













TIGHTENING TORQUES

EAS20340



ENGINE TIGHTENING TORQUES

Item	Thread size	Q'ty	Tightening torque	Remarks
Camshaft cap bolt	M6	12	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Engine oil check bolt	M8	1	15 Nm (1.5 m·kgf, 11 ft·lbf)	
Exhaust pipe stud bolt	M8	4	15 Nm (1.5 m·kgf, 11 ft·lbf)	
Cylinder head nut	M9	6	See TIP.	
Cylinder head bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Cylinder bolt	M6	1	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Spark plug	M10	2	13 Nm (1.3 m·kgf, 9.4 ft·lbf)	
Cylinder head cover bolt	M6	10	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Timing chain tensioner rod accessing plug	M20	1	12 Nm (1.2 m·kgf, 8.7 ft·lbf)	
Cylinder stud bolt	M9	6	13 Nm (1.3 m·kgf, 9.4 ft·lbf)	See TIP.
Connecting rod nut	M7	4	See TIP.	
Balancer connecting rod nut	M9	2	60 Nm (6.0 m·kgf, 43 ft·lbf)	
Balancer cylinder bolt	M10	4	58 Nm (5.8 m·kgf, 42 ft·lbf)	
Generator rotor nut	M18	1	See TIP.	
Timing chain tensioner bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Timing chain guide (intake side) bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Water pump housing cover bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Water pump assembly bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Water pump inlet and outlet pipes bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Thermostat cover bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Coolant pipe bolt	M6	1	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Coolant drain bolt	M12	1	1.6 Nm (0.16 m·kgf, 1.2 ft·lbf)	
Oil pump bolt	M6	3	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Oil strainer bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Oil filter cartridge union bolt	M20	1	63 Nm (6.3 m·kgf, 46 ft·lbf)	
Oil filter cartridge	M20	1	17 Nm (1.7 m·kgf, 12 ft·lbf)	
Oil delivery pipe bolt	M6	1	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Intake manifold bolt	M6	4	14 Nm (1.4 m·kgf, 10 ft·lbf)	
Intake manifold joint clamp	M5	2	3.0 Nm (0.30 m·kgf, 2.2 ft·lbf)	
Throttle body joint clamp	M5	2	3.0 Nm (0.30 m·kgf, 2.2 ft·lbf)	
Air filter case bolt	M6	2	9 Nm (0.9 m·kgf, 6.5 ft·lbf)	
Exhaust assembly nut (front)	M8	4	20 Nm (2.0 m·kgf, 14 ft·lbf)	
Exhaust assembly nut (rear)	M10	1	31 Nm (3.1 m·kgf, 22 ft·lbf)	
Crankcase bolt	M6	5	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	L = 35 mm (1.38 in)
Crankcase bolt	M6	8	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	L = 50 mm (1.97 in)
Crankcase bolt	M8	8	24 Nm (2.4 m·kgf, 17 ft·lbf)	

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Engine oil pressure check point plug	M20	1	12 Nm (1.2 m·kgf, 8.7 ft·lbf)	
Engine oil check bolt	M8	1	20 Nm (2.0 m·kgf, 14 ft·lbf)	
Engine oil drain bolt	M14	1	43 Nm (4.3 m·kgf, 31 ft·lbf)	
Oil tank bolt	M6	7	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Stator coil base screw	M6	3	12 Nm (1.2 m·kgf, 8.7 ft·lbf)	
Timing mark accessing plug	M16	1	8 Nm (0.8 m·kgf, 5.8 ft·lbf)	
Generator cover bolt	M6	19	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Outer V-belt case bolt	M6	4	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Outer V-belt case bolt	M8	6	24 Nm (2.4 m·kgf, 17 ft·lbf)	
Inner V-belt case plate bolt	M6	3	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Inner V-belt case bolt	M8	1	18 Nm (1.8 m·kgf, 13 ft·lbf)	L = 25 mm (0.98 in)
Inner V-belt case bolt	M8	1	24 Nm (2.4 m·kgf, 17 ft·lbf)	
Outer V-belt case nut	M6	1	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Crankshaft end access cover screw	M6	3	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
V-belt case air filter case screw	M6	3	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Generator cover protector screw	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
V-belt case air filter case cover screw	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Generator cover protector cover screw	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
V-belt case air filter element (left) bolt	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
V-belt case air duct joint clamp	M4	1	3.0 Nm (0.30 m·kgf, 2.2 ft·lbf)	
V-belt case air filter element joint clamp	M4	1	3.0 Nm (0.30 m·kgf, 2.2 ft·lbf)	
Starter clutch bolt	M8	3	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Clutch assembly nut	M16	1	65 Nm (6.5 m·kgf, 47 ft·lbf)	
Clutch boss nut	M48	1	130 Nm (13 m·kgf, 94 ft·lbf)	
Bearing housing bolt	M8	3	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Primary sheave nut	M20	1	160 Nm (16 m·kgf, 116 ft·lbf)	Shell Sun-light Grease 3®
Secondary sheave nut	M18	1	90 Nm (9.0 m·kgf, 65 ft·lbf)	YAMAHA GREASE "H" or Polyurea Grease®
Secondary sheave spring seat nut	M36	1	90 Nm (9.0 m·kgf, 65 ft·lbf)	
Crankshaft right end bearing retainer screw	M6	1	11 Nm (1.1 m·kgf, 8.0 ft·lbf)	

