

DAIHATSU

F300

[HD-ENGINE]

TIGHTENING TORQUE

TIGHTENING TORQUES FOR MAIN

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WRC88-C001

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TIGHTENING TORQUES


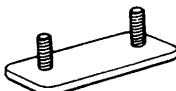





TIGHTENING TORQUE FOR MAIN COMPONENTS

1. When you want to find out a suitable tightening torque for a bolt, first determine the strength division of the said bolt, using the table below. Then, locate suitable tightening torque in the tightening torque table described later.
2. As for the tightening torque for a nut, find out suitable tightening torque in the same way as with the paragraph 1 above, based on the mating bolt.
3. Tightening torque posted in the workshop manual is a standard value for steel fasteners. It is, therefore, necessary to modify these tightening torque when you tighten fasteners made of materials other than steel. This rule also applies to such instances where bolts are undergoing heat or other stress, such as vibratory loads and so forth.

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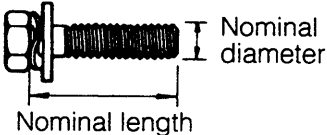
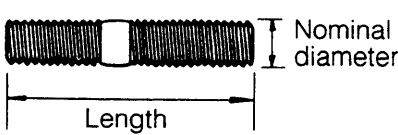
METHOD TO IDENTIFY STRENGTH DIVISION OF BOLTS

1. Identification Method by Checking Bolts Themselves

	Configuration and how to determine strength division		Strength division		Configuration and how to determine strength division		Strength division
Hexagon bolt		Bolt having an embossed or stamped figure at its head section	4 = 4T 5 = 5T 6 = 6T 7 = 7T	Welded bolt			4T
		No mark	4T			No mark	4T
		Bolt having two embossed lines at its head section	5T 6T	Stud bolt			Bolt having about 2 mm deep recess at one end or both ends 6T
		Bolt having three embossed lines at its head section	7T				

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2. Identification Method by Part Numbers

Hexagon Bolt	Stud Bolt
<p>Part number example: 9 1 1 1 1 - 4 0 6 2 0</p> <p>Labels for part number: Strength division (4), Nominal diameter (mm) (06), Nominal length (mm) (20)</p> 	<p>Part number example: 9 2 1 3 2 - 4 0 6 2 0</p> <p>Labels for part number: Strength division (4), Nominal diameter (mm) (06), Nominal length (mm) (20)</p> 

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[Tightening Torque Table for General Standard Bolts]

