

GENERAL INFORMATION 1-11

Torque and Locking Agent

The following tables list the tightening torque for the major fasteners requiring use of a non-permanent locking agent.

Letters used in the "Remarks" column mean:

EO: Apply engine oil to the threads.

G: Apply grease to the threads.

L: Apply a non-permanent locking agent to the threads.

Lh: Left-hand threads.

MO: Apply molybdenum disulfide oil. The molybdenum disulfide oil is a mixture of engine oil and molybdenum disulfide grease with a weight ratio (10 : 1).

R: Replacement parts

S: Tighten the fasteners following the specified sequence.

se: Seating Surface

SS: Apply silicone sealant.

th: Threads

ws: Washer

The table below, relating tightening torque to thread diameter, lists the basic torque for the bolts and nuts. Use this table for only the bolts and nuts which do not require a specific torque value. All of the values are for use with dry solvent-cleaned threads.

Basic Torque for General Fasteners

Threads dia. (mm)	Torque		
	N·m	kg·m	ft·lb
5	3.4 ~ 4.9	0.35 ~ 0.50	30 ~ 43 in·lb
6	5.9 ~ 7.8	0.60 ~ 0.80	52 ~ 69 in·lb
8	14 ~ 19	1.4 ~ 1.9	10.0 ~ 13.5
10	25 ~ 34	2.6 ~ 3.5	19.0 ~ 25
12	44 ~ 61	4.5 ~ 6.2	33 ~ 45
14	73 ~ 98	7.4 ~ 10.0	54 ~ 72
16	115 ~ 155	11.5 ~ 16.0	83 ~ 115
18	165 ~ 225	17.0 ~ 23.0	125 ~ 165
20	225 ~ 325	23 ~ 33	165 ~ 240

Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Fuel System:				
Fuel Tap Bolts	2.5	0.25	22 in-lb	
Fuel Tap Plate Screws	0.8	0.08	7 in-lb	
Fuel Tap Diaphragm Cover Screws	1.0	0.10	9 in-lb	
Fuel Tap Knob Screw	1.5	0.15	13 in-lb	
Fuel Level Sensor Bolts	6.9	0.70	61 in-lb	
Carburetor Holder Bolts	12	1.2	106 in-lb	L
Cooling System:				
Water Hose Clamp Screws	2.5	0.25	22 in-lb	
Water Pipe Mounting Bolts	9.8	1.0	87 in-lb	L(1)
Water Pump Air Bleeder Bolt	9.8	1.0	87 in-lb	
Thermostat Housing Air Bleeder Bolt	7.8	0.80	69 in-lb	
Coolant Drain Plug (water pipe)	7.8	0.80	69 in-lb	
Radiator Fan Switch	24	2.4	17.7	
Water Temperature Switch	7.8	0.80	69 in-lb	SS
Water Pump Outlet Pipe Flange Bolt	9.8	1.0	87 in-lb	
Water Pump Inlet Pipe Bolt	9.8	1.0	87 in-lb	L
Water Pump Mounting Bolts	9.8	1.0	87 in-lb	
Water Pump Cover Bolts	9.8	1.0	87 in-lb	
Engine Top End:				
Spark Plugs	14	1.4	10.0	
Air Suction Valve Cover Bolts	10	1.0	89 in-lb	
Cylinder Head Cover Bolts	9.8	1.0	87 in-lb	
Pickup Coil Cover Bolts	10	1.0	89 in-lb	L(2)
Chain Tensioner Mountring Bolts	10	1.0	89 in-lb	L
Chain Tensioner Cap	20	2.0	14.5	
Camshaft Cap Bolts	12	1.2	106 in-lb	S
Camshaft Bracket Bolts	12	1.2	106 in-lb	S
Camshaft Sprocket Bolts	15	1.5	11.0	L
Upper Chain Guide Bolts	12	1.2	106 in-lb	L

