

Features & Specifications

2019 GSX-S1000Z



GSX-S1000ZAL9

YKV Metallic Mat Black No. 2 / Glass Sparkle Black

Overview

As much as a GSX-R1000 owns the racetrack, the 2019 GSX-S1000Z owns the street. Developed using the attributes of the championship-winning 2005-2008 generation GSX-R1000 engine, this naked sportbike carries Suzuki's performance spirit to every ride. The GSX-R connection does not stop there, as the GSX-S1000 shares other chassis technology and components so this bike can carve up the corners while providing all-day riding comfort.

It's more than just an attitude, a spirit, or a lineage though; it's about performance-packed hard parts evolving from one generation to the next. The GSX-S1000Z's 999cc inline four-cylinder powerplant is based on the legendary long-stroke GSX-R1000 engine. That generation engine is the ideal choice to build a liter-class, naked sportbike around, as it makes strong peak power with a robust torque curve that delivers street-dominating power.

For 2019, further refinement to the engine's throttle control mechanism helps the rider smoothly apply the power on any type of road. There are electronic rider aids lifted from Suzuki's supersport bikes, such as the Suzuki Advanced Traction Control System*, plus the Suzuki Easy Start and Low RPM Assist systems.

The chassis also benefits from GSX-R influence through the fully adjustable, inverted KYB fork and easy-to-adjust rear shock. Stopping performance is stellar via the dual, ABS-equipped** radial-mounted, four-piston front calipers and 310mm floating rotors. The wide Renthal Fatbar handlebar provides a comfortable reach and the proper leverage to hustle the GSX-S1000Z through the corners. Top that chassis performance off with aggressive styling coated with Metallic Matte Black paint and a fully blacked out engine and chassis treatment, you have a naked sportbike ready to attack the road as it turns heads on the street.

Key Features

- Fuel injected, 999cc, GSX-R-based engine has a new throttle control mechanism to smooth out the power delivery for 2019 to deliver a stimulating sportbike experience.
- Using a design similar to the GSX-R1000R, the GSX-S1000Z's Suzuki Clutch Assist System (SCAS) drive line smooths shifting and engine braking.
- Suzuki Advanced Traction Control* lets the rider select sensitivity on the fly so engine power to the rear wheel matches road conditions.
- Twin-spar aluminum frame and adjustable KYB-supplied suspension delivers controlled handling.
- Dual floating front brake rotors and Brembo Monobloc brake calipers, plus an Anti-lock Brake System (ABS)**, deliver controlled stopping power. Recent refinements, such as new front brake hoses, yield improved stopping performance with better feel at the lever.

Engine Features

- The strong, four-stroke, liquid-cooled, DOHC, 999cc, inline-four engine is designed to provide smooth throttle response and controlled acceleration.
- Ventilation holes between the cylinders reduce pumping loss within the crankcase so the engine can deliver more power and torque.
- Long-stroke GSX-R engine design has broad low- to mid-range power and torque that is ideal for street riding.
- The profiles of the dual overhead camshafts were designed to enhance street performance while preserving peak, racetrack-capable power.
- Aluminum pistons, engineered with use of Finite Element Method (FEM) analysis, are cast with optimal rigidity and weight.
- Suzuki Composite Electrochemical Material (SCEM)-plated cylinders integrated into the upper crankcase reduce friction and improve heat transfer and durability.
- The EFI system uses Suzuki's proprietary SDTV (Suzuki Dual Throttle Valve) throttle bodies where the secondary throttle valves are controlled by a servo motor for smooth power delivery.
- Long-tip, 10-hole fuel injectors on each 44mm throttle body improve fuel atomization, while the automatic Idle Speed Control (ISC) improves cold starting and stabilizes the engine idle.
- The digital ignition fires iridium-type spark plugs that increase spark strength and combustion efficiency, contributing to higher power, more linear throttle response, easier engine start-up, and a more stable idle. These quality components also last longer than conventional spark plugs.
- The stainless steel, 4-2-1 exhaust system helps the engine deliver a strong low- to mid-range punch with an exciting rush to redline.
- The Suzuki Exhaust Tuning (SET) system—equipped mid-muffler design enhances style and aids in mass centralization for great chassis balance.
- The sculpted muffler has a pleasing appearance that's not common to under-chassis exhausts while creating an exciting, distinctive sound.
- Suzuki's Advanced Traction Control System* lets the rider control the throttle with more confidence in various riding conditions. As a result, the rider can enjoy sport riding with less anxiety. There are four traction control modes (1, 2, 3, and OFF) that the rider can easily adjust at rest or on the fly via a handlebar-mounted control. The difference between the modes is their sensitivity to road conditions.
 - o Mode 1 is lowest sensitivity level most suitable for skilled riders or in conditions that have good road surface grip (sport riding on good, smooth roads).
 - o Mode 2 is a moderate sensitivity level that is suitable for most riders or in conditions that have varied road surface grip (city riding, regular road conditions).
 - o Mode 3 is highest sensitivity level suitable for road conditions where the grip may be limited (wet or cold surfaces).
 - o OFF disengages all traction control features.
- Angular radiator shrouds efficiently guide cooling air to the high-capacity curved radiator. Additional heat is removed from the engine via the use of a lightweight and compact liquid-cooled oil cooler (like those used on the GSX-R models).

Transmission Features

- The race-proven six-speed close-ratio transmission features vertically staggered shafts to reduce overall engine length.
- The SCAS clutch increases plate pressure under acceleration yet acts as a slipper clutch to smooth the engine response during engine braking and corner entry.
- This large-diameter, wet multi-plate clutch uses a precise cable-activated release, providing the rider with superb friction-point feel.
- Precise shift linkage helps the rider easily and quickly select the best gear for the riding conditions.
- The strong, RK-supplied drive chain uses O-rings to preserve internal lubrication so power is transmitted smoothly and quietly.

