Engine - Overview

Base Part Number: 6L084

Overview

The 2.3L GTDI engine which may also be described with these terms:

- GTDI - Gasoline turbocharged direct injection
- DI - Direct injection
- TIVCT - Twin independent variable camshaft timing
- I4 - 4 cylinder engine
- 16 V - 4 valves per cylinder
- 4V - 4 valves per cylinder, 16 valves total

2.3L GTDI (273PS):

- 2.3L - Engine displacement
- 273PS - Engine power rating

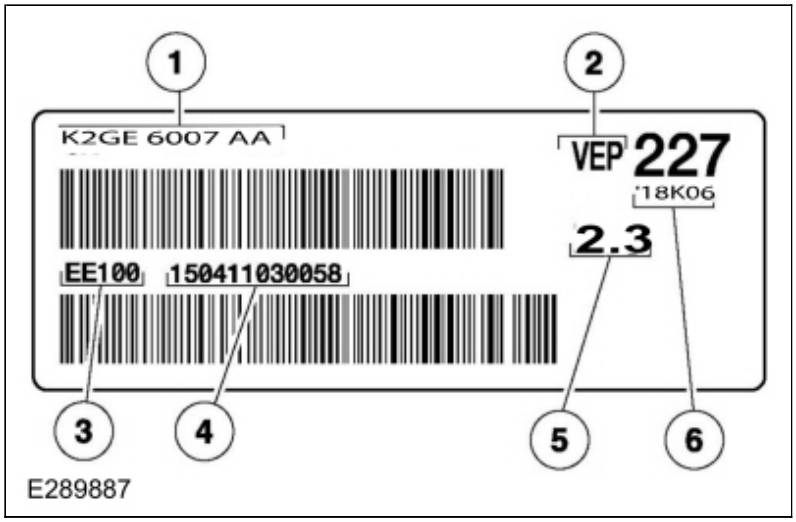
The 2.3L Gasoline Turbocharged Direct Injection (GTDI) 4-cylinder engine has the following features:

- Dual overhead camshafts
- Four valves per cylinder
- Composite intake manifold
- Aluminum cylinder head
- Aluminum cylinder block
- Twin Independent Variable Camshaft Timing (Ti-VCT)
- External cooled EGR

Engine Identification

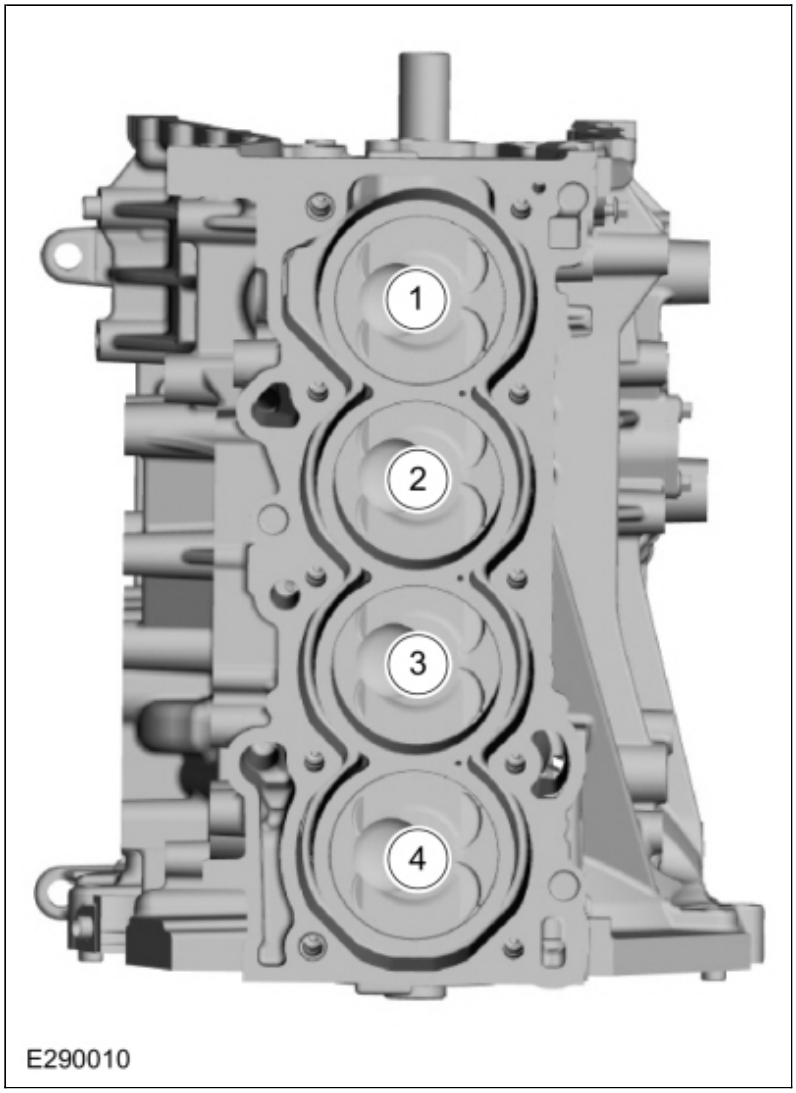
Always refer to these labels when installation of new parts is necessary or when checking engine calibrations. The engine parts often differ within a CID family. Verification of the identification codes will make sure the correct parts are obtained. These codes contain all the pertinent information relating to the dates, optional equipment and revisions.

