

TORQUE SPECIFICATIONS

PICKUP

TORQUE SPECIFICATIONS (PICKUP)

Application	Ft. Lbs. (N.m)
A/C Compressor Mounting Bracket	
Bolts	29-40 (40-55)
Nuts	16-21 (21-29)
Balance Shaft Thrust Plate Bolt	9 (12)
Camshaft Sprocket Bolt	30-36 (41-49)
Camshaft Thrust Plate Bolt	9 (12)
Connecting Rod Cap Nut	
Step 1	18 (25)
Step 2	33 (44)
Step 3	Additional 90-120 Degrees
Crankshaft Damper Bolt	
On-Vehicle	
2000	103-118 (140-160)
2001	118 (160)
Off-Vehicle	
	111 (150)
Crankshaft Pulley Bolt	24 (32)
Cylinder Head Bolt ⁽¹⁾ ⁽²⁾	
Step 1	14 (20)
Step 2	29 (40)
Step 3	36 (50)
Step 4 ⁽³⁾	Loosen 3 Revolutions
Step 5	
Short Bolt	
2000	15-22 (20-30)
2001	18 (25)
Long Bolt	
2000	29-37 (40-50)
2001	33 (45)
Step 6	
2000	Additional 175-185 Degrees
2001	Additional 180 Degrees
EGR Valve Tube Fitting Bolt	25-34 (37-47)
Engine Mount Through-Bolt	51-67 (69-91)
Engine-To-Transmission Bolts	50-68 (68-92)
Exhaust Manifold Bolt	
On-Vehicle	18 (25)
Off-Vehicle	24 (33)
Flexplate-To-Torque Converter Bolt	20-34 (27-46)

Flywheel-To-Crankshaft Bolt	59 (80)
Front Cover Bolt	15-22 (20-30)
2000	
On-Vehicle ⁽⁴⁾	
Step 1 (Bolts 1-11 & 13)	16 (22)
Step 2 (Bolts 1-11 & 13)	Additional 90 Degrees
(Bolt 12) ⁽⁶⁾	7 (10)
Off-Vehicle ⁽⁴⁾	
Step 1 (Bolts 1-11 & 13)	16 (22)
Step 2 (Bolts 1-11 & 13)	Additional 90 Degrees
(Bolt 12) ⁽⁶⁾	7 (10)
2001 ^{(4), (5)}	
Step 1 (Bolts 1-11 & 13)	16 (22)
Step 2 (Bolts 1-11 & 13)	Additional 90 Degrees
(Bolt 12) ⁽⁶⁾	⁽⁷⁾
Front Engine Mounting Bolts/Nuts	50-70 (68-95)
Idle Air Control (IAC) Valve Bolt	⁽⁷⁾
Idler Pulley Bolt	35-47 (48-64)
Main Bearing Brace Nut	29-40 (40-55)
Main Bearing Cap Bolt	
2000	
Step 1	37 (50)
Step 2	Additional 90 Degrees
2001	
Step 1	37 (50)
Step 2	Additional 120 Degrees
Oil Baffle Plate Nuts	
2000	30-37 (40-50)
2001	24 (32)
Oil Drain Plug	19 (26)
Oil Pan-To-Transmission Bolt	33 (45)
Oil Pump Inlet Tube	18 (25)
Oil Pump Screen Cover	
2000	
Bolt	14-22 (20-30)
Nut	30-37 (40-50)
2001	
Bolt	18 (25)
Nut	24 (35)
Oil Pump-To-Front Cover	
Inner	18 (25)
Outer	⁽⁷⁾
Rocker Arm Fulcrum Bolt	

2000	22-29 (30-40)
2001	(8)
Step 1	26 (35)
Step 2	
Synchronizer Drive Gear	33 (45)
Timing Chain Vibration Damper Bolt	9 (12)
Valve Tappet Guide Bolt	8 (12)
Water Pump Bolt/Nuts	15-22 (20-30)
Water Pump Pulley Bolt	18 (25)
	INCH Lbs. (N.m)
Crankshaft Position Sensor	53 (6)
Intake Manifold Bolts & Stud ⁽⁹⁾	
Lower	
2000	
Step 1	44 (5)
Step 2	89 (10)
2001	
On-Vehicle	
Step 1	44 (5)
Step 2	106 (12)
Off-Vehicle	
Step 1	44 (5)
Step 2	89 (10)
Spacer	
2001	
Step 1	53 (6)
Step 2	89 (10)
Upper ⁽¹⁰⁾	
2000	
Step 1	59 (7)
Step 2	66 (8)
Step 3	Additional 90 Degrees
2001	
Step 1	53 (6)
Step 2	89 (10)
Oil Pan-To-Cylinder Block ⁽¹¹⁾	
Step 1	44 (5)
Step 2	89 (10)
Timing Pointer	71-106 (8-12)
Valve Cover Bolt	89 (10)

(1) DO NOT reuse bolts.

(2) Tighten in sequence. See **Fig. 7**.

- (3) DO NOT loosen all bolts at same time. Loosen and torque to specification one bolt at a time.
- (4) Tighten bolt in sequence. See **Fig. 8**.
- (5) Install studs first and tighten to 62 INCH lbs. (7 N.m).
- (6) Bolt in No. 12 position is not part of tightening sequence. See appropriate INSTALLATION procedure under **FRONT COVER**.
- (7) Tighten bolts to 89 INCH lbs. (10 N.m).
- (8) Tighten bolts to 44 INCH lbs. (5 N.m).
- (9) Tighten in sequence. See **Fig. 2-Fig. 5**.
- (10) Omit Step 3, if installing upper intake manifold, Off-Vehicle.
- (11) Tighten in sequence. See **Fig. 12**.

