated into the cylinder head to deliver the exhaust from the exhaust manifold to the EGR assembly.

An electric EGR valve is used to control the amount of exhaust entering the intake system. This system also incorporates an EGR cooler, which is used to cool the exhaust gases by transferring heat from the exhaust to the engine coolant. Cooling the exhaust gases further aids in the NOx reduction process.