# **Engine Mechanical - 4.3L**

# **Specifications**

SIE-ID = 645451

# Fastener Tightening Specifications (G Van)

3 3 1	Specification	
Application	Metric	English
Accelerator Control Cable Bracket Nut	12 N⋅m	106 lb in
Accelerator Control Cable Bracket Stud to Intake Manifold	6 N⋅m	53 lb in
Accelerator Control Cable Bracket Stud to Throttle Body	12 N⋅m	106 lb in
Air Cleaner Adapter Stud	8 N⋅m	71 lb in
Balance Shaft Driven Gear Bolt		
First Pass	20 N⋅m	15 lb ft
Final Pass	35 de	grees
Balance Shaft Retainer Bolt	12 N⋅m	106 lb in
Battery Negative Cable Bolt to Engine	25 N⋅m	18 lb ft
Belt Idler Pulley Bolt	50 N⋅m	37 lb ft
Camshaft Retainer Bolt	12 N⋅m	106 lb in
Camshaft Sprocket Bolt	25 N⋅m	18 lb ft
Connecting Rod Nut	<u> </u>	
First Pass	27 N⋅m	20 lb ft
Final Pass	70 de	grees
Crankshaft Balancer Bolt	95 N⋅m	70 lb ft
Crankshaft Bearing Cap Bolt – Preferred Method		
First Pass	20 N⋅m	15 lb ft
Final Pass	73 de	grees
Crankshaft Bearing Cap Bolt – Optional Strategy	105 N·m	77 lb ft
Crankshaft Position Sensor Bolt	9 N⋅m	80 lb in
Crankshaft Pulley Bolt	58 N⋅m	43 lb ft
Crankshaft Rear Oil Seal Housing Bolt and Nut	12 N⋅m	106 lb in
Crankshaft Rear Oil Seal Housing Retainer Stud	6 N⋅m	53 lb in
Cylinder Head Bolt – Preferred Method		
All Bolts First Pass in Sequence	30 N⋅m	22 lb ft
Long Bolts Final Pass in Sequence	75 degrees	
Medium Bolts Final Pass in Sequence	65 degrees	
Short Bolts Final Pass in Sequence	55 degrees	
Cylinder Head Bolt – Optional On-Vehicle Strategy	•	
First Pass in Sequence	35 N⋅m	26 lb ft
Second Pass in Sequence	60 N⋅m	44 lb ft
Final Pass in Sequence	90 N⋅m	66 lb ft
Cylinder Head Core Hole Plug	20 N⋅m	15 lb ft
Distributor Cap Bolt	2.4 N⋅m	21 lb in
Distributor Clamp Bolt	25 N⋅m	18 lb ft
Drive Belt Tensioner Bolt	50 N⋅m	37 lb ft
EGR Valve Bolt	<u> </u>	
First Pass	7 N⋅m	62 lb in
Final Pass	30 N⋅m	22 lb ft
EGR Valve Inlet Pipe Clamp Bolt	25 N⋅m	18 lb ft
EGR Valve Inlet Pipe Nut at Exhaust Manifold	30 N⋅m	22 lb ft

# Fastener Tightening Specifications (G Van) (cont'd)

i detend rightening epochication	Specification Specifications		
Application	Metric	English	
EGR Valve Inlet Pipe Nut at Intake Manifold	25 N⋅m	18 lb ft	
Engine Block Coolant Drain Hole Plug	20 N⋅m	15 lb ft	
Engine Block Left Rear Oil Gallery Plug	30 N⋅m	22 lb ft	
Engine Block Left Side Oil Gallery Plug	20 N⋅m	15 lb ft	
Engine Block Oil Gallery Plug	20 N⋅m	15 lb ft	
Engine Block Right Rear Oil Gallery Plug	20 N⋅m	15 lb ft	
Engine Coolant Heater Bolt/Screw	2 N⋅m	18 lb in	
Engine Coolant Temperature (ECT) Sensor	20 N⋅m	15 lb ft	
Engine Flywheel Bolt	100 N⋅m	74 lb ft	
Engine Front Cover Bolt	12 N⋅m	106 lb in	
Engine Lift Front Bracket Stud	35 N⋅m	26 lb ft	
Engine Mount Bolt to Engine Mount Bracket – Frame Side	58 N⋅m	43 lb ft	
Engine Mount Bracket Bolt to Engine	54 N⋅m	40 lb ft	
Engine Mount Bracket Bolt to Frame	45 N⋅m	33 lb ft	
Engine Mount Bracket Nut to Engine Mount Bracket Bolt – Through-bolt	68 N⋅m	50 lb ft	
Engine Mount Heat Shield Bolt	6 N⋅m	53 lb in	
Engine Oil Pressure Gage Sensor	30 N⋅m	22 lb ft	
Engine Oil Pressure Gage Sensor Fitting – Plus Required Angle	15 N⋅m	11 lb ft	
Engine Wiring Harness Retainer Nut to Transmission to Engine Stud	10 N⋅m	89 lb in	
Evaporative Emission (EVAP) Canister Purge Solenoid Valve Nut to Intake Manifold	10 N·m	89 lb in	
Exhaust Manifold Bolt/Stud			
First Pass	15 N⋅m	11 lb ft	
Final Pass	30 N⋅m	22 lb ft	
Fan and Water Pump Pulley Bolt	25 N⋅m	18 lb ft	
Fuel Meter Body Bracket Bolt	10 N⋅m	89 lb in	
Fuel Pipe Bracket Bolt	6 N⋅m	53 lb in	
Fuel Pipe Retainer Nut	3 N⋅m	27 lb in	
Generator and Drive Belt Tensioner Bracket Bolt to Engine	41 N⋅m	30 lb ft	
Generator and Drive Belt Tensioner Bracket Stud Nut	41 N⋅m	30 lb ft	
Generator and Drive Belt Tensioner Bracket Stud to Engine	20 N⋅m	15 lb ft	
Ground Wire Bolt to Rear of Left Cylinder Head	10 N⋅m	89 lb in	
Ground Wire Nut to Water Outlet Stud	10 N⋅m	89 lb in	
Ground Wire Stud to Rear of Right Cylinder Head	10 N⋅m	89 lb in	
Heater Inlet and Outlet Hose Bracket Bolt to Oil Fill Tube Lower Support	5 N⋅m	44 lb in	
Ignition Coil Stud	12 N⋅m	106 lb in	
Knock Sensor	25 N⋅m	18 lb ft	
Lower Intake Manifold Bolt			
First Pass in Sequence	3 N⋅m	27 lb in	
Second Pass in Sequence	12 N⋅m	106 lb in	
Final Pass in Sequence	15 N⋅m	11 lb ft	
Oil Fill Tube to Oil Fill Tube Lower Support Bolt	5 N⋅m	44 lb in	
Oil Fill Tube Lower Support Bolt and Stud	25 N⋅m	18 lb ft	
Oil Fill Tube Nut	12 N⋅m	106 lb in	
Oil Filter Adapter Bolt	21 N·m	15 lb ft	
Oil Filter Fitting	55 N·m	41 lb ft	
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#### Fastener Tightening Specifications (G Van) (cont'd)

