

3 - Tightening torque values

Frame tightening torque values

Part	Thread (mm)	Nm ±10% Tolerance	Note
Headlight fairing			
Right rear-view mirror retaining screw	M8x1.25	25	
Left rear-view mirror retaining screw	M8x1.25	25	
Side stand			
Nut securing side stand rotation pivot screw	M8x1.25	20	LOCK 10 (GREASE B pivot shaft)
Screw securing stand to crankcase	M10x1.5	43	Solid threadlocker on screw
Side stand sensor retaining screw	M6x1	5	Solid threadlocker on screw
Side stand sensor cable grommet retaining screw	M6x1	10	
Side stand rotation pivot fastener	M8x1.25	15	GREASE B (on pivot)
Front sprocket			
Front sprocket retaining nut	M25x1.5	186*	GREASE B
Front sprocket cover retaining screw	M6x1	6	Solid threadlocker on screw
Lights and reflectors			
Screw securing headlight fairing to headlight	M5x0.8	3	Solid threadlocker on screw
Screw securing front turn indicators to headlight support	M5x0.8	3	LOCK 2
Screw securing tail light to tail guard	M5x0.8	3	Solid threadlocker on screw
Screw securing headlight support vibration dampers to bottom yoke	M6x1	10	
Screw securing headlight to headlight support	M6x1	6	Solid threadlocker on screw
Screw securing spacer to rear RH and LH turn indicators	M5x0.8	3	LOCK 2
Instruments			
Screw securing instrument panel to headlight support	M5x0.8	3	
Instrument panel cover retaining screw	M4x0.7	1.5	
Screw securing RH/LH side headlight support to instrument panel support	M5x0.8	3	
Front fork			
Fork end terminal fixing screw	M8x1.25	14*	GREASE B: Sequence 1-2-1
Screw securing bottom yoke to fork	M8x1.25	14 *	GREASE B: Sequence 1-2-1 STARTING FROM BOTTOM
Steering head retaining screw	M8x1.25	22*	GREASE B
Steering bearing ring nut	M35x1	30*	GREASE B
Steering limit check nut	M6x1	10	LOCK 2 (to nut thread only)
Screw securing front brake hose guide to bottom yoke	M6x1	8	Solid threadlocker on screw
Nut securing U-bolt to steering head	M10x1.25	45*	
Screw securing brake/clutch hose grommet to steering head	M6x1	10	Solid threadlocker on screw
Screw securing headlight support plate to steering head	M6x1	10	Solid threadlocker on screw
Screw securing headlight support bracket to bottom yoke	M6x1	10	Solid threadlocker on screw