Chassis Features

- Lightweight and compact chassis is engineered to be agile and fun to ride for a wide range of riders. This ability starts with the low-mass rigid aluminum main frame coupled with the strong aluminum alloy swingarm.
- The 43mm inverted KYB forks have adjustable compression and rebound damping, and spring preload with a generous 120mm (4.7 inches) of front wheel travel.
- Link-type rear suspension, with arched aluminum swingarm and a single shock absorber that features spring preload that is seven-way adjustable with rebound damping force adjustment.
- Dual front brakes with fully floating 310mm discs and Brembo Monobloc calipers with four 32mm opposed pistons provide strong and consistent stopping power.
- The front brakes are complemented by a 240mm rear disc brake with a Nissin single-piston caliper to help make sure you can have controlled stops.
- Both the front and rear brakes can be modulated by a compact Anti-lock Brake System (ABS)** controller to match stopping force to the available traction.
- Unique to the GSX-S1000 models, the TRP six-spoke lightweight cast aluminum wheels are shod with Dunlop radial tires (120/70ZR17 front and 180/50ZR17 rear).
- Matte black aluminum Renthal Fatbar handlebar is standard equipment offering excellent riding ergonomics with great vibration damping.
- The reasonable sport riding position is created by a carefully crafted relationship between the Renthal Fatbar, footrests, and seat.
- New black finish on the shifter, rear brake, and both hand levers matches the performance nature of the motorcycle.
- The low seat height of 815mm (32 inches) contributes to the sporty yet upright riding position and aids rider confidence at stops.
- The GSX-S1000Z's blacked-out, naked roadster bodywork is designed to look wild, rugged, and aggressive – and to keep the rider comfortable at all times.

Electrical Features

- The GSX-S1000 premiered Suzuki's Easy Start System that requires just a simple touch of the starter button to fire up the engine (without pulling the clutch lever if the transmission is in neutral).
- Distinctively shaped headlight nacelle contains a bright 60/55-watt H4 halogen bulb. The tail section houses an integrated LED tail light with clear lens.
- The lightweight and compact instrument set uses an LCD display that includes speedometer, tachometer, odometer, dual trip meters, gear position, coolant temperatures, driving range, average fuel consumption, instantaneous fuel consumption, traction control, and a clock function.
- The display has an adjustable-intensity, white-color backlight for great nighttime visibility and is flanked by LED indicators for the turn signals, high beam, malfunction, traction control, and ABS, plus coolant temperature and oil pressure alerts.

Additional Features

- A variety of Genuine Suzuki Accessories such as a solo seat cowl and sport screen are available, plus a large selection of logo apparel.
- 12-month unlimited mileage, limited warranty.
 - Coverage can be increased via Suzuki Extended Protection.
- For more details, please visit www.suzukicycles.com.

** The Traction Control System is not a substitute for the rider's throttle control. It cannot prevent loss of traction due to excessive speed when the rider enters a turn and/or applies the brakes. Neither can it prevent the front wheel from losing grip.*

*** Depending on road surface conditions, such as wet, loose, or uneven roads, braking distance for an ABS-equipped vehicle may be longer than for a vehicle not equipped with ABS. ABS cannot prevent wheel skidding caused by braking while cornering. Please ride carefully and do not overly rely on ABS.*

Specifications GSX-S1000ZAL9

E-03: USA, E-33: California

Dimensions and curb mass

Item	Specification	Remark
Overall length	2115 mm (83.3 in)	—
Overall width	795 mm (31.3 in)	—
Overall height	1080 mm (42.5 in)	—
Wheelbase	1460 mm (57.5 in)	—
Ground clearance	140 mm (5.5 in)	—
Seat height	810 mm (31.9 in)	—
Curb mass	209 kg (461 lbs)	E03
	210 kg (463 lbs)	E33

Engine

Item	Specification	Remark
Type	Four-stroke, liquid-cooled, DOHC	—
Number of cylinders	4	—
Bore	73.4 mm (2.890 in)	—
Stroke	59.0 mm (2.323 in)	—
Displacement	999 cm ³ (61.0 cu. in)	—
Compression ratio	12.2 : 1	—
Fuel system	Fuel injection	—
Air cleaner	Paper element	—
Starter system	Electric	—
Lubrication system	Wet sump	—
Idle speed	1150 ± 100 r/min	—

Drive train

Item	Specification	Remark	
Clutch	Wet multi-plate type	—	
Transmission	6-speed constant mesh	—	
Gearshift pattern	1-down, 5-up	—	
Primary reduction ratio	1.553 (73/47)	—	
Gear ratios	Low	2.562 (41/16)	—
	2nd	2.052 (39/19)	—
	3rd	1.714 (36/21)	—
	4th	1.500 (36/24)	—
	5th	1.360 (34/25)	—
	Top	1.269 (33/26)	—
Final reduction ratio	2.588 (44/17)	—	
Drive chain	RK525GSH, 116 links	—	

Capacities

Item	Specification	Remark	
Fuel tank	17.0 L (4.5 US gal, 3.7 Imp gal)	—	
Engine oil	Oil change	2800 ml (3.0 US qt, 2.5 Imp qt)	—
	With filter change	3200 ml (3.4 US qt, 2.8 Imp qt)	—
Engine coolant	2.8 L (3.0 US qt, 2.5 Imp qt)	—	

