

## GENERAL INFORMATION 1-9

### Torque and Locking Agent

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

Letters used in the "Remarks" column mean:

- G:** Apply grease to the threads.
- EO:** Apply engine oil to the threads and the seating surface.
- L:** Apply a non-permanent locking agent to the threads.
- Lh:** Left-hand threads.
- MO:** Apply molybdenum disulfide oil to the threads and the seating surface. (The molybdenum disulfide oil is mixture of the engine oil and molybdenum disulfide grease in a weight ratio 10 : 1.)
- S:** Tighten the fasteners following the specified sequence.
- SS:** Apply silicone sealant.
- St:** Stake the fasteners to prevent loosening.
- R:** Replacement parts

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 of Engine Parts

Threads dia. (mm)	Torque		
	N·m	kgf·m	ft·lb
5	5.9 ~ 7.9	0.60 ~ 0.80	52 ~ 69 in·lb
6	8.8 ~ 10.8	0.90 ~ 1.10	78 ~ 96 in·lb

#### Basic Torque for General Fasteners of Frame Parts

Threads dia. (mm)	Torque		
	N·m	kgf·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	kgf·m	ft·lb	
<b>Fuel System:</b>				
Vacuum Sensor Nut	9.8	1.0	87 in·lb	
Atmospheric Pressure Sensor Nut	9.8	1.0	87 in·lb	
High Pressure Fuel Hose Clamp Screws	1.5	0.15	13 in·lb	
Inlet Manifold Bolts	12	1.2	104 in·lb	
Pressure Regulator Screws	4.9	0.5	43 in·lb	
Delivery Joint Screws	3.4	0.35	30 in·lb	
Full Throttle Stopper Screw	-	-	-	Throttle Body L, LH
Throttle Cable Holder Screw	3.4	0.35	30 in·lb	L
Throttle Body Flange Bolts	4.9	0.5	43 in·lb	
Throttle Assy Holder Bolts	12	1.2	104 in·lb	Right Side on Cylinder Head
ISC Pipe Mounting Bolts	9.8	1.0	87 in·lb	
Air Cleaner Duct Holder Bolts	9.8	1.0	87 in·lb	
Right and Left Air Cleaner Base Bolts	12	1.2	104 in·lb	
Right and Left Air Cleaner Base Screws	2.2	0.22	19 in·lb	Lower Duct
Left Air Cleaner Duct Tapping Screws	2.2	0.22	19 in·lb	
Right and Left Air Cleaner Cover Allen Bolt #8	16	1.6	12	
Right Air Cleaner Allen Bolts	11	1.1	95 in·lb	Throttle Body L, Throttle Body
Choke Cable Plate Screw	3	0.3	22 in·lb	
Inlet Air Temperature Sensor Nut (DFI)	7.8	0.8	69 in·lb	
Water Temperature Sensor (DFI)	18	1.8	13	SS
Fuel Pump Bolts	6.9	0.7	61 in·lb	S, L
Return Fuel Check Valve	20	2.0	15	
<b>Cooling System:</b>				
Radiator Hose Clamp Screws	2.5	0.25	22 in·lb	
Coolant Air Bleeder Bolt	7.8	0.8	69 in·lb	
Radiator Fan Switch	18	1.8	13	