Speed sensor cable ring retaining screw	M6x1	10	
Electrical/electric system			
Nut securing solenoid starter cable to starter motor	M6x1	5	GREASE D
RH/LH switch retaining screw	M4x0.7	1.3±0.2	
Screw securing wiring to solenoid starter	M6x1	5.9	
Screw securing battery cable to battery terminal	M6x1	10	
Screw securing control unit to plate	M6x1	10	
Screw securing control unit support plate to battery mount	M6x1	10	Solid threadlocker on screw
Voltage regulator retaining nut	M6x1	10	
DTC silent block retaining screw	M5x0.8	2.5	
DTC retaining nut	M5x0.8	3	
Screw securing wiring mount bracket to vertical head	M6x1	10	Solid threadlocker on screw
Screw securing temperature sensor to headlight bracket	M3x0.5	0.4	LOCK 6
Screw securing battery mount to subframe	M6x1	10	Solid threadlocker on screw
Screw securing battery mount to subframe	M5x0.8	5	
Solenoid starter plate retaining screw	M5x0.8	5	Solid threadlocker on screw
Screw securing earth cable to engine	M6x1	10	
Screw securing horn to upper radiator bracket	M6x1	10	Solid threadlocker on screw
Screw securing front and rear speed sensors	M6x1	10	
Front brake			
Screw securing front brake master cylinder to handlebar	M6x1	10	Sequence 1 (UP)-2-1
Front/rear brake bleed valve	M10x1	23	
Front brake calliper retaining screw	M10x1.25	45*	GREASE B
Pre-load torque for front brake calliper screws for settling		2	GREASE B
Rear swinging arm			
Rear swinging arm pivot retaining screw	M15x1.25	72*	
Rear brake calliper holder plate centring pin	M12x1.25	33*	LOCK 8
Screw securing chain sliding shoes to swinging arm	M6x1	8	Solid threadlocker on screw
Screw securing chain sliding shoes to swinging arm (cap)	M6x1	8	LOCK 2
Rear wheel hub retaining screw	M12x1.25	30*	GREASE B on screw underside: 1-2-1 sequence
Rear brake			
Screw securing rear brake master cylinder plate to engine	M10x1.5	43	Solid threadlocker on screw
Rear brake calliper retaining screw	M8x1.25	25*	GREASE B
Rear brake master cylinder retaining screw	M6x1	10	Solid threadlocker on screw
Rear brake reservoir retaining screw	M6x1	2	
Brake master cylinder pushrod retaining nut	M6x1	7.5	
Rear brake hose union on calliper and master cylinder	M10x1	25	
Rear brake bleed valve on calliper	M10x1	14	
Number Plate Holder			
Reed support self-tapping screw		2	
Number plate holder to bracket retaining screw	M6x1	5	Solid threadlocker on screw
Screw securing number plate holder to bracket (AUSTRALIA)	M6x1	5	Solid threadlocker on screw
Reflector retaining nut	M4x0.7	2	

Screw securing upper to lower number plate holder bracket	M5x0.8	3.5	
Screw securing number plate bracket to subframe plate	M6x1	10	Solid threadlocker on screw
Screw securing number plate bracket to subframe plate	M6x1	10	Solid threadlocker on screw
Gravel guard retaining screw (AUSTRALIA)	M5x0.8	1.2	LOCK 2
Handlebars - Clutch control			
Throttle control cable retainer fixing screw	M10x1.25	4	
Throttle control cable adjuster retainer check nut	M6x1	2.5	
Screw securing front clutch master cylinder to handlebar	M6x1	10	Sequence 1 (UP)-2-1
Handlebar U-bolt retaining screw	M8x1.25	25*	GREASE B: sequence 1-2-3-4-3
Clutch bleed valve	M6x1	4	
Clutch hose union	M10x1	23	
Clutch slave cylinder screw	M6x1	10	Sequence 1-2-3-1
Throttle twistgrip retaining screw	M6x1	6	Sequence 1 (UP)-2-1
Rear shock absorber			
Rear suspension rocker arm pivot shaft retaining nut	M10x1.25	42*	GREASE B
Shock absorber to rocker arm retaining screw	M10x1.25	42*	GREASE B
Screw securing rod to rocker arm	M10x1.25	42*	GREASE B
Screw securing shock absorber and rod to swinging arm	M10x1.25	42*	GREASE B
Front mudguard			
Fastener securing front mudguard to fork	M6x1	5	Solid threadlocker on screw
Screw securing front brake hose to clip		0.4	
Liquid cooling			
Liquid cooling pipe set fastener (STAR 16-28)		3	KLUBERG GREASE
Liquid cooling pipe set fastener (STAR 20-33)		3	KLUBERG GREASE
Water (bleed) pipe set clip on horizontal cylinder		1	
Water pipe set clip on remote filler plug		1	
Water (bleed) pipe set clip from vertical head to remote filler plug		1.5	
Water (bleed) complete pipe set clip from radiator to remote filler plug		1.5	
Water drain plug on pump cover	M10x1	18	
Screw securing expansion reservoir support bracket to horizontal head	M6x1	10	Solid threadlocker on screw
Expansion reservoir on bracket retaining screw	M6x1	10	Solid threadlocker on screw
Screw securing radiator remote filler plug stud bolt to frame	M6x1	10	Solid threadlocker on screw
Screw securing radiator remote filler plug to stud bolt	M5x0.8	5	Solid threadlocker on screw
Screw securing upper radiator to frame	M6x1	10	
Screw securing lower radiator to bracket	M6x1	10	
Pin securing lower radiator to bracket	M6x1	10	
Screw securing lower radiator bracket to head	M6x1	10	
Upper radiator orientation pin	M6x1	10	
Screw securing exchanger to bracket	M6x1	10	
Expansion reservoir clip		1	
Screw securing cable grommet to radiator support	M6x1	10	
Footpegs and Levers			
Linkage and gearchange lever rod junction retaining screw	M6x1	10	
Screw securing gearchange lever to selector pawl	M6x1	10	LOCK 1
Brake/gearchange lever pedal pivot	M8x1.25	23	Solid threadlocker on