	Specification	
Application	Metric	English
Oil Level Indicator Tube Bolt	12 N⋅m	106 lb in
Oil Level Indicator Tube to Oil Fill Tube Lower Support Bolt	5 N⋅m	44 lb in
Oil Pan Baffle Bolt	12 N⋅m	106 lb in
Oil Pan Bolt and Nut	25 N⋅m	18 lb ft
Oil Pan Drain Plug	25 N⋅m	18 lb ft
Oil Pump Bolt to Rear Crankshaft Bearing Cap	90 N⋅m	66 lb ft
Oil Pump Cover Bolt	12 N⋅m	106 lb in
Power Steering Pump Bolt	50 N⋅m	37 lb ft
Power Steering Pump Bracket Bolt to Engine	41 N⋅m	30 lb ft
Power Steering Pump Bracket Stud Nut	41 N⋅m	30 lb ft
Power Steering Pump Bracket Stud to Engine	20 N⋅m	15 lb ft
Power Steering Pump Rear Bracket Nut to Engine	41 N·m	30 lb ft
Power Steering Pump Rear Bracket Nut to Power Steering Pump	50 N⋅m	37 lb ft
Spark Plug		
Initial Installation – NEW Cylinder Head	30 N⋅m	22 lb ft
All Subsequent Installations	15 N⋅m	11 lb ft
Spark Plug Wire Support Bolt	12 N⋅m	106 lb in
Starter Motor Wiring Harness/Transmission Cooler Pipe Bracket Bolt to Oil Pan	9 <b>N</b> ⋅m	80 lb in
Throttle Body Stud	9 N⋅m	80 lb in
Transmission Bolt to Oil Pan	47 N⋅m	35 lb ft
Transmission Control Cable Bracket Bolt	40 N⋅m	30 lb ft
Transmission Cover Bolt	12 N⋅m	106 lb in
Transmission Fluid Fill Tube Bolt to Rear of Engine	10 N⋅m	89 lb in
Upper Intake Manifold Stud		•
First Pass	5 N⋅m	44 lb in
Final Pass	9 N⋅m	80 lb in
Vacuum Brake Booster Hose Bracket Nut	11 N⋅m	97 lb in
Valve Lifter Pushrod Guide Bolt	16 N⋅m	12 lb ft
Valve Rocker Arm Bolt	30 N⋅m	22 lb ft
Water Outlet Stud	25 N⋅m	18 lb ft
Water Pump Bolt	45 N⋅m	33 lb ft

SIE-ID = 645455

#### Fastener Tightening Specifications (S/T Truck)

	Specification	
Application	Metric	English
Accelerator Control Cable and Cruise Control Cable Bracket Nut	9 N⋅m	80 lb in
Accelerator Control Cable Bracket Nut	12 N⋅m	106 lb in
Accelerator Control Cable Bracket Stud to Intake Manifold	6 N⋅m	53 lb in
Accelerator Control Cable Bracket Stud to Throttle Body	12 N⋅m	106 lb in
Air Cleaner Adapter Stud	8 N·m	71 lb in
Balance Shaft Driven Gear Bolt	•	
First Pass	20 N⋅m	15 lb ft
Final Pass	35 degrees	
Balance Shaft Retainer Bolt	12 N⋅m	106 lb in
Battery Negative Cable Bolt to Engine	17 N⋅m	13 lb ft