Engine Code Information Label



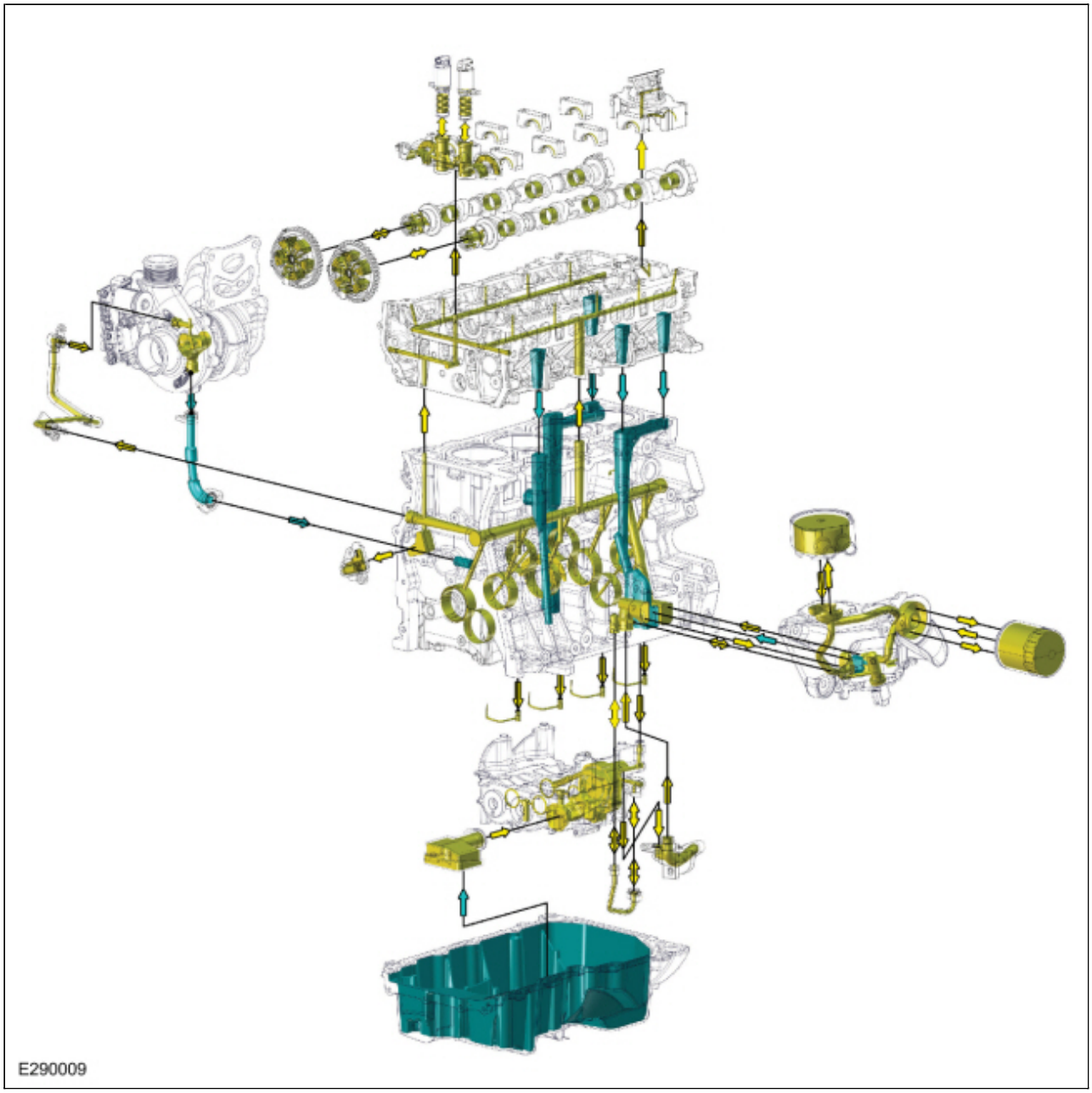
Item	Description
1	Engine part number
2	Valencia Engine Plant
3	Plant code
4	Engine serial number
5	Engine displacement
6	Engine build date YYM(A-L)DD

Engine Cylinder Identification



Oil Flow Diagram

Lubrication System



Item	Description
Yellow	High pressure oil flow
Blue	Oil return/low pressure oil flow

Lubrication System

The engine lubrication system is of the force-feed type in which oil is supplied under full pressure to the crankshaft, connecting rod bearings, timing chain tensioners, camshaft bearing caps and VCT solenoids. The flow of oil to the valve tappets and valve train is controlled by a restricting orifice located in the cylinder head gasket.

The lubrication system is designed to provide optimum oil flow to critical components of the engine through its entire operating range.

The heart of the system is a continuously variable vane style oil pump, regulated with a pressure control solenoid valve.

Generically, this design operates as follows:

- Maximum oil pump displacement has been selected to provide adequate volume to insure required pressure at both hot idle and maximum speed.
- An internal relief valve protects the system from excessive pressure during high viscosity conditions. When activated, it vents bypassed oil back to the oil pan.
- In conditions other than hot idle and maximum speed, system flow and pressure are controlled with a solenoid valve, receiving commands from the powertrain control module (PCM), to deliver correct oil pressure for all operation conditions based on engine speed, load, and oil temperature.
- The solenoid valve regulates oil pump performance by controlling oil pressure in the internal control chamber of the oil pump.

Ti-VCT

The Ti-VCT system allows variable control of the valves that optimizes combustion at full load providing improved power and low speed torque (broadening the torque curve) which enables variable valve overlap which provides better fuel economy and emissions and provides optimized cold start operation with improved exhaust emissions.

Valve Train

The valve train uses Direct Acting Mechanical Buckets (DAMB). The camshaft lobes are positioned directly above mechanical buckets which are positioned on top of the valves.