			screw
Screw securing rider footpeg holder plate to RH/LH frame	M8x1.25	25	Solid threadlocker on screw (or LOCK 2)
Screw securing heel guard to footpeg bracket	M5x0.8	5	Solid threadlocker on screw
Rear brake switch special screw	M6x1	5	
Brake lever adjuster lock nut	M6x1	2.3	
Screw securing passenger footpeg holder plate to subframe	M8x1.25	25	LOCK 2
LH lock nut for gearchange linkage pivot	M6x1	5	LOCK 2
RH lock nut for gearchange linkage pivot	M6x1	5	LOCK 2
Rear brake linkage pivot screw on brake lever	M6x1	5	LOCK 2
Rear mudguard			
Rear mudguard retaining screw	M5x0.8	5	Solid threadlocker on screw
Front wheel			
Brake disc screw	M8x1.25	30*	
Front wheel shaft retaining nut	M25x1.25	63*	GREASE B
Tyre valve locking nut	M8x1.25	10	
Rear wheel			
Rear wheel cush drive bush retaining nut	M10x1	48	GREASE B
Rear wheel shaft retaining nut (left-hand; rear sprocket side)	M33x1.5	156*	GREASE B
Rear wheel shaft retaining nut (right-hand; rim side)	M38x1.5	176*	GREASE B
Driving pin retaining screw	M6x1	11	LOCK 2
Brake disc screw	M8x1.25	25*	LOCK 2
Fuel tank			
Tank centring plate retaining screw	M6x1	6	Solid threadlocker on screw
Screw securing deformable bracket to subframe	M6x1	10	Solid threadlocker on screw
GAC flange to fuel tank retaining screw	M5x0.8	6	Solid threadlocker on screw
Screw securing tank filler cap to tank	M5x0.8	3	
Screw securing fuel tank to deformable bracket	M8x1.25	25	
Fuel pipe plate fastener	M5x0.8	2.5	Solid threadlocker on screw
Unions for fuel tank breather and drain hoses	M7x1	2.0	
USA version: RH/LH plate retaining screw to assemble short USA tank	M5x0.8	5	
Exhaust			
Nut securing manifolds to cylinder head	M6x1	10	
Vertical manifold heat guard retaining nut	M6x1	10	
1/8" gas stainless steel plugs to exhaust pipe fastener	M10x1.25	25	
Lambda sensor fixing	M18x1.5	45	
Screw securing silencer clip to RH cable grommet footpeg	M8x1.25	22	
Silencer clip retaining screw (lower)	M8x1.25	22	
Silencer clip retaining screw (spacer)	M5x0.8	5	
Exhaust valve actuator retaining screw	M6x1	5.5	
Nut securing Bowden cables to exhaust valve	M5x0.8	5	
Bowden cables adj. check nut	M6x0.75	3	
Rider heat guard retaining screw	M6x1	10	
Exhaust valve outer cover retaining screw	M5x0.8	3	
Exhaust valve pulley inner cover retaining screw	M6x1	10	
Screw securing vertical exhaust to frame	M6x1	10	
Bowden cables grommet retaining screw	M6x1	10	