# Fastener Tightening Specifications (S/T Truck) (cont'd)

rasterier rightening Specific		Specification	
Application	Metric	English	
Belt Idler Pulley Bolt	50 N⋅m	37 lb ft	
Camshaft Retainer Bolt	12 N⋅m	106 lb in	
Camshaft Sprocket Bolt	25 N·m	18 lb ft	
Connecting Rod Nut			
First Pass	27 N⋅m	20 lb ft	
Final Pass	70 de	egrees	
Crankshaft Balancer Bolt	95 N⋅m	70 lb ft	
Crankshaft Bearing Cap Bolt – Preferred Method			
First Pass	20 N⋅m	15 lb ft	
Final Pass	73 de	egrees	
Crankshaft Bearing Cap Bolt – Optional Strategy	105 N⋅m	77 lb ft	
Crankshaft Position Sensor Bolt	9 N⋅m	80 lb in	
Crankshaft Pulley Bolt	58 N⋅m	43 lb ft	
Crankshaft Rear Oil Seal Housing Bolt and Nut	12 N⋅m	106 lb in	
Crankshaft Rear Oil Seal Housing Retainer Stud	6 N·m	53 lb in	
Cylinder Head Bolt – Preferred Method			
All Bolts First Pass in Sequence	30 N⋅m	22 lb ft	
Long Bolt Final Pass in Sequence	75 de	egrees	
Medium Bolt Final Pass in Sequence		egrees	
Short Bolt Final Pass in Sequence	55 de	egrees	
Cylinder Head Bolt – Optional On-Vehicle Strategy			
First Pass in Sequence	35 N⋅m	26 lb ft	
Second Pass in Sequence	60 N⋅m	44 lb ft	
Final Pass in Sequence	90 N⋅m	66 lb ft	
Cylinder Head Core Hole Plug	20 N⋅m	15 lb ft	
Distributor Cap Bolt	2.4 N⋅m	21 lb in	
Distributor Clamp Bolt	25 N⋅m	18 lb ft	
Drive Belt Tensioner Bolt	50 N⋅m	37 lb ft	
EGR Valve Bolt	<u> </u>		
First Pass	7 N⋅m	62 lb in	
Final Pass	30 N⋅m	22 lb ft	
EGR Valve Inlet Pipe Clamp Bolt	25 N⋅m	18 lb ft	
EGR Valve Inlet Pipe Nut at Exhaust Manifold	30 N⋅m	22 lb ft	
EGR Valve Inlet Pipe Nut at Intake Manifold	25 N⋅m	18 lb ft	
Engine Block Coolant Drain Hole Plug	20 N⋅m	15 lb ft	
Engine Block Left Rear Oil Gallery Plug	30 N⋅m	22 lb ft	
Engine Block Left Side Oil Gallery Plug	20 N⋅m	15 lb ft	
Engine Block Oil Gallery Plug	20 N⋅m	15 lb ft	
Engine Block Right Rear Oil Gallery Plug	20 N⋅m	15 lb ft	
Engine Coolant Heater Bolt/Screw	2 N⋅m	18 lb in	
Engine Coolant Temperature (ECT) Sensor	20 N⋅m	15 lb ft	
Engine Flywheel Bolt	100 N·m	74 lb ft	
Engine Front Cover Bolt	12 N⋅m	106 lb in	
Engine Lift Front Bracket Stud	35 N⋅m	26 lb ft	
Engine Mount Bolt – Through-bolt	74 N⋅m	55 lb ft	
Engine Mount Bolt to Engine	54 N⋅m	40 lb ft	
Engine Mount Bolt to Engine  Engine Mount Bracket Bolt to Frame	45 N⋅m	33 lb ft	
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Fastener Tightening Specifications (S/T Truck) (cont'd)