Specifications GSX-S1000ZAL9

E-03: USA, E-33: California

Chassis

Item	Specification	Remark
Front suspension	Inverted telescopic, coil spring, oil damped	—
Rear suspension	Link type, coil spring, oil damped	—
Front fork stroke	120 mm (4.7 in)	—
Rear wheel travel	130 mm (5.1 in)	—
Steering angle	31° (right and left)	—
Caster	25°	—
Trail	100 mm (3.9 in)	—
Turning radius	3.1 m (10.2 ft)	—
Front brake	Disc brake, twin	—
Rear brake	Disc brake	—
Front tire size	120/70ZR17M/C (58W), tubeless	—
Rear tire size	190/50ZR17M/C (73W), tubeless	—

Electrical

Item	Specification	Remark
Ignition type	Electronic ignition (Transistorized)	—
Spark plug	NGK CR9EIA-9 or DENSO IU27D	—
Battery	12 V 36.0 kC (10 Ah)/10 HR	—
Generator	Three-phase A.C. generator	—
Main fuse	30 A	—
Fuse	10/10/10/10/10/15 A	—
ABS fuse	20/15 A	—
Headlight	12 V 60/55 W (H4)	—
Brake light/Tail light	LED	—
Turn signal light	12 V 21 W x 4	—
License plate light	12 V 5 W	—
Instrument panel light	LED	—
Neutral indicator light	LED	—
High beam indicator light	LED	—
Turn signal indicator light	LED	—
Oil pressure/Coolant temperature indicator light	LED	—
MIL	LED	—
Traction control system indicator light	LED	—
ABS indicator light	LED	—

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Service Data GSX-S1000ZAL9

E-03: USA, E-33: California

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Emission Control Devices

Item	Specification	Standard	Limit
EVAP system purge control solenoid valve power supply voltage	E33	Battery voltage	
EVAP system purge control solenoid valve resistance	E33 20 °C (68 °F)	30 – 34 Ω	
PAIR control solenoid valve power supply voltage		Battery voltage	
PAIR control solenoid valve resistance	20 – 30 °C (68 – 86 °F)	20 – 24 Ω	

Engine Electrical Devices

Item	Specification	Standard	Limit
AP sensor power supply voltage		4.75 – 5.25 V	—
AP sensor output voltage	Idle speed at 1 atm.	Approx. 2.8 V	—
IAP sensor power supply voltage		4.75 – 5.25 V	—
IAP sensor output voltage	Idle speed at 1 atm.	Approx. 2.7 V	—
IAT sensor power supply voltage		4.5 – 5.5 V	—
IAT sensor output voltage		0.15 – 4.85 V	—
IAT sensor resistance	0 °C (32 °F)	5400 – 6600 Ω	—
	80 °C (176 °F)	290 – 390 Ω	—
ECT sensor power supply voltage		4.5 – 5.5 V	—
ECT sensor resistance	–20 °C (–4 °F)	13840 – 16330 Ω	—
	20 °C (68 °F)	2320 – 2590 Ω	
	80 °C (176 °F)	310 – 326 Ω	
TP sensor power supply voltage		4.5 – 5.5 V	—
TP sensor output voltage	Closed	1.10 – 1.14 V	—
	Opened	Approx. 4.5 V	
STP sensor power supply voltage		4.5 – 5.5 V	—
STP sensor output voltage	Closed	0.57 – 0.67 V	—
	Opened	Approx. 4.5 V	
ISC valve resistance	20 °C (68 °F)	Approx. 20 Ω	—
HO2 sensor output voltage	Idle speed	0.6 V or less	—
	5000 r/min	0.6 V or more	
HO2 sensor heater power supply voltage		Battery voltage	—
HO2 sensor heater resistance	23 °C (73.4 °F)	11.5 – 17.5 Ω	—
CKP sensor peak voltage	When cranking	0.5 V or more	—
CKP sensor resistance	20 °C (68 °F)	Approx. 168 Ω	—
TO sensor power supply voltage		4.5 – 5.5 V	—
TO sensor output voltage	Normal	0.4 – 1.4 V	—
	Leaning 65°	3.7 – 4.4 V	
TO sensor resistance		16500 – 22300 Ω	—
ECM power supply voltage		Battery voltage	—

