

Torque settings

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Frame torque settings

Part	Thread (mm)	Nm ±10% Tolerance	Note
Side stand			
Stand sensor screw	M6x1	5	LOCK 2
Stand plate fixing screw	M10x1.5	43	LOCK 2
Side stand fastening pin	M8x1.25		
Side stand fastening nut	M10x1.25	20	
Central stand pivot screw	M18x1.5	18	LOCK 2
Springs retaining pin	M6x1	10	LOCK 2
Front sprocket			
Front sprocket retaining nut	M25x1.5	186*	
Sprocket guard retaining screw	M6x1	6	LOCK 2
Lights and reflectors			
Headlight support to chassis fixing screw	M8x1.25	25	
Wiring protection on headlamp support fixing screw	M5x0.8	1.5	LOCK 2
Headlight fixing screw	M5x0.8	6	
Rear light fixing screw	M5x14	3	
Front turn signals on hand guard fixing screw	AF3.5	0.45	
Rear turn signals fixing screw	M5x0.8	3	
Left mirror fixing screw	M10x1.25	40	
Right mirror fixing screw	M10x1.25	40	
Instruments			
Fixing screw on instrument panel	M5	By hand	
Instrument panel on panel retaining nut	M5	3	
Front fork			
Steering head terminals	M6x1	10*	GREASE B

Central tightening screw on steering head	M8x1.25	18*	GREASE B
Handlebar on head stud screw	M10x1.25	45*	LOCK 2
Steering bearing ring nut	M35x1	30*	GREASE B: sequence 1-2-1
Steering limit switch register lock nut	M8x1.25	18	LOCK 2 on thread nut only
Bottom yoke terminals	M8x1.25	16*	GREASE B: sequence 1-2-1
Handlebar U-bolts fixing screw	M8x1.25	25*	
Front pipe grommet to steering base fixing screw	M6x1	10	
Öhlins fork end terminal fixing screw	M8x1.25	19*	Sequence 1-2-1
Marzocchi fork end terminal fixing screw	M6x1	10*	Sequence 1-2-1
Splash guard to steering base fixing screw	M5x0.8	3	LOCK 2
Electrical/electronic system			
Electrical components support to subframe bracket front fixing screw	M6x1	10	
Battery bracket fixing screw	M5x0.8	5	
Black box bracket fixing screw	AF5	3	
Vibration damper to black box and bracket retaining nut	M5x0.8	2	Fit toothed washer be- tween support and vibration damper
Solenoid bracket to tank front fixing screw	AF5	3	
Solenoid bracket to tank lower fixing screw	M5x0.8	4	
Voltage regulator bracket to electric components housing fixing screw	M6x1	5	
Voltage regulator to bracket fixing screw	M6x1	10	
Electrical components support to frame fixing screw	M6x1	6	
Mitsubishi control unit bracket fixing screw	AF5	2	

Screw

Map Sensor to electrical components support fixing screw	M6x1	4	
Wiring support to left frame plate fixing screw	M5x0.8	6	
Electrical components support to tank fixing screw	M5x0.8	5	
RH/LH lights switch retaining screw	M4x0.7	1.3	
Hands free fixing screw (key lock)	M8x1.25	20	LOCK 2
Battery leads and starter motor on solenoid fixing screw	M6x1	4	
Ground cable to crankcase fixing screw	M6x1	10	
Cable to starter motor retaining nut	M6x1	5	
Screw securing horn to frame	M8x1.25	22	
Electrical component housing to storage compartment rear fixing screw	M6x1	8	
TPRT sensor to RH front half fairing retaining screw	M5x0.8	5	
Power outlet retaining nut	M18x1	3.5	
Rear brake to support STOP switch	M8x1	5	
Cover on wiring support to left plate fixing screw	AF3.5	1.5	
Left heated handgrip fixing screw	AF4	1.5	
Front brake			
ABS control unit bracket fixing screw	AF5	3	
Front callipers fixing screw	M10x1.25	45*	GREASE B
Front brake master cylinder terminal	M6x1	10	Sequence 1-2-1 starting from upper screw
Front brake oil reservoir to hand guard fixing screw	M5x0.8	2	
ABS tube cover on electrical components housing fixing screw	AF5	3.5	
Front brake calliper pre-tightening	M10x1.25	2	
Front ABS sensor fixing screw	M6x1	10	
Rear ABS sensor fixing screw	M6x1	10	