Metric   English	Specification		
Engine Mount Nut - Through-bot   63 N·m   46 lb ft	Application	<u> </u>	
Engine Oil Cooler Pipe Clip Bolt to Oil Pan			_
Engine Oil Pressure Gage Sensor		9 N·m	
Engine Oil Pressure Gage Sensor Fitting — Plus Required Angle   15 N-m			22 lb ft
Engine Wiring Harness Bracket Bolt to Generator and Drive Belt   25 N·m	<u> </u>		
Engine Wiring Harness Bracket Bolt to Rear of Cylinder Head	Engine Wiring Harness Bracket Bolt to Generator and Drive Belt		
Engine Wirring Harness Bracket Nut to Intake Manifold	Engine Wiring Harness Bracket Bolt to Rear of Cylinder Head	35 N·m	26 lb ft
Evaporative Emission (EVAP) Canister Purge Solenoid Valve Nut to Infake Manifold Bott/Stud			
First Pass	Evaporative Emission (EVAP) Canister Purge Solenoid Valve Nut to	1	
Final Pass   30 N·m   22 lb ft	Exhaust Manifold Bolt/Stud		
Final Pass   30 N·m   22 lb ft		15 N·m	11 lb ft
Fan and Water Pump Pulley Bolt			
Fuel Meter Body Bracket Bolt			
Fuel Pipe Bracket Bolt         6 N·m         53 lb in           Fuel Pipe Bracket Bolt to Rear of Cylinder Head         30 N·m         22 lb ft           Fuel Pipe Retainer Nut         3 N·m         27 lb in           Fuel Supply Pipe Nut - Fuel Tank Side         30 N·m         22 lb ft           Generator and Drive Belt Tensioner Bracket Bolt to Engine         41 N·m         30 lb ft           Generator and Drive Belt Tensioner Bracket Stud to Engine         20 N·m         15 lb ft           Generator and Drive Belt Tensioner Bracket Stud to Engine         20 N·m         15 lb ft           Ground Wire or Strap Bolt to Rear of Cylinder Head         35 N·m         26 lb ft           Heater Inlet Hose Fitting         25 N·m         18 lb ft           Ignition Coil Stud         12 N·m         106 lb in           Knock Sensor         25 N·m         18 lb ft           Lower Intake Manifold Bolt         15 N·m         17 lb in           First Pass in Sequence         3 N·m         27 lb in           Second Pass in Sequence         12 N·m         106 lb in           Final Pass in Sequence         15 N·m         11 lb ft           Oil Filter Fitting         35 N·m         26 lb ft           Oil Filter Fitting         35 N·m         16 lb ft           Oil Fan Bolt			
Fuel Pipe Bracket Bolt to Rear of Cylinder Head         30 N·m         22 lb ft           Fuel Pipe Retainer Nut         3 N·m         27 lb in           Fuel Supply Pipe Nut – Fuel Tank Side         30 N·m         22 lb ft           Generator and Drive Belt Tensioner Bracket Bolt to Engine         41 N·m         30 lb ft           Generator and Drive Belt Tensioner Bracket Stud Nut         41 N·m         30 lb ft           Generator and Drive Belt Tensioner Bracket Stud to Engine         20 N·m         15 lb ft           Ground Wire or Strap Bolt to Rear of Cylinder Head         35 N·m         26 lb ft           Heater Inlet Hose Fitting         25 N·m         18 lb ft           Ignition Coil Stud         12 N·m         106 lb in           Knock Sensor         25 N·m         18 lb ft           Lower Intake Manifold Bolt         12 N·m         106 lb in           First Pass in Sequence         3 N·m         27 lb in           Second Pass in Sequence         12 N·m         106 lb in           Oil Filter Adapter Bolt         21 N·m         106 lb in           Oil Filter Fitting         35 N·m         26 lb ft           Oil Level Indicator Tube Bolt         12 N·m         106 lb in           Oil Pan Baffle Bolt         12 N·m         106 lb in           Oil	· · · · · · · · · · · · · · · · · · ·		
Fuel Pipe Retainer Nut         3 N·m         27 lb in           Fuel Supply Pipe Nut – Fuel Tank Side         30 N·m         22 lb ft           Generator and Drive Belt Tensioner Bracket Bolt to Engine         41 N·m         30 lb ft           Generator and Drive Belt Tensioner Bracket Stud Nut         41 N·m         30 lb ft           Generator and Drive Belt Tensioner Bracket Stud to Engine         20 N·m         15 lb ft           Ground Wire or Strap Bolt to Rear of Cylinder Head         35 N·m         26 lb ft           Heater Inlet Hose Fitting         25 N·m         18 lb ft           Ignition Coil Stud         12 N·m         106 lb in           Knock Sensor         25 N·m         18 lb ft           Lower Intake Manifold Bolt         25 N·m         18 lb ft           First Pass in Sequence         3 N·m         27 lb in           Second Pass in Sequence         12 N·m         106 lb in           First Pass in Sequence         15 N·m         11 lb ft           Oil Filter Adapter Bolt         21 N·m         15 lb ft           Oil Filter Fitting         35 N·m         26 lb ft           Oil Fuel Indicator Tube Bolt         12 N·m         15 lb ft           Oil Fall Bolt and Nut in Sequence         25 N·m         106 lb in           Oil Pan Baffle Bolt	·		