Engine Mechanical

Item	Specification	Standard	Limit
Throttle body I.D. No.	E33	04K3	—
	E03	04K2	—
Throttle body bore size		44 mm (1.7 in)	—
Throttle cable play		2.0 – 4.0 mm (0.079 – 0.157 in)	—
Idle speed	When engine warmed	1150 ± 100 r/min	—
Fast idle speed		1150 – 2000 r/min	—
STVA resistance		Approx. 7.8 Ω	—
Compression pressure		1300 – 1700 kPa (13.3 – 17.3 kgf/cm ² , 188 – 246 psi)	1000 kPa (10.2 kgf/cm ² , 145 psi)
Compression pressure difference		—	200 kPa (2 kgf/cm ² , 28 psi)
Cam height	Intake	36.78 – 36.83 mm (1.448 – 1.450 in)	36.48 mm (1.437 in)
	Exhaust	36.63 – 36.68 mm (1.443 – 1.444 in)	36.33 mm (1.431 in)
Camshaft journal oil clearance	Intake	0.032 – 0.066 mm (0.0013 – 0.0025 in)	0.150 mm (0.0059 in)
	Exhaust	0.032 – 0.066 mm (0.0013 – 0.0025 in)	0.150 mm (0.0059 in)
Camshaft journal holder I.D.	Intake	24.012 – 24.025 mm (0.9454 – 0.9458 in)	—
	Exhaust	24.012 – 24.025 mm (0.9454 – 0.9458 in)	
Camshaft journal O.D.	Intake	23.959 – 23.980 mm (0.9433 – 0.9440 in)	—
	Exhaust	23.959 – 23.980 mm (0.9433 – 0.9440 in)	
Camshaft runout	Intake & Exhaust	—	0.10 mm (0.004 in)
Cam chain pin	At arrow "3"	14th pin	—
Valve clearance	When engine cold	Intake	0.10 – 0.20 mm (0.0040 – 0.0078 in)
		Exhaust	0.20 – 0.30 mm (0.0079 – 0.0118 in)
Valve diameter	Intake	30 mm (1.2 in)	—
	Exhaust	24 mm (0.94 in)	
Valve stem runout	Intake & Exhaust	—	0.05 mm (0.0019 in)
Valve head radial runout	Intake & Exhaust	—	0.03 mm (0.0011 in)
Valve head thickness	Intake	—	0.5 mm (0.019 in)
	Exhaust	—	0.5 mm (0.019 in)
Valve stem O.D.	Intake	4.475 – 4.490 mm (0.1762 – 0.1767 in)	—
	Exhaust	4.455 – 4.470 mm (0.1754 – 0.1759 in)	—
Valve seat width	Intake	0.9 – 1.1 mm (0.036 – 0.043 in)	—
	Exhaust	0.9 – 1.1 mm (0.036 – 0.043 in)	—

Item	Specification		Standard	Limit
Valve guide I.D.	Intake		4.500 – 4.512 mm (0.1772 – 0.1776 in)	—
	Exhaust		4.500 – 4.512 mm (0.1772 – 0.1776 in)	—
Valve guide to valve stem clearance	Intake		0.010 – 0.037 mm (0.0004 – 0.0014 in)	—
	Exhaust		0.030 – 0.057 mm (0.0012 – 0.0022 in)	—
Valve spring free length	Intake		—	37.3 mm (1.47 in)
	Exhaust		—	37.3 mm (1.47 in)
Valve spring pre-load	When compressed to 33.55 mm (1.321 in)	Intake	141 – 163 N (14.4 – 16.6 kgf, 31.7 – 36.6 lbs)	—
		Exhaust	141 – 163 N (14.4 – 16.6 kgf, 31.7 – 36.6 lbs)	—
Cylinder head distortion			—	0.20 mm (0.0078 in)
Cylinder distortion			—	0.20 mm (0.0078 in)
Cylinder bore			73.400 – 73.415 mm (2.8898 – 2.8903 in)	No nicks or Scratches
Piston diameter	Measure at 8 mm (0.3 in) from the skirt end.		73.370 – 73.385 mm (2.8886 – 2.8891 in)	73.280 mm (2.8851 in)
Piston to cylinder clearance			0.025 – 0.035 mm (0.0010 – 0.0013 in)	0.120 mm (0.0047 in)
Piston ring to groove clearance	1st		—	0.180 mm (0.0070 in)
	2nd		—	0.150 mm (0.0059 in)
Piston ring groove width	1st		0.81 – 0.83 mm (0.0319 – 0.0326 in)	—
	2nd		0.81 – 0.83 mm (0.0319 – 0.0326 in)	—
	Oil		1.51 – 1.53 mm (0.0595 – 0.0602 in)	—
Piston ring thickness	1st		0.77 – 0.79 mm (0.0304 – 0.0311 in)	—
	2nd		0.77 – 0.79 mm (0.0304 – 0.0311 in)	—
Piston ring free end gap	1st		Approx. 9 mm (0.4 in)	7.2 mm (0.29 in)
	2nd		Approx. 8 mm (0.3 in)	6.4 mm (0.26 in)
Piston ring end gap	1st		0.06 – 0.18 mm (0.0024 – 0.0070 in)	0.50 mm (0.019 in)
	2nd		0.06 – 0.18 mm (0.0024 – 0.0070 in)	0.50 mm (0.019 in)
Piston pin bore I.D.			16.002 – 16.008 mm (0.6300 – 0.6302 in)	16.030 mm (0.6311 in)
Piston pin O.D.			15.995 – 16.000 mm (0.6298 – 0.6299 in)	15.980 mm (0.6292 in)
Conrod small end I.D.			16.010 – 16.018 mm (0.6304 – 0.6306 in)	16.040 mm (0.6314 in)
Conrod big end side clearance			0.10 – 0.20 mm (0.0040 – 0.0078 in)	0.3 mm (0.011 in)
Conrod big end width			19.95 – 20.00 mm (0.7855 – 0.7874 in)	—

Item	Specification	Standard	Limit
Conrod big end I.D.		38.000 – 38.016 mm (1.4961 – 1.4966 in)	—
Conrod big end oil clearance		0.040 – 0.064 mm (0.0016 – 0.0025 in)	0.080 mm (0.0031 in)
Crank pin width		20.10 – 20.15 mm (0.7914 – 0.7933 in)	—
Crank pin O.D.		34.976 – 35.000 mm (1.3770 – 1.3779 in)	—
Crank pin bearing thickness		1.476 – 1.492 mm (0.0582 – 0.0587 in)	—
Crankshaft journal O.D.		34.982 – 35.000 mm (1.3773 – 1.3779 in)	—
Crankshaft journal oil clearance		0.010 – 0.028 mm (0.0004 – 0.0011 in)	0.080 mm (0.0031 in)
Crankcase journal I.D.		38.000 – 38.018 mm (1.4961 – 1.4967 in)	—
Crankcase journal bearing thickness		1.492 – 1.507 mm (0.0588 – 0.0593 in)	—
Crankshaft thrust bearing thickness	Right side	2.42 – 2.44 mm (0.0953 – 0.0960 in)	—
	Left side	2.36 – 2.50 mm (0.0930 – 0.0984 in)	—
Crankshaft thrust clearance		0.060 – 0.110 mm (0.0024 – 0.0043 in)	—
Crankshaft runout		—	0.05 mm (0.0019 in)
Balancer journal oil clearance		0.028 – 0.052 mm (0.0011 – 0.0020 in)	0.080 mm (0.0031 in)
Balancer journal O.D.		22.976 – 22.992 mm (0.9046 – 0.9051 in)	—