Seat			
Screw securing rider seat to frame	M5x0.8	5	
Frame			
Frame/engine retaining nut	M12x1.25	60*	GREASE B
Screw securing frame to subframe	M8x1.25	30*	Steel screw class 10.9
Ignition switch retaining screw	M6x1	>12	Shear screw; LOCK 2
Screws (large head) securing upper number plate holder to tail guard on subframe	M6x1	10	Solid threadlocker on screw
Screws securing upper number plate holder to tail guard on subframe	M6x1	10	Solid threadlocker on screw
Screw securing vibration dampers to ignition switch	M6x1	10	Solid threadlocker on screw
Water-Oil Exchanger			
Oil pipe nipple on exchanger	M14x1.5	25	LOCK 1
Nut on exchanger oil pipe union (crankcase nipple)	M16x1.5	25*	Lubricate with engine oil
Nut on exchanger oil pipe union (exchanger nipple)	M16x1.5	18*	Lubricate with engine oil
Screw securing exchanger bracket to cylinder head	M6x1	10	Solid threadlocker on screw
Air intake - oil breather			
Screw securing intake funnels to airbox bottom	M5x0.8	5	
Screw securing throttle cable grommet to airbox	M4x0.7	2.5	Solid threadlocker on screw
Screw securing air ducts to RH/LH airbox	M6x1	3.5	
Screw securing air duct to RH/LH air duct cover	M5x0.8	3.5	Solid threadlocker on screw
Blow-by pipe to crankcase retaining clamp		1.5	
Pressure test fitting nipple	M14x1.8	10	
Screw securing resonator to frame	M5x0.8	5	Solid threadlocker on screw
Screw securing RH/LH air duct to frame	M5x0.8	3.5	LOCK 243
EVAP system canister filter			
Clip securing throttle body to intake manifold		2.5	
Screw securing intake funnels to throttle body	M5x0.8	2.5	Solid threadlocker on screw
Screw securing fuel complete pipe set with injector to airbox	M4x0.7	2.5	Solid threadlocker on screw
Screw securing fuel pipe cable grommet to airbox bottom	M5x0.8	4	Solid threadlocker on screw
Screw securing canister bracket to horizontal cylinder head	M6x1	10	LOCK 2
Nut securing canister plate to holder bracket	M6x1	10	
Fairings			
Screw securing side body panels to tail guard (on clip)	M5x0.8	2	Solid threadlocker on screw
Screw securing side body panels to tank	M5x0.8	2	
Nut securing seat lock to side body panel	M22x1.5	3	
Upper radiator cover retaining screw	M6x1	10	Solid threadlocker on screw
Screw securing battery cover-tray to tail guard (on clip)	M5x0.8	3	
Tail guard/frame middle retaining screw	M5x0.8	5	
Screw securing lock latch to frame	M6x1	5	
Tank cover retaining screws	M5x0.8	5	Solid threadlocker on screw
Screws securing RH and LH cowlings to plate	M6x0.8	4	LOCK 2
Screw securing RH and LH cowlings to lower radiator	M6x0.8	4	LOCK 2
Screw securing RH and LH cowling mount to engine	M5x0.8	5	Solid threadlocker on screw

Screw securing headlight fairing to headlight (on Clip)	M5x0.8	3	Solid threadlocker on screw
Exhaust valve actuator cover retaining screw (on Clip)	M5x0.8	2	
Exhaust valve actuator cover retaining screw (on subframe)	M5x0.8	2	Solid threadlocker on screw
USA version: USA short tank cover retaining screws	M5x0.8	5	

*dynamic safety-critical point; tightening torque tolerance must be Nm $\pm 5\%$.