Fuel Supply Pipe Nut – Fuel Tank Side         30 N·m         22 lb ft           Generator and Drive Belt Tensioner Bracket Bolt to Engine         41 N·m         30 lb ft           Generator and Drive Belt Tensioner Bracket Stud Nut         41 N·m         30 lb ft           Generator and Drive Belt Tensioner Bracket Stud to Engine         20 N·m         15 lb ft           Generator and Drive Belt Tensioner Bracket Stud to Engine         20 N·m         15 lb ft           Ground Wire or Strap Bolt to Rear of Cylinder Head         35 N·m         26 lb ft           Heater Inlet Hose Fitting         25 N·m         18 lb ft           Ignition Coil Stud         12 N·m         106 lb in           Knock Sensor         25 N·m         18 lb ft           Lower Intake Manifold Bolt         15 N·m         18 lb ft           First Pass in Sequence         3 N·m         27 lb in           Second Pass in Sequence         12 N·m         106 lb in           Second Pass in Sequence         15 N·m         11 lb ft           Oil Filter Adapter Bolt         21 N·m         15 lb ft           Oil Filter Fitting         35 N·m         26 lb ft           Oil Fuel Indicator Tube Bolt         12 N·m         106 lb in           Oil Pan Baffle Bolt         12 N·m         106 lb in		3 N·m	
Generator and Drive Belt Tensioner Bracket Bolt to Engine 41 N·m 30 lb ft Generator and Drive Belt Tensioner Bracket Stud Nut 41 N·m 30 lb ft Generator and Drive Belt Tensioner Bracket Stud to Engine 20 N·m 15 lb ft Ground Wire or Strap Bolt to Rear of Cylinder Head 35 N·m 26 lb ft Heater Inlet Hose Fitting 25 N·m 18 lb ft Ignition Coil Stud 12 N·m 106 lb in Knock Sensor 25 N·m 18 lb ft Lower Intake Manifold Bolt First Pass in Sequence 3 N·m 27 lb in Second Pass in Sequence 12 N·m 106 lb in Final Pass in Sequence 15 N·m 11 lb ft Oil Filter Adapter Bolt 21 N·m 15 lb ft Oil Filter Fitting 35 N·m 26 lb ft Oil Faller Fitting 35 N·m 26 lb ft Oil Pan Baffle Bolt 12 N·m 106 lb in Oil Pan Bolt and Nut in Sequence 25 N·m 18 lb ft Oil Pan Drain Plug 25 N·m 18 lb ft Oil Pump Bolt to Rear Crankshaft Bearing Cap 90 N·m 66 lb ft Oil Pump Cover Bolt 12 N·m 106 lb in Power Steering Pump Bracket Stud to Engine 41 N·m 30 lb ft Power Steering Pump Bracket Stud Nut 10 Engine Stud 41 N·m 30 lb ft Power Steering Pump Bracket Stud to Engine 41 N·m 30 lb ft Power Steering Pump Rear Bracket Nut to Engine Stud 41 N·m 30 lb ft Power Steering Pump Rear Bracket Nut to Engine Stud 41 N·m 30 lb ft Power Steering Pump Rear Bracket Nut to Engine Stud 41 N·m 30 lb ft	·	30 N·m	22 lb ft
Generator and Drive Belt Tensioner Bracket Stud Nut  Generator and Drive Belt Tensioner Bracket Stud to Engine  Ground Wire or Strap Bolt to Rear of Cylinder Head  35 N·m  26 lb ft  Heater Inlet Hose Fitting  25 N·m  18 lb ft  Ignition Coil Stud  Knock Sensor  25 N·m  18 lb ft  Lower Intake Manifold Bolt  First Pass in Sequence  3 N·m  27 lb in  Second Pass in Sequence  12 N·m  106 lb in  Final Pass in Sequence  15 N·m  11 lb ft  Oil Filter Adapter Bolt  Oil Evel Indicator Tube Bolt  Oil Pan Baffle Bolt  Oil Pan Baffle Bolt  Oil Pan Drain Plug  10 la Drain Plug  10 la Pan Drain Plug  10 la Pan Pasin Sear Crankshaft Bearing Cap  Oil Pump Bolt Rear Crankshaft Bearing Cap  Oil Pump Bolt Reservoir Filler Neck Bolt to Power Steering  Pump Bracket  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud to Engine  Value Adapter Steering Pump Rear Bracket Nut to Power Steering Pump  Fook Power Steering Pump Rear Bracket Nut to Power Steering Pump  10 lb ft  Power Steering Pump Rear Bracket Nut to Power Steering Pump  50 N·m  37 lb ft  Power Steering Pump Rear Bracket Nut to Power Steering Pump  50 N·m  37 lb ft  Power Steering Pump Rear Bracket Nut to Power Steering Pump  50 N·m  37 lb ft  Power Steering Pump Rear Bracket Nut to Power Steering Pump  50 N·m  37 lb ft			
Ground Wire or Strap Bolt to Rear of Cylinder Head   35 N·m   26 lb ft	, and the second		
Ground Wire or Strap Bolt to Rear of Cylinder Head   35 N·m   26 lb ft	Generator and Drive Belt Tensioner Bracket Stud to Engine	20 N·m	15 lb ft
Heater Inlet Hose Fitting			
Ignition Coil Stud		25 N⋅m	18 lb ft
Knock Sensor         25 N·m         18 lb ft           Lower Intake Manifold Bolt         First Pass in Sequence         3 N·m         27 lb in           Second Pass in Sequence         12 N·m         106 lb in           Final Pass in Sequence         15 N·m         11 lb ft           Oil Filter Adapter Bolt         21 N·m         15 lb ft           Oil Filter Fitting         35 N·m         26 lb ft           Oil Level Indicator Tube Bolt         12 N·m         106 lb in           Oil Pan Baffle Bolt         12 N·m         106 lb in           Oil Pan Bolt and Nut in Sequence         25 N·m         18 lb ft           Oil Pan Drain Plug         25 N·m         18 lb ft           Oil Pump Bolt to Rear Crankshaft Bearing Cap         90 N·m         66 lb ft           Oil Pump Bolt to Rear Crankshaft Bearing Cap         90 N·m         166 lb in           Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering         20 N·m         15 lb ft           Power Steering Pump Bolt         50 N·m         37 lb ft           Power Steering Pump Bracket Bolt to Engine         41 N·m         30 lb ft           Power Steering Pump Bracket Stud Nut         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Engine         41 N·m         30 lb ft	<u> </u>	12 N⋅m	106 lb in
First Pass in Sequence		25 N⋅m	18 lb ft
Second Pass in Sequence         12 N·m         106 lb in           Final Pass in Sequence         15 N·m         11 lb ft           Oil Filter Adapter Bolt         21 N·m         15 lb ft           Oil Filter Fitting         35 N·m         26 lb ft           Oil Level Indicator Tube Bolt         12 N·m         106 lb in           Oil Pan Baffle Bolt         12 N·m         106 lb in           Oil Pan Bolt and Nut in Sequence         25 N·m         18 lb ft           Oil Pan Drain Plug         25 N·m         18 lb ft           Oil Pump Bolt to Rear Crankshaft Bearing Cap         90 N·m         66 lb ft           Oil Pump Cover Bolt         12 N·m         106 lb in           Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket         20 N·m         15 lb ft           Power Steering Pump Bolt         50 N·m         37 lb ft           Power Steering Pump Bracket Bolt to Engine         41 N·m         30 lb ft           Power Steering Pump Bracket Stud Nut         41 N·m         30 lb ft           Power Steering Pump Nut to Engine         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Engine Stud         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Engine Stud         41 N·m         30 lb ft	Lower Intake Manifold Bolt	<u> </u>	l