Engine Lubrication System

Item	Specification	Standard	Limit
Oil pressure	At 60 °C (140 °F), 3000 r/min	100 – 400 kPa (1.0 – 4.1 kgf/cm ² , 14.5 – 58.0 psi)	—
Necessary amount of engine oil	Oil change	2800 ml (3.0 US qt, 2.5 Imp qt)	—
	Oil and filter change	3200 ml (3.4 US qt, 2.8 Imp qt)	
	Engine overhaul	3400 ml (3.6 US qt, 3.0 Imp qt)	

Cooling System

Item	Specification	Standard	Limit
Engine coolant	Engine side	Approx. 2500 ml (5.28 US qt, 4.40 Imp qt)	—
	Reservoir tank side	Approx. 250 ml (0.53 US qt, 0.44 Imp qt)	
Radiator cap valve opening pressure		107.9 – 137.3 kPa (1.1 – 1.4 kgf/cm ² , 15.7 – 19.9 psi)	—
Cooling fan relay power supply voltage		Battery voltage	—
Cooling fan operating temperature	OFF → ON	Approx. 105 °C (221 °F)	—
	ON → OFF	Approx. 100 °C (212 °F)	
Thermostat valve opening temperature		Approx. 82 °C (179.6 °F)	—
Thermostat valve lift	95 °C (203 °F)	8 mm (0.3 in) or more	—

Fuel System

Item	Specification	Standard	Limit
Fuel injector power supply voltage		Battery voltage	
Fuel injector resistance	20 °C (68 °F)	11.5 – 12.5 Ω	—
FP relay power supply voltage		Battery voltage	—
FP discharge amount	Per 10 seconds	223 ml (7.55 US oz, 7.85 Imp oz) or more	—
Fuel pressure regulator operating set pressure		289 – 299 kPa (2.95 – 3.04 kgf/cm ² , 42.0 – 43.3 psi)	—

Ignition System

Item	Specification	Standard	Limit
Firing order		1-2-4-3	—
Spark plug	Type	NGK: CR9EIA-9 / DENSO: IU27D	—
	Gap	0.8 – 0.9 mm (0.032 – 0.035 in)	—
Spark performance	At 1 atm	8 mm (0.3 in) or more	—
Ignition coil primary peak voltage		80 V or more	—
Ignition coil resistance	Primary	10 – 30 °C (50 – 86 °F)	1.1 – 1.9 Ω
	Secondary		6400 – 9600 Ω

Starting System

Item	Specification	Standard	Limit
Starter motor brush length		12 mm (0.47 in)	8.5 mm (0.33 in)
Starter relay resistance		3 – 6 Ω	—
Side-stand switch voltage	ON (Side-stand retracted)	0.4 – 0.6 V	—
	OFF (Side-stand on the ground)	1.4 V or more	

Charging System

Item	Specification	Standard	Limit
Battery leakage current		3 mA or less	—
Regulated voltage	Charging output	At 5000 r/min	14.0 – 15.5 V
Generator coil resistance	20 °C (68 °F)		0.12 – 0.18 Ω
Generator no-load voltage	When engine cold	At 5000 r/min	65 V (AC) or more
Recharging time	Standard charging		1.2 A for 5 to 10 hours
	Fast charging		5 A for 1 hour
Generator Max. output	At 5000 r/min		Approx. 385 W
Battery	Type designation		FT12A-BS
	Capacity		12 V 36.0 kC (10Ah)/10 HR

Exhaust System

Item	Specification	Standard	Limit
EXCVA position sensor power supply voltage		4.5 – 5.5 V	—
EXCVA position sensor output voltage	Closed	0.45 – 1.40 V	—
	Opened	3.60 – 4.55 V	
EXCVA position sensor resistance	At adjustment position		Approx. 3100 Ω

Front Suspension

Item	Specification	Standard	Limit
Front fork inner tube O.D.		43 mm (1.7 in)	—
Front fork oil level	Without spring, outer tube fully compressed	95 mm (3.7 in)	—
Front fork spring free length		271.1 mm (10.67 in)	265 mm (10.5 in)
Front fork oil capacity	Each leg	518 ml (17.52 US oz, 18.23 Imp oz)	—
Front fork spring adjuster		10 mm (0.39 in)	—
Front fork damping force adjuster	Rebound side	8 clicks counterclockwise from stiffest position	—
	Compression side	2 turns counterclockwise from stiffest position	

Rear Suspension

Item	Specification	Standard	Limit
Rear shock absorber spring adjuster		4th position	—
Rear shock absorber damping force adjuster	Rebound side	1 turn counterclockwise from stiffest position	—
Swingarm pivot shaft runout		—	0.3 mm (0.011 in)