# 1-10 GENERAL INFORMATION

## Torque and Locking Agent

Fastener	Torque			Remarks	
	N·m	kgf·m	ft·lb		
Water Temperature Switch	7.8	0.8	69 in·lb	SS	
Water Pump Impeller Bolt	8	0.9	87 in·lb	Lh	
Water Pump Cover Bolts	9.8	1.0	87 in·lb		
Water Pump Drain Bolt	9.8	1.0	87 in·lb		
Water Pipe Bolts	9.8	1.0	87 in·lb		
Radiator Drain Bolt	7.4	0.75	65 in·lb		
<b>Engine Top End:</b>					
Spark Plugs	18	1.8	13		
Spark Plug Retainer	12	1.2	104 in·lb		
Air Suction Valve Cover Bolts	7.4	0.75	65 in·lb		
Chain Tensioner Mounting Bolts	9.8	1.0	87 in·lb	S	
Chain Tensioner Cap	20	2.0	14	S	
Chain Tensioner Lockbolt (Front)	4.9	0.50	43 in·lb	S	
Chain Tensioner Lockbolt (Rear)	9.8	1.0	87 in·lb		
Timing Inspection Plug	1.5	0.15	13 in·lb		
Rotor Bolt Plug	1.5	0.15	13 in·lb		
Camshaft Sprocket Bolts	15	1.5	11	L	
Oil Hose Flange Bolts	9.8	1.0	87 in·lb		
Rocker Shafts	25	2.5	18		
Rocker Case Nuts	12 mm	78	8.0	58	MO, S
	8 mm	25	2.5	18	S
Rocker Case Bolts	6 mm	8.8	0.9	78 in·lb	S
Cylinder Head Nuts		25	2.5	18	S
Cylinder Head Jacket Plug		20	2.0	15	L
Rocker Case Cover Bolts		8.8	0.9	78 in·lb	S
Camshaft Chain Guide Bolts		9.8	1.0	87 in·lb	L
Cylinder Nuts		25	2.5	18	S
Inlet Manifold Bolts		12	1.2	104 in·lb	
Exhaust Pipe Cover Clamp Bolts		6.9	0.7	61 in·lb	
Silencer Stay Bolts		34	3.5	25	
<b>Clutch:</b>					
Clutch Lever Pivot Bolt		1.0	0.10	8.7 in·lb	
Clutch Lever Pivot Bolt Locknut		5.9	0.60	52 in·lb	
Clutch Reservoir Cap Screws		1.5	0.15	13 in·lb	
Clutch Slave Cylinder Bleed Valve		7.8	0.80	69 in·lb	
Clutch Slave Cylinder Bolts		9.8	1.0	87 in·lb	L
Clutch Hose Banjo Bolts		25	2.5	18	
Clutch Master Cylinder Clamp Bolts		9.8	1.0	87 in·lb	S
Starter Lockout Switch Screws		1.2	0.12	10 in·lb	
Push Rod Guide Bolts		9.8	1.0	87 in·lb	L
Clutch Cover Bolts		9.8	1.0	87 in·lb	
Clutch Cover Damper Bolts (outside)		9.8	1.0	87 in·lb	L
Clutch Cover Damper Bolts (inside)		9.8	1.0	87 in·lb	EO (tip)
Clutch Cover Damper Screws		4.9	0.50	43 in·lb	L
Clutch Hub Nut		147	15.0	108	MO
<b>Engine Lubrication System:</b>					
Oil Filler Plug		1.5	0.15	13 in·lb	
Oil Screen Plug		20	2.0	15	
Engine Oil Drain Plug		20	2.0	15	
Oil Filter (Cartridge type)		18	1.8	13	R, EO
Oil Filter Bolt		25	2.5	18	SS