VAN

TORQUE SPECIFICATIONS (VAN)

Application	Ft. Lbs. (N.m)
A/C Compressor Mounting Bracket	
Bolts	29-40 (40-55)
Nuts	16-21 (21-29)
Balance Shaft Thrust Plate Bolt	(1)
Camshaft Sprocket Bolt	30-36 (41-49)
Camshaft Thrust Plate Bolt	(1)
Connecting Rod Cap Nut	(2)
Crankshaft Damper Bolt	
On-Vehicle	118 (160)
Off-Vehicle	140-180 (103-132)
Crankshaft Pulley Bolt	19-28 (26-38)
Cylinder Head Bolt ⁽³⁾ ⁽⁴⁾	
Step 1	15 (20)
Step 2	29 (40)
Step 3	37 (50)
Step 4 ⁽⁵⁾	Loosen 3 Revolutions
Step 5	
Short Bolt	15-22 (20-30)
Long Bolt	29-37 (40-50)
Step 6	Additional 175-185 Degrees
EGR Valve Tube Fitting Bolt	25-34 (37-47)
Engine Mount Through-Bolt	51-67 (69-91)
Engine-To-Transmission Bolts	50-68 (68-92)
Exhaust Manifold Bolt	15-22 (20-30)
Flexplate-To-Torque Converter Bolt	20-34 (27-46)
Flywheel-To-Crankshaft Bolt	54-64 (73-87)

Front Cover Bolt	15-22 (20-30)
2000 ⁽⁶⁾	
On-Vehicle	
Step 1 (Bolts 1-11 & 13)	16 (22)
Step 2 (Bolts 12) ⁽⁸⁾	7 (10)
Step 3 (Bolts 1-11 & 13)	Additional 90 Degrees
Off-Vehicle	
Step 1 (Bolts 1-11 & 13)	16 (22)
Step 2 (Bolts 12) ⁽⁸⁾	7 (10)
Step 3 (Bolts 1-11 & 13)	Additional 90 Degrees
2001 ^{(6) (7)}	
On-Vehicle	
Step 1 (Bolts 1-11 & 13)	16 (22)
Step 2 (Bolts 12) ⁽⁸⁾	7 (10)
Step 3 (Bolts 1-11 & 13)	Additional 90 Degrees
Off-Vehicle ^{(6) (7)}	
Step 1 (Bolts 1-11 & 13)	16 (22)
Step 2 (Bolts 12) ⁽⁸⁾	7 (10)
Step 3 (Bolts 1-11 & 13)	Additional 90 Degrees
Front Engine Mounting Bolts/Nuts	50-70 (68-95)
Idler Pulley Bolt	35-47 (48-64)
Main Bearing Brace Nut	29-40 (40-55)
Main Bearing Cap Bolt	
Step 1	37 (50)
Step 2	Additional 115-125 Degrees
Oil Baffle Plate Nuts	29-37 (40-50)
Oil Drain Plug	19 (26)
Oil Pan-To-Transmission Bolt	33 (45)
Oil Pump Inlet Tube	18 (25)
Oil Pump Screen Cover	
Bolt	15-22 (20-30)
Nut	29-37 (40-50)
Oil Pump-To-Front Cover	
Inner	15-22 (20-30)
Outer	⁽⁹⁾
Rocker Arm Fulcrum Bolt	22-29 (30-40)
Synchronizer Drive Gear	29-37 (40-50)
Timing Chain Vibration Damper Bolt	⁽¹⁾
Valve Tappet Guide Bolt	7-10 (10-14)
Water Pump Bolt/Nuts	15-22 (20-30)
Water Pump Pulley Bolt	16-21 (22-28)
INCH Lbs. (N.m)	

Intake Manifold Bolts & Stud ⁽¹⁰⁾	
Lower	
Step 1	44 (5)
Step 2	72-101 (8-11.5)
Spacer assembly	
2001	
Step 1	53 (6)
Step 2	89 (10)
Upper	
2000	
Step 1	71 (8)
Step 2	Additional 90 Degrees
2001	
Step 1	53 (6)
Step 2	89 (10)
Oil Pan-To-Cylinder Block ⁽¹¹⁾	
Step 1	35-44 (4-5)
Step 2	80-106 (9-12)
Timing Pointer	71-106 (8-12)
Valve Cover Bolt	
On-Vehicle	
Front Outer Center Nut	71-102 (8-11.5)
Rear Outer Center Nut	71-106 (8-12)
All Other Bolts and Nuts (Except Outer Center Nut)	89 (10)
Off-Vehicle	71-102 (8-11.5)

(1) Tighten Bolts to 62 INCH lbs. (7 N.m).

(2) Tightening specification not available from manufacturer.

(3) DO NOT reuse bolts.

(4) Tighten in sequence. See **Fig. 7**.

(5) DO NOT loosen all bolts at same time. Loosen and torque to specification one bolt at a time.

(6) Tighten bolt in sequence. See **Fig. 8**.

(7) Install studs first and tighten to 62 INCH lbs. (7 N.m).

(8) Bolt in No. 12 position is not part of tightening sequence. See appropriate INSTALLATION procedure under **FRONT COVER**.

(9) Tighten bolts to 71-97 INCH lbs. (8-11 N.m).

(10) Tighten in sequence. See **Fig. 2-Fig. 5**.

(11) Tighten in sequence. See **Fig. 12**.