

TIGHTENING TORQUES

Item		N·m	kgf·m	lbf·ft		
Alternator and ignition system	Water pump pulley bolt		9	0.9	6.5	
	Alternator brace bolt	Alternator side	14	1.4	10.1	
		Bolt holding brace and water pump		24	2.4	17.4
		Alternator pivot bolt		23	2.3	16.6
	Oil level gauge guide bolt		11	1.1	8.0	
	Crankshaft bolt		132	13.5	97.6	
	Spark plug		25	2.5	18.1	
	Distributor nut		12	1.2	8.7	
Timing belt	Timing belt cover bolt		11	1.1	8.0	
	Tensioner spring spacer		24	2.4	17.4	
	Timing belt tensioner		24	2.4	17.4	
	Engine support bracket bolt (left)		35	3.6	26.0	
	Camshaft sprocket bolt		59	6.0	43.3	
Fuel system	Fuel pipe	Bolt holding fuel pipe and intake manifold	18	1.8	13.0	
		Cylinder head side		14	1.4	10.1
	Carburetor assembly nut		12	1.2	8.7	
Intake manifold and water pump	Outlet fitting		19	1.9	13.7	
	Intake manifold bolt/nut		18	1.8	13.0	
	Water inlet pipe assembly bolt	M6	11	1.1	8.0	
		M10	30	3.1	22.4	
	Water pump bolt		14	1.4	10.1	
Exhaust manifold	Heat insulator bolt		11	1.1	8.0	
	Exhaust manifold nut		18	1.8	13.0	
Rocker arm, rocker shaft and camshaft	PCV valve		19	1.9	13.7	
	Rocker cover bolt		1.8	0.18	1.3	
	Rocker shaft assembly bolt		30	3.1	22.4	
	Adjusting screw		15	1.5	10.8	
Cylinder head and valve	Cylinder head bolt Tighten to 49 N·m (5.0 kgf·m) [36 lbf·ft], loosen completely and retighten to the specified torque.		19.6 + 90° turn + 90° turn	2.0 + 90° turn + 90° turn	14.5 + 90° turn + 90° turn	
Oil pump and oil pan	Oil pan bolt		7	0.7	5.1	
	Drain plug		39	4.0	28.9	
	Oil screen bolt/nut		19	1.9	13.7	
	Front case bolt		14	1.4	10.1	
	Relief plug		44	4.5	32.5	
	Oil pump cover screw		10	1.0	7.2	
Connect- ing rod	Nut		16.7 + 90° to 100° turn	1.7 + 90° to 100° turn	12.3 + 90° to 100° turn	

Item		N·m	kgf·m	lbf·ft
Crankshaft and cylinder block	Flywheel bolt	132	13.5	97.6
	Oil seal case bolt	5	0.5	3.6
	Rear plate bolt	59	6.0	43.4
	Rear plate cover bolt	11	1.1	8.0
	Rear oil seal case bolt	11	1.1	8.0
	Bearing cap bolt	52	5.3	38.3
	Oil pressure switch	19	1.9	13.7
Starter motor	Bolt	44	4.5	32.5

GENERAL BOLTS AND NUTS

Standard Bolts and Nuts

Nominal diameter	Pitch	Torque, N·m (kgf·m) [lbf·ft]				
		Bolt, stud, nut (with spring washer)			Flange bolt, flange nut	
		Head mark 4	Head mark 7	Head mark 10	Head mark 4	Head mark 7
M6	1.0	—	9 (0.9) [6.5]	13 (1.3) [9.4]	—	11 (1.1) [8.0]
M8	1.25	11 (1.1) [8.0]	18 (1.8) [13.0]	29 (3.0) [21.7]	14 (1.4) [10.1]	24 (2.4) [17.4]
M10	1.25	20 (2.0) [14.5]	33 (3.4) [24.6]	59 (6.0) [43.4]	29 (3.0) [21.7]	49 (5.0) [36.2]
M12	1.25	35 (3.6) [26.0]	61 (6.2) [44.8]	106 (10.8) [78.1]	54 (5.5) [39.8]	88 (9.0) [65.1]

Tapered Threads

Size	Torque, N·m (kgf·m) [lbf·ft]	
	Material of internal threads: Aluminum alloy	Material of internal threads: Cast iron or steel
NPTF 1/16	5 to 8 (0.5 to 0.8) [3.6 to 5.8]	8 to 12 (0.8 to 1.2) [5.8 to 8.7]
PT 1/8	8 to 12 (0.8 to 1.2) [5.8 to 8.7]	15 to 22 (1.5 to 2.2) [10.8 to 15.9]
PT 1/4	20 to 29 (2.0 to 3.0) [14.5 to 21.7]	34 to 44 (3.5 to 4.5) [25.3 to 32.5]
NPTF 1/4	20 to 29 (2.0 to 3.0) [14.5 to 21.7]	34 to 44 (3.5 to 4.5) [25.3 to 32.5]
PT 3/8	39 to 54 (4.0 to 5.5) [28.9 to 39.8]	54 to 74 (5.5 to 7.5) [39.8 to 54.2]
PT 1/2	69 to 98 (7.0 to 10.0) [50.6 to 72.3]	118 to 157 (12.0 to 16.0) [86.8 to 115.7]

NEW TIGHTENING METHOD — BY USE OF BOLTS TO BE TIGHTENING IN PLASTIC AREA

A new type of bolts, to be tightened in plastic area, is currently used in some parts of the engine. The tightening method for the bolts is different from the conventional one. Be sure to observe the method described in the text when tightening the bolts.

Service limits are provided for the bolts. Make sure that the service limits described in the text are strictly observed.

- Area where the bolts are in use:

- (1) Cylinder head bolts
- (2) Main bearing cap bolts
- (3) Connecting rod cap bolts

- Tightening method

After tightening the bolts to the specified torque, tighten them another 90° turn + 90° turn or 90° to 100° turn more. The tightening method varies on different areas. Observe the tightening method described in the text.