## GENERAL INFORMATION 1-11

### Torque and Locking Agent

Fastener	Torque			Remarks	
	N-m	kgf-m	ft-lb		
Oil Pressure Relief Valve	15	1.5	11	L	
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in-lb		
Oil Pressure Switch	15	1.5	11	SS	
Oil Pump Cover Screws	9.8	1.0	87 in-lb		
Oil Pump Mounting Bolts	9.8	1.0	87 in-lb		
Oil Hose Banjo Bolts	9.8	1.0	87 in-lb		
Oil Hose Flange Bolt (outside)	9.8	1.0	87 in-lb		
Oil Pipe Holder Bolts (inside)	8.8	0.90	78 in-lb	L	
Oil Pipe Clamp Bolts (inside)	9.8	1.0	87 in-lb	L	
Right & Left Crankcase Oil Nozzle	3.4	0.35	30 in-lb	× 3	
Right Crankcase Oil Nozzle	3.4	0.35	30 in-lb	× 1, Lh	
Oil Reserve Tank Bolts	8.8	0.9	78 in-lb	L	
<b>Engine Removal/Installation:</b>					
Downtube Bolts	44	4.5	33		
Engine Mounting Bolts and Nuts	44	4.5	33		
Engine Mounting Bracket Bolts	25	2.5	18		
Engine Ground Terminal Bolt	7.8	0.8	69 in-lb		
<b>Crankshaft/Transmission:</b>					
Crankcase Bolts					
	10 mm	39	4.0	29	S
	8 mm	21	2.1	15	S
	6 mm	9.8	1.0	87 in-lb	S
Jumper Cable Ground Bracket Bolt		9.8	1.0	87 in-lb	Left Crankcase
Crankcase Bearing Retainer Bolts		9.8	1.0	87 in-lb	L
Camshaft Chain Guide Bolts		9.8	1.0	87 in-lb	L
Right & Left Crankcase Oil Nozzles		3.4	0.35	30 in-lb	× 3
Left Crankcase Oil Nozzle		3.4	0.35	30 in-lb	× 1, Lh
Connecting Rod Big End Nuts		59	6.0	43	EO
Oil Pressure Relief Valve		15	1.5	11	L
Oil Hose Banjo Bolts		9.8	1.0	87 in-lb	
Primary Gear Bolt		147	15.0	108	MO
Water Pump Chain Guide Spring Hook Bolt		2.9	0.30	26 in-lb	
Water Pump Chain Guide Bolt		7.8	0.80	69 in-lb	
Idle Shaft Holder Bolts		7.8	0.80	69 in-lb	
Oil Pressure Switch Terminal Bolt		1.5	0.15	13 in-lb	
Oil Pressure Switch		15	1.5	11	SS
Oil Pipe Clamp Bolts (inside)		9.8	1.0	87 in-lb	L
Left Balancer Gear Bolt		85	8.7	63	MO
Starter Clutch Bolt		85	8.7	63	MO
Starter Clutch Coupling Bolts		15	1.5	11	L
Gear Set Lever Bolt		9.8	1.0	87 in-lb	
Shift Shaft Return Spring Pin (Bolt)		20	2.0	15	L
Shift Shaft Return Spring Pin (Bolt with punch mark)		39	4.0	29	L
Front Shift Pedal Clamp Bolts		17	1.7	12	
Rear Shift Pedal Clamp Bolt		17	1.7	12	
Shift Lever Clamp Bolts (Rear)		9.8	1.0	87 in-lb	
Shift Rod Locknuts		9.8	1.0	87 in-lb	(Rear: Lh)
Shift Drum Bearing Holder Bolts		9.8	1.0	87 in-lb	L
Shift Drum Cam Screw		-	-	-	L
Damper Cam Nut (Front Gear)		224	23	165	MO (threads)
Push Rod Guide Bolts		9.8	1.0	87 in-lb	L

# 1-12 GENERAL INFORMATION

## Torque and Locking Agent

Fastener	Torque			Remarks
	N-m	kgf-m	ft-lb	
<b>Wheels/Tires:</b>				
Front Axle Clamp Bolt	34	3.5	25	S
Front Axle Nut	110	11	79.6	S
Rear Axle Nut	110	11	79.6	
Tire Air Valve Nuts	1.5	0.15	13 in-lb	
Spoke Nipples	2.9 ~ 7.4	0.30 ~ 0.75	26 ~ 65 in-lb	
<b>Final Drive:</b>				
Oil Pipe Banjo Bolts (Front Gear)	12	1.2	104 in-lb	
Oil Nozzle (Front Gear)	2.9	0.30	26 in-lb	
Oil Nozzle (Front Gear)	18	1.8	13	
Neutral Switch	15	1.5	11	
Front Gear Case Bolts:				
6 mm	12	1.2	104 in-lb	
8 mm	29	3.0	22	
Damper Cam Nut (Front Gear)	226	23	166	MO (threads)
Drive Gear Nut (Front Gear)	265	27	195	MO, St
Driven Gear Assy Mounting Bolts	25	2.5	18	
Driven Gear Bolt (Front Gear)	137	14	101	MO, St
Bearing Retainer Bolts (Front Gear)	8.8	0.90	78 in-lb	
Final Gear Case Drain Plug	8.8	0.90	78 in-lb	
Final Gear Case Mounting Nuts	34	3.5	25	
Final Gear Case Studs	-	-	-	L
Final Gear Case Cover Bolts:				
8 mm	23	2.3	17	
10 mm	34	3.5	25	
Pinion Gear Nut (Final Gear)	128	13.1	94	St, EO
Pinion Bearing Retainer (Final Gear)	245	25	181	Lh
Retainer Stop Screw	16	1.6	12	L
<b>Brakes:</b>				
Caliper Bleed Valves	7.8	0.8	69 in-lb	
Brake Hose Banjo Bolts	25	2.5	18	
Brake Lever Pivot Bolt	1.0	0.10	8.7 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	10 in-lb	
Front Master Cylinder Clamp Bolts	9.8	1.0	87 in-lb	S
Front Caliper Mounting Bolts	34	3.5	25	
Rear Caliper Mounting Bolts	34	3.5	25	
Rear Caliper Holder Bolt	64	6.5	47	
Brake Disc Bolts	27	2.8	20	L
Rear Master Cylinder Mounting Bolts	25	2.5	18	
Rear Master Cylinder Push Rod Locknut	18	1.8	13	
Brake Pedal Clamp Bolt	25	2.5	18	
<b>Suspension:</b>				
Upper Front Fork Clamp Bolts	20	2.0	15	
Lower Front Fork Clamp Bolts	34	3.5	25	
Front Fork Cover Screws	4.4	0.45	39 in-lb	
Front Fork Bottom Allen Bolts	20	2.0	15	L
Front Axle Clamp Bolts	34	3.5	25	S
Spacer Bolt	3.9	0.40	35 in-lb	
Rear Shock Absorber Nuts	34	3.5	25	
Swingarm Pivot Shaft	110	11	79.6	G

