Torque specifications

	Ft-lbs (unless otherwise indicated)	Nm
Accessory drivebelt pulley (top)	18	25
Accessory drivebelt pulley (bottom)	18	25
Alternator bracket bolts	89 in-lbs	10
Camshaft sprocket		
Step 1	30	40
Step 2	Tighten an additional 90-degrees	
Camshaft caps to cylinder head	89 in-lbs	10
Drive belt tensioner bolts	18	25
Cylinder head bolts		
Step 1	30	40
Step 2	Tighten an additional 90-degrees	
Step 3	Loosen one full turn	
Step 4	30	40
Step 5	Tighten an additional 90-degrees	
Step 6	Tighten an additional 90-degrees	
Crankshaft pulley-to-crankshaft bolt		
Step 1	66	90
Step 2	Loosen one full turn	
Step 3	37	50
Step 4	Tighten an additional 90-degrees	
Driveplate bolts	59	80
Engine mounts		
Lower nut (both sides) and right upper nut	66	90
Left upper through-bolt	76	103
Exhaust manifold-to-cylinder head nuts		
2002 through 2005	15	20
2006 and later	48	25
Exhaust pipe-to-exhaust manifold nuts	30	40
Intake manifold-to-cylinder head bolts		
2002 through 2005	18	25
2006 and later		
Step 1	18 in-lbs	2
Step 2	89 in-lbs	10
Oil pan-to-engine block bolts		
Step 1	18 in-lbs	2
Step 2	15	20
Step 3	Tighten an additional 60-degrees	
Oil filter adapter bolts	18	25
Oil pump-to-engine block mounting bolts	89 in-lbs	10
Oil pick-up screen-to-engine block bolt	18	25
Oil pick-up tube-to-oil pump bolts	89 in-lbs	10
Timing chain cover bolts	18	25
Timing chain guide bolts	89 in-lbs	10
Timing chain tensioner bolts	18	25
Valve cover bolts	89 in-lbs	10

1 General information

This Part of Chapter 2 is devoted to in-vehicle repair procedures for the 4.6L Single Overhead Cam (SOHC) engines. This engine has aluminum cylinder heads, an iron block and either two or three valves per cylinder. 2002 through 2005 V8 models have the 2-valve engine (code W). 2006 and later V8 models have the 3-valve engine (code 8), so named because it has two intake valves and one exhaust valve per cylinder. All information concerning engine removal and installation can be found in Part C of this Chapter.

These engines are an interference design. In the event the timing chain breaks, the pistons will interfere with the valves and cause damage. The timing chains, tensioners and cylinder heads can be removed with the engine in the vehicle, however it will be necessary to remove the rocker arms and hydraulic valve adjusters first. This will prevent any piston, connecting rod and valve damage. It will be necessary to obtain certain special tools to repair this engine.

The Specifications included in this Part of Chapter 2 apply only to the procedures contained in this Part. Part C of Chapter 2 contains the Specifications necessary for engine block rebuilding.

2 Repair operations possible with the engine in the vehicle

Many major repair operations can be accomplished without removing the engine from the vehicle.

If possible, clean the engine compartment and the exterior of the engine with some type of pressure washer before any work is started. It will make the job easier and help keep dirt out of the internal areas of the engine.

It may help to remove the hood to improve access to the engine as repairs are performed (refer to Chapter 11 if necessary).

If vacuum, exhaust, oil or coolant leaks develop, indicating a need for gasket or seal replacement, the repairs can generally be made with the engine in the vehicle. The intake and exhaust manifold gaskets, timing cover gasket, oil pan gasket, crankshaft seals and cylinder head gaskets are all accessible with the engine in place.

Exterior engine components, such as the intake and exhaust manifolds, the alternator, the water pump, the starter motor, the distributor and the fuel system components can be removed for repair with the engine in place.

Since the cylinder heads can be removed without pulling the engine, valve components