

GROUP 2 TIGHTENING TORQUE

1. MAJOR COMPONENTS

No.	Descriptions	Bolt size	Torque		
			kgf · m	lbf · ft	
1	Engine	Engine mounting bolt, nut	M12 × 1.75	12.2 ± 1.3	88.2 ± 9.4
2		Radiator mounting bolt	M16 × 2.0	29.6 ± 3.2	214 ± 23
3		Coupling mounting socket bolt	M16 × 2.0	10.5 ± 0.5	76 ± 3.6
4		Main pump housing mounting bolt	M10 × 1.5	4.8 ± 0.3	34.7 ± 2.2
5	Hydraulic system	Main pump mounting socket bolt	M20 × 2.5	42 ± 4.5	304 ± 33
6		Main control valve mounting nut	M12 × 1.75	12.2 ± 1.3	88.2 ± 9.4
7		Fuel tank mounting bolt	M20 × 2.5	46 ± 5.1	333 ± 37
8		Hydraulic oil tank mounting bolt	M20 × 2.5	46 ± 5.1	333 ± 37
9		Turning joint mounting bolt, nut	M16 × 2.0	29.6 ± 3.2	214 ± 23
10	Power train system	Swing motor mounting bolt	M20 × 2.5	58.4 ± 6.4	422 ± 46.3
11		Swing bearing upper part mounting bolt	M24 × 2.5	97.8 ± 10	707.4 ± 72.3
12		Swing bearing lower part mounting bolt	M24 × 2.5	97.8 ± 10	707.4 ± 72.3
13		Travel motor mounting bolt	M20 × 2.5	44 ± 2.5	318 ± 18.1
14		Sprocket mounting bolt	M20 × 2.5	51 ± 4.0	369 ± 29
15	Under carriage	Carrier roller mounting bolt, nut	M16 × 2.0	21 ± 2.3	152 ± 16.6
16		Track roller mounting bolt	M20 × 2.5	54.7 ± 6.0	396 ± 43.4
17		Track tension cylinder mounting bolt	M16 × 2.0	29.6 ± 3.2	214 ± 23
18		Track shoe mounting bolt, nut	M20 × 1.5	78 ± 4.0	586 ± 28.9
19		Track guard mounting bolt	M20 × 2.5	54.7 ± 6.0	395 ± 43
20	Others	Counter weight mounting bolt	M36 × 4.0	297 ± 33	2148 ± 239
21		Cab mounting bolt	M12 × 1.75	12.2 ± 1.3	88.2 ± 9.4
22		Operator's seat mounting bolt	M 8 × 1.25	1.17 ± 0.1	8.5 ± 0.7

※ For tightening torque of engine and hydraulic components, see engine maintenance guide and service manual.

2. TORQUE CHART

The torques given are standard figures. Any figures specifically described in this manual has priority.

1) METRIC BOLT-coarse thread

Bolt size	8T		10T	
	kgf · m	lbf · ft	kgf · m	lbf · ft
M 6 × 1.0	0.9 ~ 1.3	6.5 ~ 9.4	1.1 ~ 1.7	A8.0 ~ 12.3
M 8 × 1.25	2.0 ~ 3.0	14.5 ~ 21.7	2.7 ~ 4.1	19.5 ~ 29.7
M10 × 1.5	4.0 ~ 6.0	28.9 ~ 43.4	5.5 ~ 8.3	39.8 ~ 60.0
M12 × 1.75	7.4 ~ 11.2	53.5 ~ 81.0	9.8 ~ 15.8	70.9 ~ 114.3
M14 × 2.0	12.2 ~ 16.6	88.2 ~ 120.0	16.7 ~ 22.5	120.8 ~ 162.7
M16 × 2.0	18.6 ~ 25.2	134.5 ~ 182.3	25.2 ~ 34.2	182.3 ~ 247.4
M18 × 2.0	25.8 ~ 35.0	186.6 ~ 253.2	35.1 ~ 47.5	253.9 ~ 343.6
M20 × 2.5	36.2 ~ 49.0	261.8 ~ 354.4	49.2 ~ 66.6	355.9 ~ 481.7
M22 × 2.5	48.3 ~ 63.3	349.4 ~ 457.8	65.8 ~ 98.0	475.9 ~ 708.8
M24 × 3.0	62.5 ~ 84.5	452.1 ~ 611.2	85.0 ~ 115.0	614.8 ~ 831.8
M30 × 3.0	124.1 ~ 167.9	897.6 ~ 1214.4	169.1 ~ 228.9	1223.1 ~ 1655.6
M36 × 4.0	174.3 ~ 235.6	1260.7 ~ 1704.0	250.0 ~ 310.0	1808.3 ~ 2242.2

2) METRIC BOLT-fine thread

Bolt size	8T		10T	
	kgf · m	lbf · ft	kgf · m	lbf · ft
M 8 × 1.0	2.2 ~ 3.4	15.9 ~ 24.6	3.0 ~ 4.4	21.7 ~ 31.8
M10 × 1.2	4.5 ~ 6.7	32.5 ~ 48.5	5.9 ~ 8.9	42.7 ~ 64.4
M12 × 1.25	7.8 ~ 11.6	56.4 ~ 83.9	10.6 ~ 16.0	76.7 ~ 115.7
M14 × 1.5	13.3 ~ 18.1	96.2 ~ 130.9	17.9 ~ 21.1	129.5 ~ 174.3
M16 × 1.5	19.9 ~ 26.9	143.9 ~ 194.6	26.6 ~ 36.0	192.4 ~ 260.4
M18 × 1.5	28.6 ~ 43.6	206.9 ~ 315.4	38.4 ~ 52.0	277.7 ~ 376.1
M20 × 1.5	40.0 ~ 54.0	289.3 ~ 390.6	53.4 ~ 72.2	386.2 ~ 522.2
M22 × 1.5	52.7 ~ 71.3	381.2 ~ 515.7	70.7 ~ 95.7	511.4 ~ 692.2
M24 × 2.0	67.9 ~ 91.9	491.1 ~ 664.7	90.9 ~ 123.1	657.5 ~ 890.4
M30 × 2.0	136.9 ~ 185.1	990.2 ~ 1338.8	181.7 ~ 248.3	1314.2 ~ 1796.0
M36 × 3.0	192.1 ~ 259.9	1389.5 ~ 1879.9	261.8 ~ 354.2	1893.6 ~ 2561.9

3) PIPE & HOSE

Thread size	Width across flat(mm)	kgf · m	lbf · ft
1/4"	19	3	21.7
3/8"	22	4	28.9
1/2"	27	5	36.2
3/4"	36	12	86.8
1"	41	14	101.3

4) FITTING

Thread size	Width across flat(mm)	kgf · m	lbf · ft
1/4"	19	4	28.9
3/8"	22	5	36.2
1/2"	27	6	43.4
3/4"	36	13	94.0
1"	41	15	108.5