Second Pass in Sequence         12 N·m         106 lb in           Final Pass in Sequence         15 N·m         11 lb ft           Oil Filter Adapter Bolt         21 N·m         15 lb ft           Oil Filter Fitting         35 N·m         26 lb ft           Oil Level Indicator Tube Bolt         12 N·m         106 lb in           Oil Pan Baffle Bolt         12 N·m         106 lb in           Oil Pan Bolt and Nut in Sequence         25 N·m         18 lb ft           Oil Pan Drain Plug         25 N·m         18 lb ft           Oil Pump Bolt to Rear Crankshaft Bearing Cap         90 N·m         66 lb ft           Oil Pump Cover Bolt         12 N·m         106 lb in           Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket         20 N·m         15 lb ft           Power Steering Pump Bolt         50 N·m         37 lb ft           Power Steering Pump Bracket Bolt to Engine         41 N·m         30 lb ft           Power Steering Pump Bracket Stud Nut         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Engine         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Engine Stud         41 N·m         30 lb ft	First Pass in Sequence	3 N⋅m	27 lb in
Oil Filter Adapter Bolt       21 N·m       15 lb ft         Oil Filter Fitting       35 N·m       26 lb ft         Oil Level Indicator Tube Bolt       12 N·m       106 lb in         Oil Pan Baffle Bolt       12 N·m       106 lb in         Oil Pan Bolt and Nut in Sequence       25 N·m       18 lb ft         Oil Pan Drain Plug       25 N·m       18 lb ft         Oil Pump Bolt to Rear Crankshaft Bearing Cap       90 N·m       66 lb ft         Oil Pump Cover Bolt       12 N·m       106 lb in         Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket       20 N·m       15 lb ft         Power Steering Pump Bolt       50 N·m       37 lb ft         Power Steering Pump Bracket Bolt to Engine       41 N·m       30 lb ft         Power Steering Pump Bracket Stud Nut       41 N·m       30 lb ft         Power Steering Pump Nut to Engine       41 N·m       30 lb ft         Power Steering Pump Rear Bracket Nut to Engine Stud       41 N·m       30 lb ft         Power Steering Pump Rear Bracket Nut to Power Steering Pump       50 N·m       37 lb ft	·	12 N⋅m	106 lb in
Oil Filter Fitting         35 N·m         26 lb ft           Oil Level Indicator Tube Bolt         12 N·m         106 lb in           Oil Pan Baffle Bolt         12 N·m         106 lb in           Oil Pan Bolt and Nut in Sequence         25 N·m         18 lb ft           Oil Pan Drain Plug         25 N·m         18 lb ft           Oil Pump Bolt to Rear Crankshaft Bearing Cap         90 N·m         66 lb ft           Oil Pump Cover Bolt         12 N·m         106 lb in           Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket         20 N·m         15 lb ft           Power Steering Pump Bolt         50 N·m         37 lb ft           Power Steering Pump Bracket Bolt to Engine         41 N·m         30 lb ft           Power Steering Pump Bracket Stud Nut         41 N·m         30 lb ft           Power Steering Pump Nut to Engine         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Engine Stud         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Power Steering Pump         50 N·m         37 lb ft	Final Pass in Sequence	15 N⋅m	11 lb ft
Oil Level Indicator Tube Bolt       12 N·m       106 lb in         Oil Pan Baffle Bolt       12 N·m       106 lb in         Oil Pan Bolt and Nut in Sequence       25 N·m       18 lb ft         Oil Pan Drain Plug       25 N·m       18 lb ft         Oil Pump Bolt to Rear Crankshaft Bearing Cap       90 N·m       66 lb ft         Oil Pump Cover Bolt       12 N·m       106 lb in         Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket       20 N·m       15 lb ft         Power Steering Pump Bolt       50 N·m       37 lb ft         Power Steering Pump Bracket Bolt to Engine       41 N·m       30 lb ft         Power Steering Pump Bracket Stud Nut       41 N·m       30 lb ft         Power Steering Pump Bracket Stud to Engine       20 N·m       15 lb ft         Power Steering Pump Rear Bracket Nut to Engine Stud       41 N·m       30 lb ft         Power Steering Pump Rear Bracket Nut to Engine Stud       41 N·m       30 lb ft         Power Steering Pump Rear Bracket Nut to Power Steering Pump       50 N·m       37 lb ft	Oil Filter Adapter Bolt	21 N⋅m	15 lb ft
Oil Pan Baffle Bolt Oil Pan Bolt and Nut in Sequence 25 N·m 18 lb ft Oil Pan Drain Plug 25 N·m 18 lb ft Oil Pump Bolt to Rear Crankshaft Bearing Cap 90 N·m 66 lb ft Oil Pump Cover Bolt 12 N·m 106 lb in Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket Power Steering Pump Bolt Power Steering Pump Bracket Bolt to Engine 41 N·m 30 lb ft Power Steering Pump Bracket Stud Nut Power Steering Pump Bracket Stud to Engine 20 N·m 15 lb ft Power Steering Pump Bracket Stud Nut 41 N·m 30 lb ft Power Steering Pump Bracket Stud to Engine 41 N·m 30 lb ft Power Steering Pump Nut to Engine 41 N·m 30 lb ft Power Steering Pump Rear Bracket Nut to Engine Stud 41 N·m 30 lb ft Power Steering Pump Rear Bracket Nut to Power Steering Pump 50 N·m 37 lb ft	Oil Filter Fitting	35 N⋅m	26 lb ft