Wheels and Tires

Item	Specification		Standard	Limit
Wheel rim runout	Front	Axial & Radial	—	2.0 mm (0.08 in)
	Rear	Axial & Radial	—	2.0 mm (0.08 in)
Wheel axle runout	Front		—	0.25 mm (0.010 in)
	Rear		—	0.25 mm (0.010 in)
Tire size	Front		120/70ZR17M/C (58W)	—
	Rear		190/50ZR17M/C (73W)	
Tire type	Front		DUNLOP/D214F M	—
	Rear		DUNLOP/D214 M	
Tire tread depth (Recommended depth)	Front		—	1.6 mm (0.062 in)
	Rear		—	2.0 mm (0.078 in)
Cold inflation tire pressure	Solo riding	Front	250 kPa (2.50 kgf/cm ² , 36 psi)	—
		Rear	290 kPa (2.90 kgf/cm ² , 42 psi)	
	Dual riding	Front	250 kPa (2.50 kgf/cm ² , 36 psi)	—
		Rear	290 kPa (2.90 kgf/cm ² , 42 psi)	
Wheel rim size	Front		17 M/C x MT 3.50	—
	Rear		17 M/C x MT 6.00	

Drive Chain / Drive Train / Drive Shaft

Item	Specification	Standard	Limit
Drive chain	Type	RK525GSH	—
	Links	116 links	—
Drive chain 20-pitch length		—	319.4 mm (12.57 in)
Drive chain slack	On side-stand	20 – 30 mm (0.79 – 1.18 in)	—

Brake Control System and Diagnosis

Item	Specification	Standard	Limit
Rear brake pedal height		50 – 60 mm (2.0 – 2.3 in)	—
Master cylinder bore / piston diameter	Front	Approx. 19.1 mm (0.752 in)	—
	Rear	Approx. 14.0 mm (0.551 in)	

Front Brakes

Item	Specification	Standard	Limit
Front brake disc thickness		5.0 mm (0.20 in)	4.5 mm (0.18 in)
Front brake disc runout		—	0.30 mm (0.012 in)
Front brake caliper cylinder bore / piston diameter		Approx. 32 mm (1.3 in)	—

Rear Brakes

Item	Specification	Standard	Limit
Rear brake disc thickness		5.0 mm (0.20 in)	4.5 mm (0.18 in)
Rear brake disc runout		—	0.30 mm (0.012 in)
Rear brake caliper cylinder bore / piston diameter		Approx. 38.2 mm (1.50 in)	—

ABS

Item	Specification	Standard	Limit
Wheel speed sensor – sensor rotor clearance	Front	0.38 – 1.05 mm (0.0150 – 0.0413 in)	—
	Rear	0.42 – 1.08 mm (0.0166 – 0.0425 in)	—

Manual Transmission

Item	Specification	Standard	Limit
Gearshift fork to groove clearance	No.1	0.1 – 0.3 mm (0.004 – 0.011 in)	0.5 mm (0.019 in)
	No.3	0.1 – 0.3 mm (0.004 – 0.011 in)	0.5 mm (0.019 in)
Gearshift fork groove width	No.1	5.0 – 5.1 mm (0.197 – 0.200 in)	—
	No.3	5.0 – 5.1 mm (0.197 – 0.200 in)	
Gearshift fork thickness	No.1	4.8 – 4.9 mm (0.189 – 0.192 in)	—
	No.3	4.8 – 4.9 mm (0.189 – 0.192 in)	
Gearshift lever height		45 – 55 mm (1.8 – 2.1 in)	—
GP switch power supply voltage		4.5 – 5.5 V	—
GP switch voltage	From 1st to Top	0.6 V or more	—

Clutch

Item	Specification	Standard	Limit
Clutch lever play		10 – 15 mm (0.4 – 0.6 in)	—
Clutch release screw		1/2 turn counterclockwise	—
Drive plate thickness		2.72 – 2.88 mm (0.107 – 0.113 in)	2.42 mm (0.0953 in)
Drive plate claw width		13.85 – 13.96 mm (0.5453 – 0.5496 in)	13.35 mm (0.5256 in)
Driven plate distortion		—	0.10 mm (0.0039 in)
Clutch spring free length		57.01 mm (2.244 in)	54.2 mm (2.14 in)

Steering / Handlebar

Item	Specification	Standard	Limit
Steering tension initial force		2 – 5 N (0.21 – 0.50 kgf, 0.50 – 1.12 lbf)	—

Wiring Systems

Item	Specification	Standard	Limit	
Fuse size	Headlight	HI	10 A	—
		LO	10 A	—
	Ignition	10 A	—	
	Signal	10 A	—	
	Fuel	10 A	—	
	Fan	15 A	—	
	Main	30 A	—	
	ABS motor	20 A	—	
ABS valve	15 A	—		

Lighting Systems

Item	Specification	Standard	Limit
Headlight		12 V 60/55 W (H4)	—
Brake light/Taillight		LED	—
Turn signal light		12 V 21 W × 4	—
License plate light		12 V 5 W	—

Combination Meter / Fuel Meter / Horn

Item	Specification	Standard	Limit
Speed sensor power supply voltage (Without ABS)	Front	Battery voltage	—
	Rear	Battery voltage	—
Instrument panel light		LED	—
Turn signal indicator light		LED × 2	—
High beam indicator light		LED	—
Neutral indicator light		LED	—
Oil pressure indicator light/Engine coolant temp. indicator light		LED	—
MIL		LED	—
Traction control system indicator light		LED	—
ABS indicator light		LED	—

Tightening Torque List

Emission Control Devices

Fastening part	Tightening torque		
	N·m	kgf·m	lbf·ft
PAIR reed valve cover bolt	10	1.0	7.5
Breather cover bolt	10	1.0	7.5
Canister bracket bolt	10	1.0	7.5
EVAP system purge control solenoid valve nut	10	1.0	7.5

