

GROUP 2 TIGHTENING TORQUE

1. MAJOR COMPONENTS

No.	Descriptions	Bolt size	Torque		
			kgf · m	lbf · ft	
1	Engine	Engine mounting bolt, nut	M16 × 2.0	29.6±3.2	214±23
2		Radiator mounting bolt	M16 × 2.0	15	108
3		Damper mounting bolt	M10 × 1.5	4.8±0.3	34.7±2.2
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		Control valve mounting nut	M16 × 2.0	29.6±3.2	214±23
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	M24 × 3.0	94.5±10.5	684±76
11		Swing bearing upper part mounting bolt	M24 × 3.0	97.8±10	707±72
12		Swing bearing lower part mounting bolt	M24 × 3.0	97.8±10	707±72
13		Travel motor mounting bolt	M20 × 2.5	44±4	318±29
14		Sprocket mounting bolt	M20 × 2.5	51±4	369±29
15	Under carriage	Carrier roller mounting bolt, nut	M16 × 2.0	29.7±4	215±29
16		Track roller mounting bolt	M22 × 2.5	77.4±11	560±80
17		Track tension cylinder mounting bolt	M16 × 2.0	29.6±3.2	214±23
18		Track shoe mounting bolt, nut	3/4-16 UNF	78 ⁺³ / ₀	564 ⁺²² / ₀
19		Track guard mounting bolt	M22 × 2.5	77.4±11	560±80
20	Others	Counterweight mounting bolt	M36 × 3.0	308±46.2	228±334
21		Cab mounting bolt, nut	M20 × 2.5	57.9±6.4	418±46

For tightening torque of engine and hydraulic components, see engine service manual and each components disassembly and assembly in this section.

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