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Fastener	Torque			Remarks
	N-m	kg-m	ft-lb	
Cylinder Water Pipe Mounting Bolts (front)	10	1.0	89 in-lb	L
Cylinder Water Pipe Mounting Bolts (rear)	10	1.0	89 in-lb	L (1, middle)
Water Hose Clamp Screws	2.5	0.25	22 in-lb	
Oil Hose Banjo Bolt	25	2.5	18.0	
Cylinder Head Bolts: $\phi 11$ mm	57	5.8	42	S, MO (ws, se)
$\phi 10$ mm	41	4.2	30	S, MO (ws, se)
$\phi 6$ mm	9.8	1.0	87 in-lb	S
Cylinder Bolts $\phi 6$ mm	15	1.5	11.0	S
Cylinder Coolant Drain Bolts	10	1.0	89 in-lb	
Rocker Shaft End Bolts	25	2.5	18.0	
Rear Camshaft Chain Guide Bolt	20	2.0	14.5	L
Camshaft Chain Plate Bolts	9.8	1.0	87 in-lb	lower, L
Carburetor Holder Bolts	12	1.2	106 in-lb	L
Muffler Clamp Bolt	34	3.5	25	
Muffler Body Clamp Bolt and Nut	34	3.5	25	
Muffler Body Mounting Nuts	25	2.5	18.0	
Clutch:				
Clutch Lever Pivot Bolt	1.0	0.10	9 in-lb	
Clutch Lever Pivot Bolt Locknut	5.9	0.60	52 in-lb	
Clutch Slave Cylinder Bleed Valve	7.8	0.80	69 in-lb	
Clutch Slave Cylinder Bolts	—	—	—	L (2)
Clutch Hose Banjo Bolt	25	2.5	18.0	
Clutch Pipe Banjo Bolt	25	2.5	18.0	
Clutch Reservoir Cap Screws	1.5	0.15	13 in-lb	
Clutch Master Cylinder Clamp Bolts	9.8	1.0	87 in-lb	S
Starter Lockout Switch Screw	1.0	0.10	9 in-lb	
Clutch Cover Bolts	9.8	1.0	87 in-lb	L (4)
Clutch Cover Damper Bolts	9.8	1.0	87 in-lb	L
Clutch Cover Oil Pipe Banjo Bolt	12	1.2	106 in-lb	
Clutch Cover Oil Pipe Mounting Screw	5.9	0.60	52 in-lb	
Clutch Spring Bolts	11	1.1	97 in-lb	
Clutch Hub Nut	135	13.8	100	R
Engine Lubrication System:				
Oil Filler Cap	1.5	0.15	13 in-lb	
Engine Drain Plug	20	2.0	14.5	
Oil Filter Bolt	20	2.0	14.5	EO
Oil Pan Bolts	15	1.5	11.0	L (6)
Oil Pressure Relief Valve	15	1.5	11.0	L
Oil Pressure Switch Terminal Screw	1.6	0.16	14 in-lb	
Oil Pressure Switch	15	1.5	11.0	SS
Oil Pump Mounting Bolts	12	1.2	106 in-lb	
Oil Pump Drive Gear Holder Screws	5.2	0.53	46 in-lb	L
Oil Pipe Banjo Bolts	25	2.5	18.0	L
Oil Hose Banjo Bolts $\phi 12$ mm	25	2.5	18.0	
Return Oil Pipe Banjo Bolts $\phi 14$ mm	34	3.5	25	Oil pan
Oil Pump Bracket Bolts	9.8	1.0	87 in-lb	