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Item	Thread size	Q'ty	Tightening torque	Remarks
Secondary shaft bearing retainer bolt	M6	2	12 Nm (1.2 m·kgf, 8.7 ft·lbf)	
Stator coil bolt	M6	3	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Crankshaft position sensor bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Starter motor bolt	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
O ₂ sensor	M18	1	45 Nm (4.5 m·kgf, 33 ft·lbf)	
Coolant temperature sensor	M12	1	18 Nm (1.8 m·kgf, 13 ft·lbf)	

TIP

Cylinder head nut

1. Tighten the nuts to 10 Nm (1.0 m·kgf, 7.2 ft·lbf).
2. Tighten the nuts to 20 Nm (2.0 m·kgf, 14 ft·lbf).
3. Tighten the nuts further to reach the specified angle 120°.

TIP

Cylinder head stud bolt

- The tightening torque is for reference only. Install the cylinder head stud bolt so that it protrudes 150.2–152.2 mm (5.91–5.99 in) from the crankcase.

TIP

Connecting rod nut

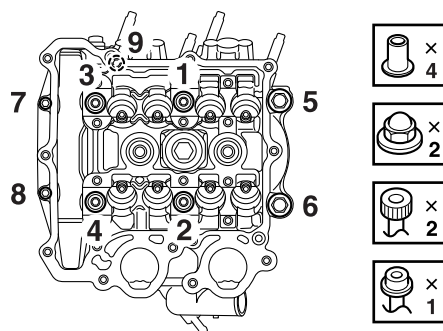
- Tighten the connecting rod nuts to 16 Nm (1.6 m·kgf, 12 ft·lbf), and then tighten them further to reach the specified angle 90°.

TIP

Generator rotor nut

- Tighten the generator rotor nuts to 65 Nm (6.5 m·kgf, 47 ft·lbf), and then tighten them further to reach the specified angle 120°.






Cylinder head tightening sequence:






