

Fastener Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Camshaft Position (CMP) Sensor Bolt	12 Y	106 lb in
CMP Sensor Wire Harness Bolt	12 Y	106 lb in
Camshaft Retainer Bolts – Hex Head Bolts	25 Y	18 lb ft
Camshaft Retainer Bolts – TORX® Head Bolts	15 Y	11 lb ft
Camshaft Sprocket Bolts	25 Y	18 lb ft
Clutch Pressure Plate Bolts	70 Y	52 lb ft
Connecting Rod Bolts – First Pass	20 Y	15 lb ft
Connecting Rod Bolts – Final Pass	85 degrees	
Coolant Air Bleed Pipe and Cover Bolts	12 Y	106 lb in
Coolant Temperature Sensor	20 Y	15 lb ft
Crankshaft Balancer Bolt – Installation Pass to Ensure the Balancer is Completely Installed	330 Y	240 lb ft
Crankshaft Balancer Bolt – First Pass – Install a NEW Bolt After the Installation Pass and Tighten as Described in the First and Final Passes	50 Y	37 lb ft
Crankshaft Balancer Bolt – Final Pass	140 degrees	
Crankshaft Bearing Cap M10 Bolts – First Pass in Sequence	20 Y	15 lb ft
Crankshaft Bearing Cap M10 Bolts – Final Pass in Sequence	80 degrees	
Crankshaft Bearing Cap M10 Studs – First Pass in Sequence	20 Y	15 lb ft
Crankshaft Bearing Cap M10 Studs – Final Pass in Sequence	51 degrees	

Application	Specification	
	Metric	English
Crankshaft Bearing Cap M8 Bolts	25 Y	18 lb ft
Crankshaft Oil Deflector Nuts	25 Y	18 lb ft
Crankshaft Position (CKP) Sensor Bolt	25 Y	18 lb ft
Crankshaft Rear Oil Seal Housing Bolts	30 Y	22 lb ft
Cylinder Head M11 Bolts – First Pass in Sequence	30 Y	22 lb ft
Cylinder Head M11 Bolts – Second Pass in Sequence	90 degrees	
Cylinder Head M11 Bolts – Final Pass in Sequence	70 degrees	
Cylinder Head M8 Bolts – in Sequence	30 Y	22 lb ft
Cylinder Head Coolant Plug	20 Y	15 lb ft
Engine Block Coolant Drain Hole Plug	60 Y	44 lb ft
Engine Block Coolant Heater	40 Y	30 lb ft
Engine Block Oil Gallery Plug	60 Y	44 lb ft
Evaporative Emission (EVAP) Canister Purge Solenoid Valve Bolt	50 Y	37 lb ft
Exhaust Manifold Bolts – First Pass	15 Y	11 lb ft
Exhaust Manifold Bolts – Final Pass	20 Y	15 lb ft
Exhaust Manifold Heat Shield Bolts	9 Y	80 lb in
Exhaust Manifold Studs	20 Y	15 lb ft
Flywheel Bolts – First Pass	20 Y	15 lb ft
Flywheel Bolts – Second Pass	50 Y	37 lb ft
Flywheel Bolts – Final Pass	100 Y	74 lb ft
Front Cover Bolts	25 Y	18 lb ft
Fuel Injection Fuel Rail Bolts	10 Y	89 lb in

Application	Specification	
	Metric	English
Ignition Coil Bracket-to-Valve Rocker Arm Cover Stud	12 Y	106 lb in
Ignition Coil-to-Bracket Bolts	10 Y	89 lb in
Intake Manifold Bolts – First Pass in Sequence	5 Y	44 lb in
Intake Manifold Bolts – Final Pass in Sequence	10 Y	89 lb in
J 41798 M8 Bolt	25 Y	18 lb ft
J 41798 M10 Bolts	50 Y	37 lb ft
Knock Sensor Bolts	25 Y	18 lb ft
Motor Mount Bracket Bolts	50 Y	37 lb ft
Oil Cooler Bolts	12 Y	106 lb in
Oil Filter	30 Y	22 lb ft
Oil Filter Fitting	55 Y	40 lb ft
Oil Level Indicator Tube Bolt	25 Y	18 lb ft
Oil Level Sensor	20 Y	15 lb ft
Oil Pan Closeout Cover Bolt – Left Side	9 Y	80 lb in
Oil Pan Closeout Cover Bolt – Right Side	9 Y	80 lb in
Oil Pan Cover Bolts	12 Y	106 lb in
Oil Pan Drain Plug	25 Y	18 lb ft
Oil Pan M6 Bolts – Oil Pan-to-Rear Oil Seal Housing	12 Y	106 lb in
Oil Pan M8 Bolts – Oil Pan-to-Engine Block and Oil Pan-to-Front Cover	25 Y	18 lb ft
Oil Pressure Sensor	35 Y	26 lb ft
Oil Pump Cover Bolts	12 Y	106 lb in
Oil Pump Relief Valve Plug	12 Y	106 lb in

Application	Specification	
	Metric	English
Oil Pump Screen Nuts	25 Y	18 lb ft
Oil Pump Screen-to-Oil Pump Bolt	12 Y	106 lb in
Oil Pump-to-Engine Block Bolts	25 Y	18 lb ft
Spark Plugs	15 Y	11 lb ft
Throttle Body Bolts	10 Y	89 lb in
Timing Chain Dampener Bolts	25 Y	18 lb ft
Valley Cover Bolts	25 Y	18 lb ft
Valve Lifter Guide Bolts	10 Y	89 lb in
Valve Rocker Arm Bolts	30 Y	22 lb ft
Valve Rocker Arm Cover Bolts	12 Y	106 lb in
Water Inlet Housing Bolts	15 Y	11 lb ft
Water Pump Bolts – First Pass	15 Y	11 lb ft
Water Pump Bolts – Final Pass	30 Y	22 lb ft