Rear swingarm			
Upper slider and chain guard fixing screw	M5x0.8	5	LOCK 2
Lower chain slider fixing screw	M5x0.8	5	LOCK 2
Eccentric hub tightening screw	M12x1.25	35*	GREASE B: Sequence 1-2-1
Swingarm pivot tightening screw	M15x1.25	72*	
Rear brake calliper mounting bracket locking pin	M12x1.25	33*	LOCK 8
Rear brake			
Brake master cylinder and sensor bracket stop to crankcase fixing screw	M6x1	10	
Rear oil reservoir fixing screw	M6x1	2	
Rear calliper fixing screw	M8x1.25	25*	
Pipe grommet clamps to swingarm fixing screw	M6x1	8	
Screw securing rear brake hose guide to swingarm	M6x1	5	
Handlebars - Clutch control			
Clutch master cylinder screw	M6x1	10	Sequence 1-2-1 starting from upper screw
Hand guard to right/left pump fixing screw	M6x1	10	
Hand guard to right/left terminal fixing screw	M5x0.8	5	
Piston clutch to crankcase fixing screw	M6x1	10	Sequence 1-2-3-1
Oil clutch reservoir to hand guard fixing screw	M5x0.8	2	
Throttle twistgrip fixing screw	M6x1	10	
Handlebar counterweight fixing screw		2	
Rear suspension			
Shock absorber upper fixing screw	M10x1.25	42*	GREASE B
Shock absorber lower fixing screw	M10x1.25	42*	GREASE B
Öhlins preloading actuator fixing screw	M6x1	10	

Spring preloading hydraulic press to support (Sachs rear shock absorber) fixing screw	M6x1	10	
Spring (Sachs) preloading support to left side sub-frame fixing screw	M6x1	10	
Front mudguard			
Mudguard to fork fixing screw	M6x1	5	
Pipe grommet to plastic mudguard plus splash guard fixing screw	M5x0.8	3.5	
Fluid cooling			
Right/left radiator upper fixing screw	M6x1	10	
Wing on radiator bracket fixing screw	M6x1	6	
Internal threaded head pin fixing screw	M6x1	10	
Lower radiator fixing screw	M5x0.8	5	
Expansion tank fixing screw	M6x1	8	
Water hose guide clamp (thermostatic valve unit)		2.5	
Clamp on water pump tube (piston clutch)		3	
Expansion tank pipe to radiator fixing clamp		1	
Expansion tank pipe fixing clamp		1	
Water clamp on radiator		3	
Bleed pipe clamp to horizontal cylinder		1	
Water bleed plug on left crankcase		19	
Footrest and linkage			
Brake lever and gearshift on frame plate fixing screw	M8x1.25	23	LOCK 2
Spacer on brake lever fixing screw	M6x1	10	
Gearshift lever on crankshaft fixing screw	M6x1	10	LOCK 1
Gearchange lever tie-rod junction fixing screw	M6x1	10	
Right/left passenger footrest fixing screw	M8x1.25	24	LOCK 2

Rear brake linkage to brake lever pivot screw	M6x1	5	LOCK 2
Lock nut for rear brake pedal adjuster screw	M6x1	5	
Brake master cylinder pushrod retaining nut	M6x1	7.5	
Handgrip on rear left footrest fixing screw	M8x1.25	20	
Pannier support rod on rear right/left footrest fixing screw	M6x1	10	
Rear mudguard			
Number plate holder to cover fixing screw	M5x0.8	3	
Number plate holder unit to storage compartment fixing screw	M6x1	6	
Number plate holder fixing screw	M6x1	6	
Reflector retaining nut	M4x0.7		
Mudguard to right side swingarm fixing screw	M5x0.8	5	
Mudguard to swingarm plus rear brake pipe grommet fixing screw	M5x0.8	5	
Carbon mudguard to swingarm plus rear brake pipe grommet fixing screw	M5x0.8	5	
Carbon mudguard to right side swingarm fixing screw	M5x0.8	5	
Splash guard to swingarm fixing screw	M6x1	10	LOCK 2 on thread
Front wheel			
Disc and phonic wheel to wheel rim fixing screw	M8x1.25	25*	LOCK 2
Front wheel shaft nut	M25x1.25	63*	GREASE B on the undersides of the head and threaded pin
Rear wheel			
Phonic wheel to disc fixing screw	M5x0.8	5	
Brake disc to pin fixing screw	M8x1	27	
Left/right rear wheel retaining nut		230	

