

09 - Engine, 3.6L/Technical Specifications

TORQUE SPECIFICATIONS**ENGINE BLOCK**

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Connecting Rod Cap Bolts	20 + 90° Turn	15 + 90° Turn	—	Do not reuse these fasteners. If removed, a NEW fastener must be installed and tightened to specifications.
Crankshaft Target Wheel to Counterweight Bolts	11	8	—	Do not reuse these fasteners. If removed, a NEW fastener must be installed and tightened to specifications.
Crankshaft Outer Main Bearing Cap and Windage Tray M8 Bolts	21 + 90° Turn	15 + 90° Turn	—	
Crankshaft Inner Main Bearing Cap M11 Bolts	20 + 90° Turn	15 + 90° Turn	—	
Crankshaft Side Main Bearing Cap (Tie Bolt) M8 Bolts	30	22	—	
Crankshaft Position (CKP) Sensor to Engine Block M6 Bolt	12	9	—	
Engine Block Ground Strap Bolt	23	17	—	
Engine Block Ground Strap to Frame Nut	20	15	—	

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Engine Block Heater - M6 Bolt	12	9	—	
Lower Oil Pan to Upper Oil Pan - Bolts	9	—	80	
Lower Oil Pan to Upper Oil Pan - Nuts	10	7	—	
Upper Oil Pan to Engine Block M8 Bolts	23	17	—	
Oil Cooler to Oil Filter Housing Screws	12	9	—	
Upper Oil Pan to Rear Seal Retainer M6 Bolts	10	7	—	
Oil Pan Drain Plug	27	20	—	
Oil Pressure Sensor to Oil Filter Housing	20	—	177	
Piston Oil Cooler Jet to Engine Block Bolt	6	—	53	
Oil Filter Housing/Oil Cooler to Engine Block M6 Bolts	12	9	—	
Oil Filter Housing Cap	25	18	—	
Oil Pump to Engine Block M6 Bolts	12	9	—	

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Oil Level Indicator to Cylinder Head Bolt	18	13	—	
Oil Pump Sprocket M8 Bolt	26	18	—	
Oil Pump Pick Up Tube Bracket to Windage Tray Bolt	9	—	80	
Oil Pump Pick Up Tube to Oil Pump Bolt	8	—	71	

CYLINDER HEAD

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Camshaft Bearing Cap Bolts	10	7	—	
Camshaft Chain Tensioner (Primary) Bolt	12	9	—	
Camshaft Chain Guide (Primary) Bolt	12	9	—	
Camshaft Chain Idler Sprocket Bolt	26	19	—	
Camshaft Chain LH Tensioner (Secondary) Bolt	12	9	—	
Camshaft Chain LH Guide (Secondary) Bolt	12	9	—	

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Camshaft Chain RH Tensioner (Secondary) Bolt	12	9	—	
Camshaft Chain RH Guide (Secondary) Bolt	12	9	—	
Camshaft Position (CMP) Sensor to Cylinder Head Bolt	9	—	80	
Cylinder Head Coolant Pipe Plug	35	26	—	Do not reuse these fasteners. If removed, a NEW fastener must be installed and tightened to specifications.
Cylinder Head Oil Restrictor M8 Plug	18	13	—	
Cylinder Head Bolts	Specific Torque Sequence (Refer to 09 - Engine/Cylinder Head/Removal and Installation)			
Cylinder Head Cover M6 Bolts	12	9	—	
Catalytic Converter to Cylinder Head M8 Bolts	23	17	—	
Fuel Rail to Lower Intake Manifold M6 Bolts	7	—	62	
Ground Strap Bolt to Right Cylinder Head	23	17	—	
Heater Hoses to Cylinder Head Cover Bracket	8	—	71	

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Intake Manifold (Upper) M6 Bolts	10	7	—	
Intake Manifold (Lower) M6 Bolts	9	—	80	
Intake Manifold Support Bracket Lower M8 Bolt	25	18	—	
Intake Manifold Support Bracket Upper Nuts	10	7	—	
Oil Control Valve/Cam Phaser Bolt – Exhaust	160	118	—	
Oil Control Valve/Cam Phaser Bolt – Intake	30 + 45° Turn	22+45° Turn	—	
Oil Temperature Sensor to Cylinder Head	11	8	—	Do not reuse these fasteners. If removed, a NEW fastener must be installed and tightened to specifications.
Spark Plug to Cylinder Head	18	13	—	
Throttle Body Support Bracket Bolt	10	7	—	
Throttle Body Support Bracket Bolt to Front Cover	10	7	—	
Variable Valve Timing Solenoid to Cylinder Head Cover Bolt	4	—	35	

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Variable Valve Lift Solenoid Bolt	10	7	—	
Wire Harness Retainer Bracket to LH Cylinder Head Bolts	10	7	—	

FRONT ENGINE

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Coolant Crossover Housing to Engine Timing Cover M6 Bolts	12	9	—	
Engine Timing Cover M6 Bolts	12	9	—	
Engine Timing Cover M8 Bolt	25	18	—	
Engine Timing Cover M10 Bolts	55	41	—	
Thermostat Housing to Coolant Crossover M6 Bolts	12	9	—	
Vibration Damper M16 Bolt	40 + 105° Turn	30 + 105° Turn	—	
Water Pump to Engine Timing Cover M6 Bolts	12	9	—	
Water Pump to Engine Timing Cover M8 Bolt	25	18	—	
Water Pump to Engine Timing Cover M10 Bolt	55	41	—	

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
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REAR ENGINE

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Flexplate to Crankshaft Bolts/Dual Mass Flywheel	95	70	—	Do not reuse these fasteners. If removed, a NEW fastener must be installed and tightened to specifications.
Rear Crankshaft Oil Seal Retainer Bolts	12	9	—	
Torque Converter to Flexplate Bolts	42	31	—	Do not reuse these fasteners. If removed, a NEW fastener must be installed and tightened to specifications.
Trans to Engine Block Bolts	50	37	—	
Trans to Upper Oil Pan Bolts	50	37	—	

ENGINE MOUNTING

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Left Engine Mount Bracket to Engine Block Bolts	65	48	—	
Left Engine Mount Isolator to Frame Bolts	55	41	—	
Left Engine Mount Isolator to Engine Mount Bracket Nut	122	90	—	

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Rear Mount Isolator to Transmission Bolts	55	41	—	
Rear Mount Isolator to Transmission Crossmember Nuts	175	129	—	
Right Engine Mount Bracket to Engine Block Bolts	65	48	—	
Right Engine Mount Isolator to Engine Mount Bracket Nut	122	90	—	
Right Engine Mount Isolator to Frame Bolts	55	41	—	

MISCELLANEOUS COMPONENTS

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Air Inlet Hose Band Clamps	3	—	27	
Air Cleaner Housing to Side Rail	5	—	44	
Air Cleaner Inlet Duct to Housing	4	—	35	
Air Cleaner Lid bolts	4	—	35	
Air Cleaner Resonator to Shroud bolts	3	—	27	
Engine Cover Bracket to Intake Manifold Bolts	8	—	71	
Engine Cover Bracket to Cylinder Head Cover Bolts	7	—	62	
Engine Cover to Bracket Bolts	6	—	53	

DESCRIPTION	N·m	Ft. Lbs.	In. Lbs.	COMMENT
Engine Lift Bracket	21	15	—	
Heater Hose Assembly to Bracket Nuts	8	—	71	
Heater Hose Assembly Support Bracket Nut	8	—	71	
Heater Hose Assembly Support Bracket Bolts	8	—	71	