Engine Electrical Devices

Fastening part	Tightening torque		
	N·m	kgf·m	lbf·ft
ISC valve mounting screw	2	0.20	1.50
IAT sensor screw	1.3	0.13	0.95
ECT sensor	18	1.8	13.5
TP sensor mounting screw	3.5	0.36	2.60
HO2 sensor	25	2.5	18.5
CKP sensor screw	4.5	0.46	3.35
CKP sensor lead wire clamp screw	4.5	0.46	3.35
Cam chain tensioner bolt	23	2.3	17.0
STP sensor mounting screw	3.5	0.36	2.60

Engine Mechanical

Fastening part	Tightening torque		
	N·m	kgf·m	lbf·ft
Air cleaner outlet tube clamp screw	1.5	0.15	1.10
Air cleaner bolt	5.5	0.56	4.05
Throttle cable lock-nut	4.5	0.46	3.35
Intake pipe clamp screw	1.5	0.15	1.10
Intake pipe screw	8.5	0.87	6.30
Cylinder head cover bolt	14	1.4	10.5
Camshaft journal holder bolt	10	1.0	7.5
Cam chain tension adjuster bolt	10	1.0	7.5
Cam chain tension adjuster plug	23	2.3	17.0
Crankshaft hole plug	11	1.1	8.5
Engine mounting thrust adjuster	23	2.3	17.0
Engine mounting thrust adjuster lock-nut	45	4.6	33.5
Cylinder head bolt (L105)	31 N·m (3.2 kgf·m, 23.0 lbf·ft) → turn clockwise 60°		
Cylinder head bolt (L50)	10	1.0	7.5
Cam chain tensioner bolt	23	2.3	17.0
Oil gallery bolt	10	1.0	7.5
Bypass hose union	12	1.2	9.0
Conrod cap bolt	21 N·m (2.1 kgf·m, 15.5 lbf·ft) → turn clock wise 90°		
Crankcase middle bolt (M9)	18 N·m (1.8 kgf·m, 13.5 lbf·ft) → turn clock wise 50°		
Crankcase middle bolt (M8)	15 → 26 N·m (1.5 → 2.7 kgf·m, 11.0 → 19.5 lbf·ft)		
Crankcase middle bolt (M6)	11	1.1	8.5
Crankcase upper bolt (M6)	11	1.1	8.5
Crankcase lower bolt (M6)	11	1.1	8.5
Crankcase upper bolt (M8)	15 → 26 N·m (1.5 → 2.7 kgf·m, 11.0 → 19.5 lbf·ft)		
Driveshaft oil seal retainer bolt	10	1.0	7.5
Water inlet connector mounting bolt	10	1.0	7.5
Water jacket plug	9.5	0.97	7.00
Oil gallery upper plug (M10)	18	1.8	13.5
Oil gallery plug (M16)	35	3.6	26.0
Oil gallery lower plug (M14)	23	2.3	17.0
Crankcase middle bolt (M8)	15 → 26 N·m (1.5 → 2.7 kgf·m, 11.0 → 19.5 lbf·ft)		

Engine Lubrication System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Oil gallery plug (M16)	35	3.6	26.0
Oil drain plug	23	2.3	17.0
Oil filter	20	2.0	15.0
Oil gallery plug (M10)	11	1.1	8.5
Oil pan bolt	10	1.0	7.5
Oil cooler union bolt	70	7.1	52.0
Oil pressure switch	13	1.3	9.5
Oil pressure switch lead wire connecting screw	1.5	0.15	1.10
Piston cooling jet bolt	10	1.0	7.5
Oil pump bolt	10	1.0	7.5

Engine Cooling System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Thermostat cover air bolt	6	0.61	4.45
Cooling fan assembly mounting bolt	8.5	0.87	6.30
Radiator mounting bolt	10	1.0	7.5
Water hose clamp screw	1.5	0.15	1.10
Reservoir tank mounting bolt	6	0.61	4.45
Thermostat connector cover bolt	10	1.0	7.5
Water pump bolt	10	1.0	7.5
Impeller securing bolt	8	0.82	5.90
Water pump case screw	5.5	0.56	4.05

Fuel System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Fuel tank cap bolt	3	0.31	2.25
Fuel tank front bolt	10	1.0	7.5
Fuel tank rear bolt	10	1.0	7.5
Fuel pump mounting bolt	10	1.0	7.5
Fuel delivery pipe mounting screw	3.5	0.36	2.60

Ignition System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Spark plug	11	1.1	8.5

Starting System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Starter motor bolt	10	1.0	7.5
Starter motor terminal nut	6	0.61	4.45
Starter clutch bolt	54	5.5	40.0
Starter clutch cover bolt	10	1.0	7.5
Starter idle gear cap bolt	10	1.0	7.5

Charging System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Generator stator bolt	11	1.1	8.5
Generator lead wire clamp bolt	11	1.1	8.5
Generator rotor bolt	160	16.3	118.0
Generator cover bolt	10	1.0	7.5

Exhaust System

Fastening part	Tightening torque		
	N-m	kgf-m	lbf-ft
EXCVA pulley bolt	5	0.51	3.70
EXCV cable lock-nut	4.5	0.46	3.35
EXCV cable bracket mounting nut	11	1.1	8.5
Exhaust pipe bolt	23	2.3	17.0
Exhaust support nut	26	2.7	19.5
Muffler rear cover	10	1.0	7.5
Muffler support bolt	31	3.2	23.0
Muffler connector bolt	18	1.8	13.5
Muffler front cover	5.5	0.56	4.05