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Item	Thread size	Q'ty	Tightening torque	Remarks
Engine mounting nut (front upper side)	M12	1	88 Nm (8.8 m·kgf, 64 ft·lbf)	
Engine mounting bolt (front lower side)	M10	4	45 Nm (4.5 m·kgf, 33 ft·lbf)	
Engine mounting nut (rear side)	M12	1	105 Nm (10.5 m·kgf, 76 ft·lbf)	
Rear frame bolt	M12	2	83 Nm (8.3 m·kgf, 60 ft·lbf)	
Front cowling stay bolt	M10	2	48 Nm (4.8m·kgf, 35 ft·lbf)	
Battery box bolt (lower)	M8	1	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Battery box bolt (upper and center)	M6	2	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Battery box bolt (air cleaner bracket)	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Footboard bracket bolt (front side)	M8	4	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Radiator bracket bolt	M8	4	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Main switch/immobilizer unit screw	M8	2	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Muffler stay nut	M10	1	32 Nm (3.2 m·kgf, 23 ft·lbf)	
Fuel tank bracket bolt	M6	4	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Pivot shaft	M22	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Pivot shaft nut	M22	1	100 Nm (10 m·kgf, 72 ft·lbf)	
Rear shock absorber assembly rear nut	M12	1	53 Nm (5.3 m·kgf, 38 ft·lbf)	
Rear shock absorber assembly front bolt	M16	1	68 Nm (6.8 m·kgf, 49 ft·lbf)	
Swingarm bolt	M10	3	40 Nm (4.0 m·kgf, 29 ft·lbf)	
Drive pulley assembly bolt	M10	5	48 Nm (4.8 m·kgf, 35 ft·lbf)	L = 25 mm (0.98 in), L = 90 mm (3.54 in)
Drive belt guard bolt	M6	4	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Swingarm cover bolt	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Holder cover bolt	M6	3	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Upper bracket pinch bolt	M8	2	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Lower bracket pinch bolt	M8	4	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Front fork cap bolt	M40	2	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Damper rod assembly bolt	M10	2	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Steering stem nut	M28	1	115 Nm (11.5 m·kgf, 83 ft·lbf)	
Lower ring nut	M30	1	See TIP.	
Upper handlebar holder bolt	M8	4	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Lower handlebar holder nut	M10	2	34 Nm (3.4 m·kgf, 25 ft·lbf)	
Brake hose union bolt (master cylinder side)	M10	2	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Brake master cylinder holder bolt	M6	4	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	

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Item	Thread size	Q'ty	Tightening torque	Remarks
Brake master cylinder cap screw	M4	4	1.5 Nm (0.15 m·kgf, 1.1 ft·lbf)	
Grip end	M16	2	26 Nm (2.6 m·kgf, 19 ft·lbf)	
Throttle cable bolt	M5	2	3.8 Nm (0.38 m·kgf, 2.8 ft·lbf)	
Throttle cable adjusting locknut	M8	1	3.8 Nm (0.38 m·kgf, 2.8 ft·lbf)	
Brake hose union bolt (Brake joint side)	M10	2	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Fuel tank bolt	M6	2	9 Nm (0.9 m·kgf, 6.5 ft·lbf)	
Fuel tank nut	M6	2	9 Nm (0.9 m·kgf, 6.5 ft·lbf)	
Fuel pump bolt	M5	6	3.8 Nm (0.38 m·kgf, 2.8 ft·lbf)	
Fuel rail screw	M5	2	3.5 Nm (0.35 m·kgf, 2.5 ft·lbf)	
Storage box bolt	M6	10	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Seat lock bolt	M6	4	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Grab bar bolt	M8	4	16 Nm (1.6 m·kgf, 12 ft·lbf)	
Side cover bolt (front side)	M6	4	1.5 Nm (0.15 m·kgf, 1.1 ft·lbf)	
Front cowling bolt	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Head light bolt	M6	4	4.0 Nm (0.40 m·kgf, 2.9 ft·lbf)	
Footboard bolt	M6	6	4.0 Nm (0.40 m·kgf, 2.9 ft·lbf)	
Footboard bolt (rear upper of right side)	M6	1	3.8 Nm (0.38 m·kgf, 2.8 ft·lbf)	
Headlight bolt (center)	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Front turn signal light bolt	M6	2	4.0 Nm (0.40 m·kgf, 2.9 ft·lbf)	
Windshield screw	M5	4	0.5 Nm (0.05 m·kgf, 0.36 ft·lbf)	
Windshield stay bolt	M6	4	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Side cover bolt (rear side)	M6	2	4.0 Nm (0.40 m·kgf, 2.9 ft·lbf)	
Storage compartment bolt	M6	1	4.0 Nm (0.40 m·kgf, 2.9 ft·lbf)	
Recovery tank bolt	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Front fender bolt (hexagon socket bolt)	M6	4	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Front fender bolt (flange bolt)	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Front wheel axle	M18	1	72 Nm (7.2 m·kgf, 52 ft·lbf)	
Rear wheel axle nut	M24	1	160 Nm (16 m·kgf, 116 ft·lbf)	
Lower bracket pinch bolt	M8	4	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Front wheel axle pinch bolt	M8	1	20 Nm (2.0 m·kgf, 14 ft·lbf)	
Drive belt adjusting locknut	M8	2	16 Nm (1.6 m·kgf, 12 ft·lbf)	
Front brake caliper bolt	M10	4	40 Nm (4.0 m·kgf, 29 ft·lbf)	
Rear brake caliper bolt	M10	2	27 Nm (2.7 m·kgf, 20 ft·lbf)	
Front brake disc bolt	M8	10	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Rear brake disc bolt	M8	5	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Front brake hose union bolt (caliper side)	M10	2	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Rear brake hose union bolt (caliper side)	M10	1	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Front brake caliper bleed screw	M8	2	5 Nm (0.5 m·kgf, 3.6 ft·lbf)	
Rear brake caliper bleed screw	M7	1	6 Nm (0.6 m·kgf, 4.3 ft·lbf)	