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Remarks	Fastener		Torque			Remarks
	ft-lb	kg-m	N-m	kg-m	ft-lb	
Main Oil Passage Plug			18	1.8	13.0	
Oil Pan Plug PT 1/8		4.0	15	1.5	11.0	
Oil Screen Holder Screws		3.5	5.0	0.50	44 in-lb	
Oil Separator Screws		2.5	5.1	0.52	45 in-lb	
Crankcase Breather Cover Bolts		13.0	10	1.0	89 in-lb	
Engine Removal/Installation:						
Downtube Bolts			44	4.5	33	
Engine Mounting Bolts and Nuts		10	44	4.5	33	
Front Engine Bracket Bolts (left)			30	3.1	22	
Rear Bracket Bolts (lower)		8.0	17	1.7	13	
Crankshaft/Transmission:						
Lower Crankcase Plug ϕ 25 mm		0.0	18	1.8	13.0	
Crankcase Bolts: ϕ 9 mm		10.0	32	3.3	24	
Alternator Coupling ϕ 8 mm		0.0	27	2.8	20	
Alternator Bearing ϕ 7 mm		10.0	18	1.8	13.0	
Alternator Stud ϕ 6 mm		12.0	15	1.5	11.0	
Main Oil Passage Plug		8.0	18	1.8	13.0	
Connecting Rod Big End Nuts		3.5	in the text			MO (th, se)
Main Bearing Cap Bolts		2.5	32	3.3	24	
Balancer Shaft Lever Bolt		2.1	9.8	1.0	87 in-lb	
Balancer Shaft Plate Bolt		3.3	9.8	1.0	87 in-lb	
Balancer Shaft Clamp Bolt		00.0	9.8	1.0	87 in-lb	
Alternator Shaft Nut		2.8	59	6.0	43	
Alternator Shaft Bolt		2.5	25	2.5	18.0	
Alternator Chain Tensioner Bolt		1.8	9.8	1.0	87 in-lb	
Alternator Chain Sprocket Bolt			25	2.5	18.0	
Alternator Chain Guide Bolt		3.0	9.8	1.0	87 in-lb	
Starter Motor Clutch Bolts		2.1	12	1.2	106 in-lb	
Timing Rotor Bolt		2.5	25	2.5	18.0	
External Shift Mechanism Cover Bolts		1.5	9.8	1.0	87 in-lb	
Shift Shaft Return Spring Pin (bolt)		4.0	30	3.1	22	
Neutral Switch		2.0	15	1.5	11.0	
Shift Drum Bearing Holder Bolts		8.0	13	1.3	113 in-lb	
Shift Drum Cam Screw		3.5	—	—	—	
Bearing Holder Bolts		10	9.8	1.0	87 in-lb	
Transmission Oil Pipe Holder Bolt			9.8	1.0	87 in-lb	
Gear Set Lever Nuts		4.5	10	1.0	89 in-lb	
Crankcase Breather Cover Bolts		8.0	10	1.0	89 in-lb	
Oil Separator Screws		2.5	5.1	0.52	45 in-lb	
Oil Screen Holder Screws		3.5	5.0	0.51	44 in-lb	
Wheels/Tires:						
Front Axle Clamp Bolts		35.0	20	2.0	14.5	
Front Axle Nut		3.5	125	13	94	
Rear Axle Nut		2.1	98	10	72	
Disc Mounting Bolts			27	2.8	20	