Front Suspension

Fastening part	Tightening torque		
	N-m	kgf-m	lbf-ft
Front fork cap bolt	23	2.3	17.0
Front fork lower clamp bolt	23	2.3	17.0
Front fork upper clamp bolt	23	2.3	17.0
Front fender mounting bolt	12	1.2	9.0
Damper rod bolt	23	2.3	17.0
Front fork inner rod lock-nut	15	1.5	11.0

Rear Suspension

Fastening part	Tightening torque		
	N-m	kgf-m	lbf-ft
Rear shock absorber mounting nut	50	5.1	37.0
Cushion rod (rear) mounting nut	80	8.2	59.0
Cushion lever mounting nut	80	8.2	59.0
Cushion rod mounting nut	80	8.2	59.0
Rear shock absorber lower mounting nut	50	5.1	37.0
Rear fender lower mounting bolt	10	1.0	7.5
Swingarm pivot shaft	15	1.5	11.0
Swingarm pivot nut	100	10.2	74.0
Swingarm pivot lock-nut	90	9.2	66.5

Wheels and Tires

Fastening part	Tightening torque		
	N-m	kgf-m	lbf-ft
Front axle nut	100	10.2	74.0
Front axle pinch bolt	23	2.3	17.0

Drive Chain / Drive Train / Drive Shaft

Fastening part	Tightening torque		
	N-m	kgf-m	lbf-ft
Rear axle nut	100	10.2	74.0
Chain adjuster lock-nut	22	2.2	16.5
Engine sprocket nut	115	11.7	85.0
Rear sprocket nut	60	6.1	44.5

Brake Control System and Diagnosis

Fastening part	Tightening torque		
	N-m	kgf-m	lbf-ft
Brake light switch screw	1.2	0.12	0.90
Rear brake master cylinder rod lock-nut	18	1.8	13.5
Front brake master cylinder air bleeder valve	6	0.61	4.45
Front brake air bleeder valve	7.5	0.76	5.55
Front reservoir cap screw	1.5	0.15	1.10
Rear brake air bleeder valve	6	0.61	4.45

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Rear reservoir cap screw	1.2	0.12	0.90
Front brake master cylinder holder bolt	10	1.0	7.5
Brake hose union bolt	23	2.3	17.0
Brake lever pivot bolt	1	0.10	0.75
Brake lever pivot bolt lock-nut	6	0.61	4.45
Rear brake master cylinder mounting bolt	10	1.0	7.5

Front Brakes

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Front brake caliper mounting bolt	39	4.0	29.0
Brake hose union bolt	23	2.3	17.0
Brake disc bolt	18	1.8	13.5

Rear Brakes

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Rear brake caliper mounting bolt	22	2.2	16.5
Rear brake pad mounting pin	18	1.8	13.5
Rear brake pad pin plug	2.5	0.25	1.85
Rear brake caliper sliding pin	27	2.8	20.0
Brake hose union bolt	23	2.3	17.0
Brake disc bolt	23	2.3	17.0

ABS

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Wheel speed sensor rotor bolt	6.5	0.66	4.80
Brake pipe flare nut	16	1.6	12.0

Manual Transmission

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Gearshift cam bearing retainer screw	10	1.0	7.5
Gearshift arm stopper	10	1.0	7.5
GP switch bolt	6	0.61	4.45
Gearshift link rod nut	10	1.0	7.5
Gearshift cam stopper bolt	10	1.0	7.5
Gearshift cam plate bolt	13	1.3	9.5

Clutch

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Clutch release adjuster nut	5.5	0.56	4.05
Clutch cable lock-nut	4.5	0.46	3.35
Clutch release adjuster cap	11	1.1	8.5
Clutch lever pivot nut	6.5	0.66	4.80
Clutch switch screw	0.6	0.06	0.45
Clutch lever holder bolt	10	1.0	7.5
Clutch release arm bolt	9	0.92	6.65
Clutch spring set bolt	10	1.0	7.5
Clutch cover bolt	10	1.0	7.5
Clutch sleeve hub nut	95	9.7	70.0
Clutch lifter pin lock-nut	23	2.3	17.0

Steering / Handlebar

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Handlebar clamp bolt	23	2.3	17.0
Handlebar balancer screw	5.5	0.56	4.05
Steering stem lock-nut	80	8.2	59.0
Steering stem head nut	90	9.2	66.5
Front fork upper clamp bolt	23	2.3	17.0
Steering stem adjust-nut	20 N·m (2.0 kgf-m, 15.0 lbf-ft) → turn counterclockwise 0 – 1/4		

Lighting Systems

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Headlight screw (M5)	2.3	0.23	1.70
Headlight screw (M6)	5.5	0.56	4.05
Headlight screw	2	0.20	1.50
Rear combination light screw	3	0.31	2.25
License plate light screw	3	0.31	2.25
Rear reflex reflector nut	3	0.31	2.25
Front turn signal light mounting nut	1.3	0.13	0.95
Rear turn signal light mounting nut	1.3	0.13	0.95

Combination Meter / Fuel Meter / Horn

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Speedometer screw	2	0.20	1.50
Horn bolt	22	2.2	16.5
Horn plate bolt	14	1.4	10.5

Exterior Parts

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Frame body cover bracket bolt	10	1.0	7.5
Frame body cover bolt	5.5	0.56	4.05
Headlight screw	2	0.20	1.50
Fuel tank cover upper screw	10	1.0	7.5
Fuel tank cover upper bolt	10	1.0	7.5
Rear combination light bolt	5.5	0.56	4.05