Note

For product specifications and symbols, refer to paragraph "[Product specifications](#)" (Sect. A 2).

Engine tightening torque values

Part	Thread (mm)	Nm	Min.	Max.	Note
Idler and tensioner pulley bolts	M20x1	50	45	55	LOCK 2 or TB1324
Camshaft pulley retaining ring nut	M17x1	71	64	78	GREASE A
Rocker arm shaft covers	M12x1.25	15	14	16	LOCK 2 or TB1324
Temperature sensor on water union	M12x1.5	23	20	26	LOCK 4 – Restrain the insert when tightening
Cylinder head stud bolt nut:	M10x1.5				Apply GREASE C to the underside of the nut and the thread of the stud bolt
Snug torque		20			
Preload torque		40	38	42	
Tightening torque		60	57	63	
Cam cap screw:	M8x1.25				Engine oil
Preload torque		10	9	11	
Tightening torque		22.5	21	25	
Coil retaining screw	M6x1	10	9	11	
Pulley flange retaining screws	M6x1	10	9	11	
Cylinder head cover screw	M6x1	10	9	11	
Exhaust manifold stud bolt	M6x1	10	9	11	LOCK 5 or TB1375B
Vacuum gauge connection screw on cylinder head (EU only)	M6x1	5	4	6	LOCK 2 or TB1324
Evaporative emissions canister union on cylinder head (California only)	M6x1	5	4	6	LOCK 2 or TB1324
Air breather union on horizontal cylinder head	M6x1	2	2	3	LOCK 2
Air breather blanking screw on vertical cylinder head	M6x1	10	9	11	LOCK 6
Intake manifold screw	M6x1	10	9	11	
Screw securing water unions to cylinder head	M5x1	6	5	7	Pre-applied TecnoLogic 150 threadlocker
Oil cartridge	M16x1.5	11	10	12	Engine oil on gasket
Oil cartridge nipple	M16x1.5	42	38	46	LOCK 2 or TB1324
Oil pick-up pipe plug	M14x1.5	24	21	27	LOCK 5 or TB1375B
Oil cooler nipple	M14x1.5	32	29	35	LOCK 5 or TB1325B
Oil drain plug	M12x1.5	20	18	22	THREEBOND TB1215
Clutch cover oilway blanking plug	M10x1.5	15	13	17	LOCK 5 or TB1375B
Neutral sensor	M10x1.25	10	9	11	
Oil pump screw reduction bush	M10x1				LOCK 5 or TB1375B
Clutch cover inner oilway screw	M10x1.5	15	13	17	LOCK 5 or TB1375B
Cylinder head/cylinder stud bolt	M10x1.5	30	28	32	LOCK 2 or TB1324
Cylinder area crankcase screw:	M8x1.25				GREASE B or Agip GR SM on thread
Preload torque		19	22	28	
Tightening torque		25	22	28	
Central crankcase screw + swinging arm pivot:	M8x1.25				GREASE B or Agip GR SM on thread
Preload torque		19	22	28	
Tightening torque		25	22	28	
Gear stop lever retaining screw	M8x1.25	18	16	20	LOCK 2 or TB1324