Category	Nominal diameter	Pitch	Standard tightening torque kg-m (ft-lb)	
			Standard torque	Tightening range
4T (Bolt having a mark of "4" at its head section) Example of part number (91○○○ - 4○○○○)	6	1	0.47 (3.4)	0.4 - 0.7 (2.9 - 5.1)
	8	1.25	1.11 (8.0)	1.0 - 1.6 (7.2 - 11.6)
	10	1.25	2.25 (16.3)	1.9 - 3.1 (14 - 22.5)
	10	1.5	2.14 (15.5)	1.8 - 3.0 (13 - 22)
	12	1.25 (ISO)	4.40 (31.8)	3.5 - 5.5 (25 - 40)
	12	1.5	3.89 (28.1)	3.5 - 5.5 (25 - 40)
	12	1.75	3.74 (27.1)	3.0 - 5.0 (22 - 36)
	13	1.5	5.08 (36.7)	4.5 - 7.0 (33 - 51)
	14	1.5	6.33 (45.8)	5.0 - 8.0 (36 - 58)
	14	2	5.93 (42.9)	4.7 - 7.7 (34 - 56)
	16	1.5	9.57 (69.2)	7.5 - 11.0 (54 - 80)
16	2	9.10 (65.8)	7.1 - 10.6 (51 - 77.5)	
5T (Bolt having a mark of "5" at its head section) Example of part number (91○○○ - 5○○○○)	6	1	0.71 (5.1)	0.6 - 0.9 (4.3 - 6.5)
	8	1.25	1.66 (12.0)	1.5 - 2.2 (11 - 16)
	10	1.25	3.37 (24.4)	3.0 - 4.5 (22 - 33)
	10	1.5	3.20 (23.1)	2.7 - 4.2 (19.5 - 30.5)
	12	1.25 (ISO)	5.84 (42.2)	5.0 - 7.0 (36 - 51)
	12	1.5	5.84 (42.2)	5.0 - 7.0 (36 - 51)
	12	1.75	5.60 (40.5)	4.8 - 6.8 (34 - 49)
	13	1.5	7.63 (55.2)	6.5 - 9.0 (47 - 65)
	14	1.5	9.50 (68.7)	7.5 - 11.0 (54 - 79.5)
	14	2	8.90 (64.4)	7.0 - 10.5 (51 - 76)
	16	1.5	14.36 (103.9)	12.0 - 17.0 (87 - 123)
16	2	13.58 (98.2)	11.5 - 16.5 (83 - 119)	
6T (Bolt having a mark of "6" at its head section) Example of part number (91○○○ - 6○○○○)	6	1	0.71 (5.1)	0.6 - 0.9 (4.3 - 6.5)
	8	1.25	1.66 (12.0)	1.5 - 2.2 (11 - 16)
	10	1.25	3.37 (24.4)	3.0 - 4.5 (22 - 33)
	10	1.5	3.20 (23.1)	2.7 - 4.2 (19.5 - 30.5)
	12	1.25 (ISO)	5.84 (42.2)	5.0 - 7.0 (36 - 51)
	12	1.5	5.84 (42.2)	5.0 - 7.0 (36 - 51)
12	1.75	5.61 (40.6)	4.8 - 6.8 (35 - 49)	
7T (Bolt having a mark of "7" at its head section) Example of part number (91○○○ - 7○○○○)	6	1	0.95 (6.87)	0.8 - 1.2 (5.8 - 8.7)
	8	1.25	2.20 (15.9)	2.0 - 3.0 (14.5 - 22)
	10	1.25	4.50 (32.5)	4.0 - 5.5 (29 - 40)
	10	1.5	4.30 (31.1)	3.7 - 5.2 (27 - 38)
	12	1.25 (ISO)	7.78 (56.3)	7.0 - 9.0 (51 - 65)
	12	1.5	7.78 (56.3)	7.0 - 9.0 (51 - 65)
	12	1.75	7.48 (54.1)	6.0 - 8.5 (43 - 61.5)
	13	1.5	10.17 (73.6)	8.0 - 12.0 (58 - 88)
	14	1.5	12.67 (91.6)	10.0 - 15.0 (72 - 108)
	14	2	11.86 (85.8)	9.5 - 14.0 (69 - 101)
	16	1.5	19.15 (138.5)	15.0 - 23.0 (108 - 169)
16	2	18.11 (131.0)	14.9 - 22.0 (108 - 159)	

WRC88-C005

TIGHTENING TORQUES

ENGINE

Unit: kg-m (ft-lb)