Oil Pan Bolt and Nut in Sequence 25 N·m 18 lb ft Oil Pan Drain Plug 25 N·m 18 lb ft Oil Pump Bolt to Rear Crankshaft Bearing Cap 90 N·m 66 lb ft Oil Pump Cover Bolt 12 N·m 106 lb in Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket Power Steering Pump Bolt 50 N·m 37 lb ft Power Steering Pump Bracket Bolt to Engine 41 N·m 30 lb ft Power Steering Pump Bracket Stud Nut 41 N·m 30 lb ft Power Steering Pump Bracket Stud to Engine 20 N·m 15 lb ft Power Steering Pump Bracket Stud to Engine 41 N·m 30 lb ft Power Steering Pump Rear Bracket Nut to Engine 41 N·m 30 lb ft Power Steering Pump Rear Bracket Nut to Engine 50 N·m 37 lb ft Power Steering Pump Rear Bracket Nut to Power Steering Pump 50 N·m 37 lb ft	Oil Level Indicator Tube Bolt	12 N⋅m	106 lb in
Oil Pan Drain Plug  Oil Pump Bolt to Rear Crankshaft Bearing Cap  90 N·m  66 lb ft  Oil Pump Cover Bolt  Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket  Power Steering Pump Bolt  Power Steering Pump Bracket Bolt to Engine  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Nut to Engine  Power Steering Pump Rear Bracket Nut to Engine Stud  Power Steering Pump Rear Bracket Nut to Power Steering Pump  18 lb ft  18 lb ft  106 lb in  107 lb ft  108 lb ft  109 lb ft  100 lb	Oil Pan Baffle Bolt	12 N⋅m	106 lb in
Oil Pump Bolt to Rear Crankshaft Bearing Cap  Oil Pump Cover Bolt  Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket  Power Steering Pump Bolt  Power Steering Pump Bracket Bolt to Engine  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Rear Bracket Nut to Engine Stud  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  So N·m  37 lb ft	Oil Pan Bolt and Nut in Sequence	25 N⋅m	18 lb ft
Oil Pump Cover Bolt  Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket  Power Steering Pump Bolt  Power Steering Pump Bracket Bolt to Engine  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Rear Bracket Nut to Engine  Power Steering Pump Rear Bracket Nut to Engine Stud  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  So N·m  37 lb ft	Oil Pan Drain Plug	25 N⋅m	18 lb ft
Power Steering Fluid Reservoir Filler Neck Bolt to Power Steering Pump Bracket  Power Steering Pump Bolt  Power Steering Pump Bracket Bolt to Engine  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Bracket Stud to Engine  Power Steering Pump Nut to Engine  Power Steering Pump Rear Bracket Nut to Engine Stud  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump  Power Steering Pump Rear Bracket Nut to Power Steering Pump	Oil Pump Bolt to Rear Crankshaft Bearing Cap	90 N⋅m	66 lb ft
Pump Bracket         20 N·m         15 lb ft           Power Steering Pump Bolt         50 N·m         37 lb ft           Power Steering Pump Bracket Bolt to Engine         41 N·m         30 lb ft           Power Steering Pump Bracket Stud Nut         41 N·m         30 lb ft           Power Steering Pump Bracket Stud to Engine         20 N·m         15 lb ft           Power Steering Pump Nut to Engine         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Engine Stud         41 N·m         30 lb ft           Power Steering Pump Rear Bracket Nut to Power Steering Pump         50 N·m         37 lb ft	Oil Pump Cover Bolt	12 N⋅m	106 lb in
Power Steering Pump Bracket Bolt to Engine  41 N·m  30 lb ft  Power Steering Pump Bracket Stud Nut  41 N·m  30 lb ft  Power Steering Pump Bracket Stud to Engine  20 N·m  15 lb ft  Power Steering Pump Nut to Engine  41 N·m  30 lb ft  Power Steering Pump Rear Bracket Nut to Engine Stud  41 N·m  30 lb ft  Power Steering Pump Rear Bracket Nut to Engine Stud  41 N·m  30 lb ft  Power Steering Pump Rear Bracket Nut to Power Steering Pump  50 N·m  37 lb ft		20 N·m	15 lb ft
Power Steering Pump Bracket Stud Nut  Power Steering Pump Bracket Stud to Engine  20 N·m  15 lb ft  Power Steering Pump Nut to Engine  41 N·m  30 lb ft  Power Steering Pump Nut to Engine  41 N·m  30 lb ft  Power Steering Pump Rear Bracket Nut to Engine Stud  41 N·m  30 lb ft  Power Steering Pump Rear Bracket Nut to Power Steering Pump  50 N·m  37 lb ft	Power Steering Pump Bolt	50 N⋅m	37 lb ft
Power Steering Pump Bracket Stud to Engine20 N·m15 lb ftPower Steering Pump Nut to Engine41 N·m30 lb ftPower Steering Pump Rear Bracket Nut to Engine Stud41 N·m30 lb ftPower Steering Pump Rear Bracket Nut to Power Steering Pump50 N·m37 lb ft	Power Steering Pump Bracket Bolt to Engine	41 N·m	30 lb ft
Power Steering Pump Nut to Engine41 N·m30 lb ftPower Steering Pump Rear Bracket Nut to Engine Stud41 N·m30 lb ftPower Steering Pump Rear Bracket Nut to Power Steering Pump50 N·m37 lb ft	Power Steering Pump Bracket Stud Nut	41 N·m	30 lb ft
Power Steering Pump Rear Bracket Nut to Engine Stud       41 N⋅m       30 lb ft         Power Steering Pump Rear Bracket Nut to Power Steering Pump       50 N⋅m       37 lb ft	Power Steering Pump Bracket Stud to Engine	20 N⋅m	15 lb ft
Power Steering Pump Rear Bracket Nut to Power Steering Pump 50 N⋅m 37 lb ft	Power Steering Pump Nut to Engine	41 N⋅m	30 lb ft
Power Steering Pump Rear Bracket Nut to Power Steering Pump 50 N⋅m 37 lb ft		41 N·m	30 lb ft
		+	
	Radiator Inlet Hose Support Bracket Nut to Exhaust Manifold Stud	36 N⋅m	27 lb ft