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Fastener	Torque			Remarks
	N·m	kg·m	ft·lb	
Final Drive:				
Chain Adjuster Clamp Bolts	39	4.0	29	
Torque Link Nut (front)	34	3.5	25	
Torque Link Nut (rear)	25	2.5	18.0	
Engine Sprocket Nut	125	13.0	94	MO (th, se, ws)
Rear Sprocket Nuts	59	6.0	44	
Rear Sprocket Studs	—	—	—	L
Rear Axle Nut	98	10	72	
Brakes:				
Caliper Bleed Valves	7.8	0.8	69 in·lb	
Brake Hose Banjo Bolts	25	2.5	18.0	
Brake Hose Joint Bolts	6.9	0.70	61 in·lb	
Brake Lever Pivot Bolt	1.0	0.10	9 in·lb	
Brake Lever Pivot Bolt Locknut	5.9	0.60	52 in·lb	
Front Brake Reservoir Cap Screws	1.5	0.15	13 in·lb	
Front Brake Light Switch Screw	1.2	0.12	11 in·lb	
Front Master Cylinder Clamp Bolts	8.8	0.9	78 in·lb	G, S
Front Caliper Mounting Bolts	34	3.5	25	
Rear Caliper Mounting Bolts	25	2.5	18.0	
Front Caliper Assembly Bolts	21	2.1	15.0	
Rear Caliper Assembly Bolts	32	3.3	24	
Front Brake Pad Spring Bolts	2.9	0.30	26 in·lb	
Brake Disc Mounting Bolts	27	2.8	20	L
Rear Master Cylinder Mounting Bolts	25	2.5	18.0	
Rear Master Cylinder Push Rod Locknut	18	1.8	13.0	
Suspension:				
Upper Front Fork Clamp Bolts	29	3.0	21	
Lower Front Fork Clamp Bolts	21	2.1	15.5	
Front Fork Top Plug	23	2.3	17.0	
Piston Rod Nut	15	1.5	11.0	
Front Fork Bottom Allen Bolts	39	4.0	29	L
Front Axle Clamp Bolts	20	2.0	14.5	S
Rear Shock Absorber Upper Mounting Bolts	59	6.0	44	hook
Rear Shock Absorber Lower Mounting Bolts	34	3.5	25	
Swingarm Pivot Nut	98	10	72	
Steering:				
Steering Stem Head Nut	44	4.5	33	
Steering Stem Nut	4.9	0.5	43 in·lb	see the text
Handlebar Clamp Bolts	25	2.5	18.0	
Handlebar Holder Nuts	34	3.5	25	lower
Handlebar Weight Screws	—	—	—	L
Handlebar Switch Housing Screws	3.4	0.35	30 in·lb	
Upper Front Fork Clamp Bolts	34	3.5	25	
Lower Front Fork Clamp Bolts	21	2.1	15	
Frame:				
Windshield Screws	0.40	0.041	3.5 in·lb	

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Fastener	Torque			Remarks
	N·m	kg·m	ft·lb	
Downtube Bolts	44	4.5	32	
Sidestand Bolt	44	4.5	32	
Sidestand Switch Bolt	8.8	0.9	78 in·lb	L
Front Footpeg Holder Bolts	34	3.5	25	
Front Footpeg Stay Bolts	25	2.5	18.0	
Rear Footpeg Stay Bolts	25	2.5	18.0	
Electrical System:				
Spark Plugs	14	1.4	10.0	
Pickup Coil Bolts	5.9	0.60	52 in·lb	L
Pickup Coil Cover Bolts	11	1.1	95 in·lb	L (2)
Timing Rotor Bolt	25	2.5	18.0	
Alternator Mounting Bolts	25	2.5	18.0	L
Alternator Cover Nuts	4.5	0.46	40 in·lb	
Alternator Coupling Bolt	12	1.2	106 in·lb	
Alternator Bearing Retainer Screws	2.6	0.27	23 in·lb	
Alternator Studs	8.8	0.90	78 in·lb	
Starter Motor Terminal Locknut	11	1.1	97 in·lb	
Starter Motor Terminal Nut	4.9	0.50	43 in·lb	
Starter Relay Terminal Bolts	4.9	0.50	43 in·lb	
Starter Motor Assembly Bolts	4.9	0.5	43 in·lb	
Starter Motor Mounting Bolts	11	1.1	95 in·lb	
Turn Signal Light Lens Screws	1.0	0.10	9 in·lb	
Handlebar Switch Housing Screws	3.4	0.35	30 in·lb	
Radiator Fan Switch	24	2.4	17.7	
Water Temperature Switch	7.8	0.8	69 in·lb	SS
Oil Pressure Switch	15	1.5	11.0	SS
Oil Pressure Switch Terminal Screw	1.5	0.15	13 in·lb	
Neutral Switch	15	1.5	11.0	
Sidestand Switch Bolt	8.8	0.9	78 in·lb	L
Front Brake Light Switch Screw	1.2	0.12	10 in·lb	
Starter Lockout Switch Screw	1.2	0.12	10 in·lb	
Taillight Nuts	5.9	0.6	52 in·lb	
Rear Turn Singal Light Nuts	5.9	0.6	52 in·lb	