

Crankshaft

Item	Specification
Main bearing journal diameter	2.0464 â€”2.0473 in (51.978 â€”52.002 mm)
Main bearing clearance	0.0006 â€”0.0018 in (.016 â€”.046 mm)
Connecting rod journal diameter	2.0464 â€”2.0473 in (51.978 â€”52.002 mm)
End play	0.0087 â€”0.0177 in (.22 â€”.45 mm)

Cylinder Head

Item	Specification
Cylinder head flatness	0.08 mm (0.0031 in) max overall, a maximum of 0.05 mm (0.0020 in) within 150 mm (5.9055 in) and a maximum of 0.025 mm (0.0010 in) within 25 mm (0.9843 in)
Maximum valve lift @ zero lash (exhaust)	0.307 in (7.8 mm)
Maximum valve lift @ zero lash (intake)	0.3538 in (8.98638 mm)
Valve guide diameter	0.2169 â€”0.2181 in (5.509 â€”5.539 mm)
Valve seat width - intake	0.0551 Â± 0.0079 in (1.4 Â± .2 mm)
Valve seat width - exhaust	0.0709 Â± 0.0079 in (1.8 Â± .2 mm)
Valve seat angle	45 Â°
Valve seat runout	0.030 in (.75 mm)
Valve tappet bore diameter	1.2205 â€”1.2217 in (31 â€”31.03 mm)
Cam bore diameter	0.9848 â€”0.9858 in (25.015 â€”25.04 mm)

Valve

Item	Specification
Valve head diameter - intake	1.2795 in (32.5 mm)
Valve head diameter - exhaust	1.1811 in (30 mm)
Valve stem diameter - intake	0.2154 â€”0.2159 in (5.47 â€”5.485 mm)
Valve stem diameter - exhaust	0.2146 â€”0.2154 in (5.45 â€”5.47 mm)
Valve stem-to-guide clearance - intake	0.0009 â€”0.0027 in (.024 â€”.069 mm)
Valve stem-to-guide clearance - exhaust	0.0015 â€”0.0035 in (.039 â€”.089 mm)
Valve face runout	0.002 in (.05 mm)
Valve face angle	45 â€”45.5 Â°

Valve Spring Compression Pressure

Item	Specification
Intake and exhaust (installed)	52 lb (230 N)
Intake (valve open) 9.34 mm (0.3677 in) of lift	126 lb (560 N)
Exhaust (valve open) 9.34 mm (0.3677 in) of lift	126 lb (560 N)
Free length	1.8598 in (47.24 mm)
Assembled height	1.4921 in (37.9 mm)

Valve Tappet

Item	Specification
Diameter	1.2197 $\pm$ 0.0004 in (30.98 $\pm$ 0.010 mm)
Tappet-to-valve clearance - intake	0.0075 $\pm$ 0.0025 in (.19 $\pm$.06 mm)
Tappet-to-valve clearance - exhaust	0.0118 $\pm$ 0.0045 in (.3 $\pm$.12 mm)
Tappet-to-bore clearance	0.0008 $\pm$ 0.0003 in (.02 $\pm$.008 mm)

Camshaft

Item	Specification
Lobe lift - intake	0.3538 in (8.98638 mm)
Lobe lift - exhaust	0.3071 in (7.8 mm)
Runout	0.0012 in (.03 mm)
Thrust clearance	0.0035 $\pm$ 0.0010 in (.09 $\pm$.025 mm)
Journal diameter	0.9827 $\pm$ 0.0005 in (24.96 $\pm$ 0.013 mm)
Journal-to-bore clearance	0.0014 $\pm$ 0.0003 in (.035 $\pm$.008 mm)

Torque Specifications

Engine oil pan drain plug - 27 Nm (20 lb-ft)
Engine oil filter - 8 Nm (71 lb-in) - plus an additional 180 degrees

Description and Operation

Engine - Overview

Overview

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

- GTDI - Gasoline turbocharged direct injection
- DI - Direct Injection
- Ti-VCT - 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

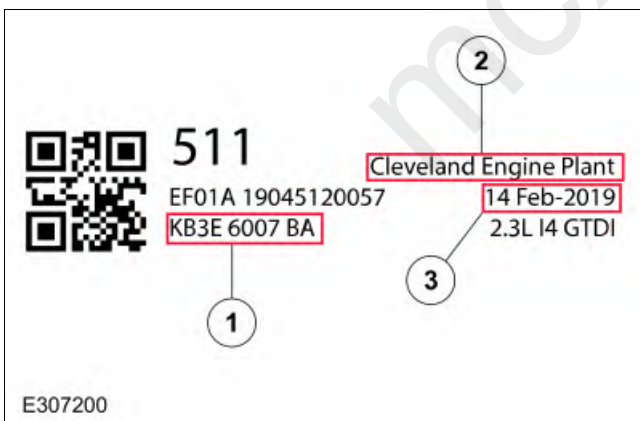
The 2.3L Gasoline Turbocharged Direct Injection (GTDI) 4-cylinder engine has the following features:

- 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	Cleveland Engine Plant
3	Engine build date DDMMYY

Engine Cylinder Identification