Rear wheel cush drive bush retaining nut	M10x1	44	LOCK 2
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Fuel tank			
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Fuel plug fixing screw	M5x0.8	4	
GAC Fixing nut	M5x0.8	6	
Front plugs fixing screw	M6x1	10	
Rear plugs fixing screw	M6x1	10	
Fuel sensor fixing ring nut		8	

Exhaust system			
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Central cover to silencer fixing screw	M5x0.8	5	
Upper and lower cover to silencer fixing screws	M5x0.8	6	
Starter motor valve to support fixing screw	AF4.5	2	
Lambda sensor fixing	M12x1.25	24.5	
Starter motor valve support to right footrest bracket fixing screw	M6x1	10	
Rubber pad for starter motor valve to right plate fixing screw	M6x1	10	
Exhaust link rod to right/left plate link rod	M6x1	10	
Left link rod to silencer fixing screw	M6x1	10	
Right link rod to silencer fixing screw	M6x1	10	
Drainage to vertical big end retaining nut	M6x1	10	
Drainage to vertical big end retaining nut	M6x1	10	
Drainage to horizontal big end retaining nut	M6x1	10	
Silencer clamp fixing screw	M8x1.25	22	
C.O. cover screw	G 1/8	25	
Bowden cable on the exhaust adjuster nut	M6x1	2.5	

Seat			
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Saddle lock fixing screw	M6x1	8	
Seat lock nut		3	
Fixing the retaining pin of the rider	M6x1	6	

saddle

Frame			
Front frame-plates fixing screw	M10x1.5	50*	GREASE B
Plate-frame connection rear screw	M10x1.5	50*	GREASE B
Recovery locking ring nut	M20x1	100*	GREASE B
Frame-engine retaining nut	M12x1.25	60*	GREASE B
Plates connection brackets fixing screw	M8x1.25	25*	GREASE B
Lower plate to right/left crankcase fixing screw	M10x1.25	42*	LOCK 8
Rear subframe retaining screw	M8x1.25	25*	
Clearance adjuster	M20x1	0.6	
Storage compartment to frame fixing screw	M8x1.25	18	
Lower screw fastening carrier side panel to tub	M6x1	10	
Lateral screw fastening tub to carrier side panel	M5x0.8	5	
Rear plate to crankcase fixing screw	M12x1.25	50*	
Oil cooler			
Fixing union to radiator (nipple)	M14x1.5	23	LOCK 1
Fixing tube to radiator coupling	M16x1.5	18 *	Lubricate with engine oil
Radiator (to headlight support) upper fixing screw	M6x1	6	
Tubes plate to crankcase fixing screw	M6x1	10	
Pressure switch adjustment	M14x1.5	19	
Air intake oil breather			
Funnels to air box fixing screw	M5x0.8	5	LOCK 2
Duct to air box fixing screw	M5x0.8	3.5	
Map sensor support to air box fixing screw	M6x1	5	
Map sensor to support retaining nut	M6x1	5	
Blow by to air box fixing screw	M5x0.8	5	
Injectors to vertical/horizontal funnels fixing screw	M5x14	5	
Fuel system			

Intake funnels to throttle body fixing screw	M5x0.8	2.5	LOCK 2
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Canister bracket to engine fixing screw	M6x1	10
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Canister bracket to threaded pin rod fixing screw	M5x0.8	5
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Nut securing EVAP canister support to bracket	M6x1	10
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Vertical/horizontal intake manifold throttle body fixing clamp		2.5
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GAS cable to throttle body retaining nut	M6x1	2.5
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Fairings