Tightening component	Tightening torque
Cylinder head × Spark plug	1.5 - 2.2 (10.8 - 15.9)
Cylinder head × Cylinder head cover	0.3 - 0.5 (2.2 - 3.6)
Cylinder head × Rocker shaft	M10 Bolt 2.9 - 3.7 (21.0 - 26.8) M8 Bolt 1.3 - 1.7 (9.4 - 12.3)
Cylinder head × Cylinder block	6.0 - 6.8 (43.4 - 49.2)
Cylinder head × Water temperature sensor (HD-E engine only)	2.5 - 3.5 (18.1 - 25.3)
Cylinder head × BVSV (HD-C engine only)	2.5 - 3.5 (18.1 - 25.3)
Cylinder head × Water temperature sender gauge	1.2 - 2.0 (8.7 - 14.5)
Cylinder head × Distributor	1.5 - 2.2 (10.8 - 15.9)
Cylinder head × Exhaust manifold	3.0 - 4.5 (21.7 - 32.5)
Cylinder head × Intake manifold	1.5 - 2.2 (10.8 - 15.9)
Cylinder head × Fuel pump (HD-C engine only)	1.5 - 2.2 (10.8 - 15.9)
Cylinder block × Water inlet	0.6 - 0.9 (4.3 - 6.5)
Cylinder block × Crankshaft main bearing cap	4.5 - 5.5 (32.5 - 39.8)
Cylinder block × Oil pump	0.6 - 0.9 (4.3 - 6.5)
Cylinder block × Rear oil seal retainer	0.6 - 0.9 (4.3 - 6.5)
Cylinder block × Water pump	1.5 - 2.2 (10.8 - 15.9)
Cylinder block × Engine mounting bracket	4.0 - 5.5 (28.9 - 39.8)
Cylinder block × Transmission	5.0 - 7.0 (36.2 - 50.6)
Cylinder block × Oil cooler pipe	2.5 - 3.5 (18.1 - 25.3)
Surge tank × Intake air temperature sensor	3.0 - 4.0 (21.7 - 28.9)
Surge tank × Gas filter	1.2 - 2.0 (8.7 - 14.5)
Surge tank × Throttle body	1.5 - 2.2 (10.8 - 15.9)
Crankshaft × Flywheel	8.0 - 10.0 (57.9 - 72.0)
Crankshaft × Crankshaft timing belt pulley	9.0 - 10.0 (65.1 - 72.0)
Intake manifold × Delivery pipe	1.5 - 2.2 (10.8 - 15.9)
Intake manifold × Carburetor (HD-C engine only)	1.5 - 2.2 (10.8 - 15.9)
Exhaust manifold × Exhaust pipe	3.5 - 5.0 (25.3 - 36.2)
Exhaust pipe clamp	3.0 - 4.5 (21.7 - 32.5)
Engine mounting bracket × Engine mounting (bolt)	3.0 - 4.5 (21.7 - 32.5)
Engine mounting bracket × Engine mounting (nut)	3.5 - 5.5 (25.3 - 39.8)

WN88E-C001

TIGHTENING TORQUES

Unit: kg-m (ft-lb)

Tightening component	Tightening torque
Oil pump body × Oil cooler	2.5 - 3.5 (18.1 - 25.3)
Oil pump × Oil pressure switch	1.2 - 2.0 (8.7 - 14.5)
Oil pan	0.7 - 1.2 (5.1 - 8.7)
Oil pan × Drain plug	2.0 - 3.0 (14.5 - 21.7)
Oil pump body × Oil pump cover	0.8 - 1.3 (5.8 - 9.4)
Oil level gauge guide	1.9 - 3.1 (13.7 - 22.4)
Surge tank stay No. 1	1.5 - 2.2 (10.8 - 15.9)
Surge tank stay No. 2	1.9 - 3.1 (13.7 - 22.4)
Surge tank stay No. 3	2.0 - 3.0 (8.7 - 14.5)
Camshaft × Camshaft timing belt pulley	1.5 - 2.2 (10.8 - 15.9)
Timing belt cover	0.2 - 0.4 (1.4 - 2.9)
Timing belt tensioner	3.0 - 4.5 (21.7 - 32.5)
Crankshaft timing belt pulley × Crankshaft pulley	2.0 - 3.0 (14.5 - 21.7)
Fluid coupling × Water pump pulley × Water pump	1.0 - 1.8 (7.2 - 13.0)
Cooling fan × Fluid coupling	0.5 - 0.6 (3.6 - 4.3)
Fuel filter × Fuel hose No. 1	3.5 - 4.5 (25.3 - 32.5)
Fuel filter × Fuel pipe	3.5 - 4.4 (25.3 - 31.8)
Fuel hose No. 1 × Delivery pipe	3.5 - 4.5 (25.3 - 32.5)
Connecting rod × Connecting rod cap	3.5 - 4.5 (25.3 - 32.5)
Clutch cover × Flywheel	1.5 - 2.2 (10.8 - 15.9)
Transmission × Starter motor	5.0 - 7.0 (36.2 - 50.6)
Front pipe × Rear pipe	3.7 - 5.2 (26.8 - 37.6)
Fuel pump × Fuel pipe	3.5 - 4.4 (25.3 - 31.8)

WN88E-C002