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Front wheel sensor bolt	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Rear wheel sensor bolt	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Rear brake lock caliper bolt	M8	2	23 Nm (2.3 m·kgf, 17 ft·lbf)	
Rear brake lock caliper slide pin bolt	M8	1	17 Nm (1.7 m·kgf, 12 ft·lbf)	
Rear brake lock caliper bracket bolt	M8	1	22 Nm (2.2 m·kgf, 16 ft·lbf)	
Rear brake lock caliper piston locknut	M16	1	22 Nm (2.2 m·kgf, 16 ft·lbf)	Left-hand thread.
Rear brake lock adjusting nut	M8	1	15 Nm (1.5 m·kgf, 11 ft·lbf)	
Front brake hose joint nut	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Front brake hose holder bolt	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Rear brake hose guide bolt	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Rear brake hose holder bolt	M6	4	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Rear brake lock cable holder bolt	M6	1	10 Nm (1.0 m·kgf, 7.2 ft·lbf)	
Rear brake hose holder bolt (rear left footrest)	M6	1	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Front wheel sensor rotor bolt	M5	3	8 Nm (0.8 m·kgf, 5.8 ft·lbf)	
Rear wheel sensor rotor bolt	M5	5	8 Nm (0.8 m·kgf, 5.8 ft·lbf)	
Centerstand bracket nut	M10	4	55 Nm (5.5 m·kgf, 40 ft·lbf)	
Centerstand nut	M10	2	55 Nm (5.5 m·kgf, 40 ft·lbf)	
Sidestand nut	M10	1	65 Nm (6.5 m·kgf, 47 ft·lbf)	
Rear footrest bracket bolt	M8	4	30 Nm (3.0 m·kgf, 22 ft·lbf)	
Lean angle sensor bolt	M4	2	1.5 Nm (0.15 m·kgf, 1.1 ft·lbf)	
Starter relay lead bolt	M6	2	3.6 Nm (0.36 m·kgf, 2.6 ft·lbf)	
Sidestand switch nut	M5	2	3.8 Nm (0.38 m·kgf, 2.8 ft·lbf)	
Intake air pressure sensor bolt	M5	1	3.8 Nm (0.38 m·kgf, 2.8 ft·lbf)	
Ambient temperature sensor bolt	M5	1	3.8 Nm (0.38 m·kgf, 2.8 ft·lbf)	
Throttle position sensor screw	M5	2	3.5 Nm (0.35 m·kgf, 2.5 ft·lbf)	
ECU (engine control unit) nut	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Hydraulic unit assembly bracket bolt	M8	2	16 Nm (1.6 m·kgf, 12 ft·lbf)	
Hydraulic unit assembly and hydraulic unit assembly bracket bolt	M6	3	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Brake hose flare nut	M10	4	16 Nm (1.6 m·kgf, 12 ft·lbf)	
Damper mount bolt nut	M8	3	16 Nm (1.6 m·kgf, 12 ft·lbf)	
Brake joint assembly bolt	M6	2	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	
Damper cap bolt	M6	3	7 Nm (0.7 m·kgf, 5.1 ft·lbf)	

TIP

Lower ring nut

1. First, tighten the lower ring nut approximately 52 Nm (5.2 m·kgf, 38 ft·lbf) by using the ring nut wrench and turn the steering right and left a few times, then loosen the lower ring nut completely.
2. Retighten the lower ring nut 14 Nm (1.4 m·kgf, 10 ft·lbf).