Features & Specifications
2019 RM-Z450

RM-Z450L9

YU1: Champion Yellow No. 2

Key Features

- Exceptional Engine Performance
  - o Great Throttle Response with High Peak Power
  - o Evolved Traction Management System Helps the Bike Hook Up
  - o Suzuki Holeshot Assist Control (S-HAC) Gets You Out Front
- Advanced Cornering Performance
  - o Frame and Swingarm Balance Lightness with Strength
  - o Chassis Dimensions Blend Nimble Handling with Stability
  - o Coil-spring Fork Provides Great Performance and Easy Tuning
  - o Showa BFRC Rear Shock has new Spring and Settings for Remarkable Response
  - o Bridgestone X30 Tires bring Outstanding Grip
- Real Braking Performance
  - o Large 270mm Front Brake Rotor Increases Stopping Power and Feel
  - o Compact Rear Master Cylinder is out of the Way of Mud and Boots
- Functional Styling
  - o Aggressive Styling Blends Function with Suzuki Character
  - o Narrow Cockpit Lets Rider Move with Ease for Maximum Racing Performance

Overview

The 2019 RM-Z450 remains the champion's choice as its sleek, race-ready appearance, strong engine and a nimble chassis that continues the Suzuki tradition of extraordinarily precise handling. The RM-Z450 epitomizes Suzuki's Winning Balance philosophy with strong brakes for controlled stopping power, a wide spread of engine muscle with high peak power, and strong, light and more nimble chassis that remains the class standard for cornering performance.

Engine Features

- The 449cc liquid-cooled 4-stroke, 4-valve DOHC engine is the latest incarnation of Suzuki's proven and reliable, fuel-injected power-plant.
- The engine has high peak horsepower with strong torque at lower engine speeds for excellent throttle response through the entire rev-range.
- The cylinder head intake port shape creates a high amount of tumble flow to the incoming fuel/air to increase power output.
- The air cleaner's large and straight opening creates a more direct air path to the throttle body to increase performance.
- Suzuki's advanced fuel-injection system creates extra-smooth power delivery, high fuel efficiency, and superb reliability.
- The RM-Z450's throttle body design locates the fuel injector, fed by a high-pressure fuel pump, so it sprays fuel directly at the butterfly valve to improve atomization of the fuel/air charge.
- This throttle body design eliminates complex control linkage so the rider feels a more direct connection to the engine.
- The intake camshaft profile has more valve lift that the prior generation RM-Z450, increasing power at all engine speeds.
- The compact aluminum cylinder is finished with Suzuki Composite Electrochemical Material (SCEM) coating for durability, light weight and efficient heat transfer.
- The piston's casting includes strengthening ribs near the wrist pin bosses to match component reliability to the engine's high horsepower.
- Engine starting is simple and efficient due to a long kick starter lever, well-matched internal gear ratios, a large air cleaner and breather system, plus an automatic decompression system that works precisely and efficiently (eliminating the need for a heavy and costly electric start system).
- The high-flow exhaust system complies with AMA sound regulations.
- Tough resin engine protectors help guard the coolant pump (on the right) and the stator cover (on the left) from debris and stones.

Transmission & Drive Features

- The well-sorted 5-speed transmission enables precise gear shift operation. This precise transmission feel is the result of an accurately machined shift cam for exact gear selection. Specialized machining processes also increase the precision of the matching gears.
- The multi-plate, wet-clutch uses rack & pinion clutch release mechanism for precise feel of the engagement and disengagement points while riding.
- The light-weight chain guide is shaped to accurately route the drive chain smoothly.