Blow-by valve fixing screw	M6x1	10	9	11	
Chain side secondary bearing retaining screw	M6x1	10	9	11	LOCK 2 or TB1324
Clutch side primary bearing retaining screw	M6x1	10	9	11	LOCK 2 or TB1324
Crankcase screw – idle gear area	M6x1	10	9	11	
Outer crankcase screw	M6x1	10	9	11	
Mesh filter cover closing screws	M6x1	10	9	11	
Bosch sensor retaining screw	M6x1	10	9	11	
Chain cover oil circuit blanking screw	M6x1	8	7	9	LOCK 2 or TB1324
Under-piston oil jet retaining screw	M5x0.8	8	7	9	LOCK 2 or TB1324
Starter motor retaining screw	M6x1	10	9	11	Loctite 516 pre-applied to thread
Starter motor rear screw	M6x1	10	9	11	Loctite 516 pre-applied to thread
Idle gear shaft retaining screw	M6x1	10	9	11	LOCK 2 or TB1324
Primary sprocket retaining nut	M24x1	190	171	209	GREASE B
Flywheel retaining nut	M24x1	330	313	346	LOCK 5 or TB1375B
Con-rod bolts: Tightening of 45°±1° Torque check	M10x1	30 65 to 95			Apply GREASE B to thread
Crankshaft dowel	M8x1.25	13	11	15	LOCK 5 or TB1375B
Drilled crankshaft drilled dowel	M8x1.25	13	11	15	LOCK 5 or TB1375B
Selector drum locating screw	M16x1.5	30	27	33	
Selector pawl lever screw	M8x1.25	18	16	20	LOCK 2 or TB1324
Selector pawl screw	M8x1.25	30	28	32	LOCK 2 or TB1324
Selector pawl locator nut	M6x1	10	9	11	
Selector pawl screw	M6x1	12	11	13	LOCK 2 or TB1324
Idler and tensioner pulley bolts	M20x1	50	45	55	LOCK 2 or TB1324
Timing belt driveshaft pulley ring nut	M15x1	71	64	78	GREASE A
Timing belt driveshaft gear nut	M14x1	55	50	60	GREASE A
Idler and tensioner pulley nut	M8x1.25	25	22	28	GREASE A
Carbon fibre cover screw	M6x1	6	5	7	Loctite 516 pre-applied to thread
Plastic cover screw	M6x1	10	9	11	Loctite 516 pre-applied to thread
Carbon cover support retaining screw	M4x0.7	2			
Self-tapping screw for belt cover filter	M3.5				
Dry clutch centre nut	M25x1.5	250	236	264	LOCK 5 or TB1375B
Oil filler plug	M22x1.5	5	5	6	
Oil pressure sensor	M10x1.5	18	16	19	
Oilway blanking plug	M10x1	20	18	22	LOCK 5 or TB1375B
Dry clutch housing screw	M8x1.25	35	33	37	LOCK 4
Clutch cover screw	M6x1	10	9	11	Pre-applied Tecnologic 150 threadlocker
Dry clutch spring screw	M5x0.8	5	5	7	
Clutch cover screw	M6x1	10	9	11	
Water inlet union	M30x1.5	25	23	27	LOCK 5 or TB1375B
Water outlet union	M22x1.5	25	23	27	LOCK 5 or TB1375B
Inspection screw for pick-up shimming	M12x1	15	13	17	LOCK 2 or TB1324
Water pump cover plug	M10x1	20	18	22	
Spark plug	M10x1	12	11	13	
Water pump bearing stop screw	M6x1	10	9	11	LOCK 2 or TB1324
Stator clamp ring retaining screw	M6x1	10	9	11	LOCK 2 or TB1324
Water pump cover screw	M6x1	10	9	11	
Generator cover retaining screw	M6x1	10	9	11	
Generator cover + water pump retaining screw	M6x1	10	9	11	
Inspection cover screw	M6x1	4.5	4.5	6	

Rotor to flywheel retaining screw	M6x1	13	11	15	LOCK 5 or TB1375B
Generator-side crankcase cover screw	M6x1	10	9	11	
By-pass pump cap	M15x1	25	22	28	LOCK 2 or TB1324
Oil pump retaining screw	M6x1	10	9	11	
Oil pump retaining screw	M8x1.25	26	23	29	
Water outlet union	M22x1.5	25	23	27	LOCK 5 or TB1375B
Water circuit clamps		2.5	2	3	

*dynamic safety-critical point; tightening torque tolerance must be Nm $\pm 5\%$.



Note

For product specifications and symbols, refer to paragraph "[Product specifications](#)" (Sect. A 2).