Bracket to crankcase for left gravel guard fixing screw	M5x0.8	5
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Left oil sump guard plus pipe grommet to plate fixing screw	M6x1	5
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Left gravel guard to bracket on the crankcase fixing screw	M5x0.8	5
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Left gravel guard support to crankcase stud bolt fixing screw	M5x0.8	5
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Gravel guard to right frame plate fixing screw	M5x0.8	5
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Right gravel guard to bracket fixing screw	M5x0.8	5
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Left/right gravel guard to oil sump guard fixing screw	M5x0.8	5
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Left oil sump guard to stand bracket fixing screw	M5x1.25	24
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Right oil sump guard to plate fixing screw	M5x1.25	24
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Oil sump guard to vibration damper fixing screw	M5x1.25	24
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Oil sump guard support plate to crankcase fixing screw	M5x1.25	24
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Cover to central tank fixing screw	M5x0.8	4
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Right/left panels to lower tank fixing screw	M5x0.8	4
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Right/left cover (saddle joint) fixing banjo bolt	M5x0.8	4	
Right/left panel to carrier panel fixing screw	M5x0.8	2	
Right/left panel to carrier panel fixing screw	M5x0.8	2	
Right/left panel to carrier panel fixing screw	M5x0.8	2	
Right/left panel to frame and to plate fixing screw	M5x0.8	4	
Screw securing headlight fairing to headlight unit support	M6x1	10	
Fixing the windscreen adjustment slide	M6x1	5	
Slide adjustment knobs stop nut	M4x0.7	1.5	LOCK 2
Aerial (HANDSFREE) to top fairing fixing screw	AF3.5	0.7	
Windscreen to slide fixing screw	M5x0.8	3	
Right/left panel to top fairing and reservoir fixing screw	M5x0.8	2	LOCK 2
Right/left panel to top fairing fixing screw	M5x0.8	2	
WING to bracket on right/left radiator	M5x0.8	5	
Front half fairing upper retaining screw	M5x0.8	2	
Front half fairing lower retaining screw	M5x0.8	2	
Front RH/LH half-fairing to reservoir panel fixing screw	M5x0.8	2	
Right/left deflector to reservoir panel fixing screw	M5x0.8	2	
WING to front half-fairing retaining screw	M5x0.8	1	

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



Note

For product specifications and symbols, refer to "[Product specifications](#)" (Sect. 1 - 2).

Engine torque settings

Part	Thread (mm)	Nm	Min.	Max	Note
Idler and tensioner pulley bolts	M20x1	50	45	55	LOCK 2 or TB1324
Camshaft pulley retaining nut	M17x1	71	64	78	GREASE A
Rocker arm shaft covers	M12x1.25	15	14	16	LOCK 2 or TB1324
Coolant temperature sensor on coolant outlet union	M12x1.5	23	20	26	LOCK 4 – Restrain the insert when tightening
Cylinder head nut:	M10x1.5				Apply GREASE C to the underside of the nut and the thread of the stud
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 bolts	M6x1	10	9	11	
Cylinder head cover screw	M6x1	10	9	11	
Exhaust manifold stud	M6x1	10	9	11	LOCK 5
Vacuum gauge connection screw on cylinder head (EU only)	M6x1	5	4	6	LOCK 2 or TB1324
Evaporative emissions canister fitting on cylinder head (California only)	M6x1	5	4	6	LOCK 2 or TB1324
Air breather fitting on horizontal cylinder head	M6x1	2.5	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	
Water temperature sensor	M6x1	6	5	7	

Screw securing coolant 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
Oil cooler nipple	M14x1.5	32	29	35	LOCK 5
Oil drain plug with magnet	M12x1.5	20	18	22	THREEBOND TB1215
Gear sensor recognition	M12x1.25	12	11	13	
Clutch cover oilway blanking plug	M10x1.5	15	13	17	LOCK 5
Neutral sensor	M10x1.25	10	9	11	
Oil pump adapter screw	M10x1				LOCK 5
Clutch cover inner oilway screw	M10x1.5	15	13	17	LOCK 5
Cylinder head/barrel stud	M10x1.5	30	28	32	LOCK 2 or TB1324
Vertical cylinder zone crankcase screw:	M8x1.25				GREASE B or Agip GR SM on thread
Preload torque		19	17	21	
Tightening torque		25	22	28	
Central crankcase screw + swingarm pivot bolt:	M8x1.25				GREASE B or Agip GR SM on thread
Preload torque		19	17	21	
Tightening torque		25	22	28	
Gear stop lever 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 – idler area	M6x1	10	9	11	
Outer crankcase screw	M6x1	10	9	11	
Oil pick-up mesh filter bolt	M6x1	10	9	11	TB1215