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Advanced Electronics Features

- The 2019 RM-Z450 features an evolved and efficient traction management system. The Electronic Control Module (ECM) continually measures throttle opening, engine speed and gear position and then adjusts the ignition timing and fuel injector duration to fine-tune the engine output to deliver the best traction for the riding conditions.
    - The RM-Z450's traction management system is different from a street-bike traction control system as it does not measure rear tire spin. Because the needs of a motocrosser are different than a street bike, this system offers constant adjustment that maximizes traction at all times.
- The Suzuki Holeshot Assist Control (S-HAC) is a selectable launch system derived from the factory race bike to help riders' takeoff from the starting gate for an early lead. There are three modes riders can choose for the best option per their skill level and starting conditions. There are three stages to Mode A and Mode B of the S-HAC system. This helps riders at the moment of launch, when crossing the gate, and through acceleration to the full-speed. The S-HAC settings for Mode A on the RM-Z450 are specially tuned to aid the rider's throttle control during launches.
    - Mode A: For hard surfaces or slippery conditions at the starting gate. In this mode, S-HAC alters ignition timing at the moment of launch and the ride over the gate to reduce wheel slip to deliver a smooth take off. It also advances ignition timing during this sequence for stronger acceleration. After 1.2 seconds or when you reach third gear, the system shuts off and returns to normal ignition timing.
        - Benefit of Mode A: For novice riders, and/or hard and slippery traction conditions, use Mode A for a more controlled launch.
    - Mode B: When conditions at the starting gate have better traction, and a more aggressive launch is desired. S-HAC will advance the ignition timing to allow increased throttle response and stronger acceleration off the line. The ignition timing alternation is in a similar sequence as Mode A, but with increased overall timing. One of three conditions will return the ignition to normal operation (whichever happens first): After 4.5 seconds has passed since throttle opening, or when you shift to 4th gear, or when the throttle is closed.
        - Benefit of Mode B: For skilled riders, and/or good starting conditions, use Mode B for a more aggressive launch.
    - Base Mode: Standard power launch, no action required on the S-HAC switch.
- Designed for motocross-use, the lightweight, battery-less, electronic fuel injection system is key to the engine delivering efficient power.
- Easy-to-use Fuel Couplers are included to simplify EFI tuning
    - For quick fuel adjustments to suit riding conditions, two couplers are provided. One is for rich and another for lean fuel setting compared to stock setting. Riders can change fuel settings in seconds by simply connecting either coupler to the wire harness.

Chassis Features

- The RM-Z450's twin-spar frame and twin-beam swingarm design perpetuates Suzuki's reputation as the best handling motocrossers available.
- This aluminum-alloy twin-spar frame combines cast and extruded sections to achieve superior front-and-rear weight distribution while balancing strength and weight.
- The frame is 700 grams (1.32 lbs.) lighter than the prior generation RM-Z450 to improve cornering performance and shock absorption while delivering stable handling.
- The swingarm is assembled with thin, yet strong materials for improved cornering performance and stable handling.
- The short wheelbase and frame head pipe location produces quick and nimble handling characteristics.
- Hexagonal aluminum rails are used on the sub-frame for light weight, a slimmer appearance and easier air-filter service.
- The sub-frame rails route inward to slim the bodywork, but also route upwards to provide additional space for the large air cleaner and the advanced BFRC shock absorber.
- Like the trim sub-frame, all of the body work is slim to enable the RM-Z450 rider to move freely in the cockpit, especially during spirited riding.

Chassis Features (continued)

- **Inspired by the advanced suspension from the GSX-R1000R Superbike, the RM-Z450 is fitted with a SHOWA Balance Free Rear Cushion (BFRC) shock absorber.**
- **The BFRC uses a separate, external damping circuit that improves the responsiveness of damping force to deliver excellent traction and better absorption over bumps.**
- **The fully adjustable BFRC controls damping so well during minute suspension movements that ride comfort is increased at lower speeds while stability is enhanced at higher speeds.**
- **The 2019 RM-Z450's BFRC shock has a new spring rate and corresponding damping force settings to produce even better handling characteristics.**
- **The new generation, SHOWA coil spring front fork has large inner tubes and rod pipes for strength and durability.**
- **Springs in each fork leg combine with large, adjustable damping cylinders to deliver better response to the terrain and provide a strong feeling of control to the rider.**
- **Front suspension tuning and maintenance is balanced and easy; a great benefit during frequent riding. New compression damping force settings for the fork also contribute to improved handling on the 2019 RM-Z450.**
- **The strong, RENTHAL aluminum tapered handlebar has a straighter bend that prior models to help aid the rider during aggressive maneuvering.**
- **The light upper fork bracket was developed to complement the SHOWA coil spring front suspension and handlebars.**
- **For effective stopping performance and feel, a large 270mm wave-style front brake rotor and twin piston caliper is used.**
- **The trim rear brake master cylinder hugs the frame beam to reduce dirt contamination and the chance of the rider's boot touching it during riding.**
- **To support the strong engine, braking and handling performance of the RM-Z450, the bike is fitted with race-track developed Bridgestone Battlecross X30 tires.**
- **The wheels feature black-anodized rims with a cross-section design that maintains strength while reducing un-sprung weight.**
- **Suzuki beak-inspired styling has a sharper front fender and radiator shrouds blending into side covers and an upswept tail to promote the impression of speed while reducing weight and easing service.**
- **The functional styling and the motorcycle's trim chassis permits a variety of rider positions that facilitate control and comfort.**
- **The plastic fuel tank weighs half-a-pound less than the prior generation's aluminum tank. Fuel capacity is an ample 1.7 US gallons.**
- **The seat base, inner fenders and side covers were developed to reduce moisture and dirt from getting to the air cleaner. This helps prevent debris from contaminating the air filter element.**
- **The seat is well shaped and slim, with a special density foam to aid the rider's control of the motorcycle. The seat has a large, blue gripper panel that runs nose-to-tail on the cover.**
- **The Championship Yellow bodywork is enhanced with a new 2019 graphics package that features distinctive striping and Suzuki logos.**