## GENERAL INFORMATION 1-13

### Torque and Locking Agent

Fastener	Torque			Remarks
	N·m	kgf·m	ft·lb	
<b>Steering:</b>				
Steering Stem Head Nut	54	5.5	40	
Steering Stem Nut	4.9	0.5	43 in·lb	
Handlebar Clamp Bolts	34	3.5	25	S
Handle Holder Nuts	34	3.5	25	
Handlebar End Caps	—	—	—	Lh, L
Handlebar Switch Housing Screws	3.4	0.35	30 in·lb	
Upper Front Fork Clamp Bolts	20	2.0	14	
Lower Front Fork Clamp Bolts	34	3.5	25	
Upper Fork Cover Screws $\phi 5$	4.4	0.45	39 in·lb	
Turn Signal Light Holder Bolts	7.4	0.75	65 in·lb	
<b>Frame:</b>				
Rear Fender Stay Bolts	44	4.5	32	
Downtube Bolts	44	4.5	32	
Front Footboard Bolts	34	3.5	25	
Rear Footpeg Bracket Bolts (right side)	27	2.8	20	L
Sidestand Nut and Bolt	44	4.5	32	
<b>Electrical System:</b>				
Spark Plugs	18	1.8	13	
Pickup Coil Screws	2.9	0.30	26 in·lb	
Stator Wire Holder Screw	9.8	1.0	87 in·lb	L
Pickup Coil Wire Holder Bolt	9.8	1.0	87 in·lb	L
Alternator Outer Cover Joint Bolt	12	1.2	104 in·lb	
Alternator Outer Cover Bolts	12	1.2	104 in·lb	
Alternator Outer Cover Damper Bolts	9.8	1.0	87 in·lb	EO (tip)
Alternator Cover Bolts	9.8	1.0	87 in·lb	
Alternator Inner Cover Bolts	9.8	1.0	87 in·lb	
Alternator Rotor Bolt	78	8.0	57	MO
Alternator Stator Bolts	13	1.3	113 in·lb	L
Timing Inspection Plug	1.5	0.15	13 in·lb	
Rotor Bolt Pug	1.5	0.15	13 in·lb	
Starter Motor Terminal Locknut	11	1.1	95 in·lb	
Starter Motor Terminal Nut	4.9	0.50	43 in·lb	
Starter Motor Assy Bolts	4.9	0.50	43 in·lb	
Starter Motor Mounting Bolts	9.8	1.0	87 in·lb	
Headlight Body Mounting Screws (inside)	2.9	0.30	26 in·lb	L
Headlight Rim Screws	1.0	0.10	8.7 in·lb	
Handlebar Switch Housing Screws	3.4	0.35	30 in·lb	
Starter Lockout Switch Screw	1.2	0.12	10 in·lb	
Front Brake Light Switch Screw	1.2	0.12	10 in·lb	
Sidestand Switch Bolt	8.8	0.9	78 in·lb	L
Radiator Fan Switch	18	1.8	13	
Water Temperature Switch	7.4	0.75	65 in·lb	SS
Oil Pressure Switch Terminal Bolt	1.5	0.15	13 in·lb	
Oil Pressure Switch	15	1.5	11	SS
Neutral Switch	15	1.5	11	
Turn Signal Light Lens Screws	1.0	0.10	8.7 in·lb	
Turn Signal Light Mounting Nuts	5.9	0.60	52 in·lb	
Speed Sensor Bolt	9.8	1.0	87 in·lb	