#### Fastener Tightening Specifications (S/T Truck) (cont'd)

	Specification	
Application	Metric	English
Remote Oil Filter Adapter Mounting Bracket Bolt	30 N⋅m	22 lb ft
Remote Oil Filter Adapter Nut	25 N⋅m	18 lb ft
Remote Oil Filter Inlet and Outlet Hose Clip Bolt	10 N⋅m	89 lb in
Remote Oil Filter Inlet and Outlet Hose to Remote Oil Filter Adapter Bolt	35 N⋅m	26 lb ft
Remote Oil Filter Inlet and Outlet Hose to Remote Oil Filter Pipe Adapter Bolt	35 N⋅m	26 lb ft
Remote Oil Filter Pipe Clip Bolt to Oil Pan	9 N⋅m	80 lb in
Secondary Air Injection (AIR) Check Valve Pipe Bracket Bolt to Engine	40 N⋅m	29 lb ft
Secondary Air Injection (AIR) Check Valve Pipe Stud Nut	25 N⋅m	18 lb ft
Spark Plug		
Initial Installation – NEW Cylinder Head	30 N⋅m	22 lb ft
All Subsequent Installations	15 N⋅m	11 lb ft
Spark Plug Wire Support Bolt	12 N⋅m	106 lb in
Starter Motor Wiring Harness/Transmission Cooler Pipe Bracket Bolt to Oil Pan	9 N⋅m	80 lb in
Throttle Body Stud	9 N⋅m	80 lb in
Transmission Bolt to Oil Pan	47 N⋅m	35 lb ft
Transmission Cover Bolt	12 N⋅m	106 lb in
Upper Intake Manifold Stud		
First Pass	5 N⋅m	44 lb in
Final Pass	9 N⋅m	80 lb in
Valve Lifter Pushrod Guide Bolt	16 N⋅m	12 lb ft
Valve Rocker Arm Bolt	30 N⋅m	22 lb ft
Valve Rocker Arm Cover Bolt	12 N⋅m	106 lb in
Water Outlet Stud	25 N⋅m	18 lb ft
Water Pump Bolt	45 N⋅m	33 lb ft

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#### Fastener Tightening Specifications (C/K 800 Truck)

	Spec	
Application	Metric	English
Accelerator Control Cable Bracket Nut to Stud	12 N⋅m	106 lb in
Accelerator Control Cable Bracket Nut to Throttle Body	9 N⋅m	80 lb in
Accelerator Control Cable Bracket Stud to Intake Manifold	6 N⋅m	53 lb in
Accelerator Control Cable Bracket Stud to Throttle Body	12 N⋅m	106 lb in
Air Cleaner Adapter Stud	8 N⋅m	71 lb in
Balance Shaft Driven Gear Bolt		
First Pass	20 N⋅m	15 lb ft
Final Pass	35 degrees	
Balance Shaft Retainer Bolt	12 N⋅m	106 lb in
Battery Cable Bracket Bolt to Oil Pan	12 N⋅m	106 lb in
Battery Negative Cable Bolt to Engine	25 N⋅m	18 lb ft
Battery Positive Cable Junction Block Bracket Bolt	25 N⋅m	18 lb ft
Belt Idler Pulley Bolt	50 N⋅m	37 lb ft
Camshaft Retainer Bolt	12 N⋅m	106 lb in
Camshaft Sprocket Bolt	25 N⋅m	18 lb ft
Connecting Rod Nut		

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