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 mounting 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
Idler gear shaft retaining screw	M6x1	10	9	11	LOCK 2 or TB1324
Primary sprocket nut retainer	M24x1	190	171	209	GREASE B
Ring nut fastening wet clutch primary pinion	M24x1	190	171	209	GREASE B
Flywheel retaining nut	M24x1	330	313	346	LOCK 5
Balancing cap	M12x1.25	28	26	30	LOCK 5
Con-rod bolts: Tightening of $45^{\circ} \pm 1^{\circ}$ Torque check	M10x1	30 65 to 95			Apply GREASE B to thread
Crankshaft grub screw	M8x1.25	13	11	15	LOCK 5
Drilled crankshaft grub screw	M8x1.25	13	11	15	LOCK 5
Selector drum locating screw	M16x1.5	30	27	33	
Selector claw screw	M8x1.25	36	34	38	LOCK 2 or TB1324
Selector claw locator nut	M6x1	10	9	11	
Selector claw screw	M6x1	16	15	17	LOCK 2 or TB1324
Idler and tensioner pulley bolts	M20x1	50	45	55	LOCK 2 or TB1324
Timing belt driveshaft pulley retaining nut	M15x1	71	64	78	GREASE A
Timing belt driveshaft gear nut	M14x1	55	50	60	GREASE A
Fixed tensioner bearing locking screw	M14X2	50	45	50	GREASE A
Idler and tensioner pulley nut	M8x1.25	25	22	28	GREASE A
Carbon fibre cover screw	M6x1	6	5.5	6.5	Loctite 516 pre-

					applied to thread
Plastic cover screw	M6x1	10	9	11	Loctite 516 pre- applied to thread
Carbon filter cover support fixing screw	M4x0.7	1.75	1.5	2	
Self-tapping screw for timing belt cover filter	M3.5				
Coolant inlet union	M30x1.5	25	23	27	LOCK 5
Coolant outlet union	M22x1.5	25	23	27	LOCK 5
Oil filler plug	M20x2.5				Tighten as far as it will go
Generator cover inspection plug	M15x1	20	18	22	TB1215
Pick-up sensor inspection screw	M12x1	15	13	17	LOCK 2 or TB1324
Water pump cover plug	M10x1	20	18	22	
Oil pressure sensor	M10x1	19	17	21	
Clutch oil pan cap	M10x1	15	13. 5	16. 5	
Oil way blanking plug	M10x1	20	18	22	LOCK 5
Coolant pump bearing stop screw	M6x1	10	9	11	LOCK 2 or TB1324
Stator wiring clamp bracket screw	M6x1	10	9	11	LOCK 2 or TB1324
Water pump cover screw	M6x1	10	9	11	
Generator-side crankcase cover screw	M6x1	10	9	11	
Generator cover to idle gear screw	M6x1	10	9	11	
Generator-side crankcase cover + water pump screw	M6x1	10	9	11	
Inspection cover screw	M6x1	5	4.5	5.5	
Generator-side crankcase cover screw	M6x1	10	9	11	
Alternator stator retaining screw	M6x1	10	9	1	LOCK 2 or TB1324

Clutch cover screw	M6x1	10	9	11	
Clutch cover screw	M6x1	10	9	11	
Wet clutch cover closing screw	M6x1	10	9	11	
Wet clutch cover closing screw	M6x1	10	9	11	
Wet clutch cover closing screw	M6x1	10	9	11	
Wet clutch drum nut	M25x1.5	190	180	200	GREASE B
Wet clutch spring screw	M6x1	10	9	11	
Spark plug	M10x1	12	11	13	
Alternator rotor/flywheel screw	M6x1	13	11	15	LOCK 5
By-pass pump cap	M15x1	25	22	28	LOCK 5
Oil pump retaining screw	M6x1	10	9	11	
Oil pump assembly screw	M6x1	10	9	11	
Oil pump retaining screw	M8x1.25	26	23	29	
Coolant outlet union	M22x1.5	25	23	27	LOCK 5
Coolant circuit hose clamps		2.5	2	3	

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



Note

For product specifications and symbols, refer to paragraph "[Product specifications](#)" (Sect. 1 - 2).