Specifications RM-Z450L9
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Dimensions and curb mass

Item	Specification	Remark
Overall length	2175 mm (85.6 in)	—
Overall width	835 mm (32.9 in)	—
Overall height	1260 mm (49.6 in)	—
Wheelbase	1480 mm (58.3 in)	—
Ground clearance	330 mm (13.0 in)	—
Seat height	960 mm (37.8 in)	—
Curb mass	112 kg (247 lbs)	—

Engine

Item	Specification	Remark
Type	Four-stroke, liquid-cooled, DOHC	—
Number of cylinders	1	—
Bore	96.0 mm (3.780 in)	—
Stroke	62.1 mm (2.445 in)	—
Displacement	449 cm^3 (27.4 cu. in)	—
Compression ratio	12.5 : 1	—
Fuel system	Fuel injection	—
Air cleaner	Polyurethane foam element	—
Starter system	Primary kick	—
Lubrication system	Semi dry sump	—
Idle speed	2100 ± 50 r/min	—

Drive train

Item		Specification	Remark
Clutch		Wet multi-plate type	—
Transmission		5-speed constant mesh	—
Gearshift pattern		1-down, 4-up	—
Primary reduction ratio		2.625 (63/24)	—
Gear ratios	Low	1.800 (27/15)	—
	2nd	1.470 (25/17)	—
	3rd	1.235 (21/17)	—
	4th	1.050 (21/20)	—
	Top	0.909 (20/22)	—
Final reduction ratio		3.846 (50/13)	—
Drive chain		DID 520DMA2K, 114 links	—

Specifications RM-Z450L9
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Chassis

Item	Specification	Remark
Front suspension	Inverted telescopic, coil spring, oil damped	—
Rear suspension	Link type, coil spring, oil damped	—
Front suspension stroke	305 mm (12.0 in)	—
Rear wheel travel	315 mm (12.4 in)	—
Steering angle	42° (right and left)	—
Caster	27° 50’	—
Trail	120 mm (4.72 in)	—
Front brake	Disc brake	—
Rear brake	Disc brake	—
Front tire size	80/100-21 51M, tube	—
Rear tire size	110/90-19 62M, tube	—

Electrical

Item	Specification	Remark
Ignition type	Electronic ignition (CDI)	—
Spark plug	NGK DIMR8C10	—
Generator	Single-phase A.C. generator	—

Capacities

Item		Specification	Remark
Fuel tank		6.3 L (1.7 US gal, 1.4 Imp gal)	—
Engine oil	Oil change	1050 ml (1.1 US qt, 0.9 Imp qt)	—
	With filter change	1100 ml (1.2 US qt, 1.0 Imp qt)	—
Engine coolant		1100 ml (1.2 US qt, 1.0 Imp qt)	—

Engine Electrical Devices

Item	Specification	Standard	Limit
IAP sensor power supply voltage		4.5 – 5.5 V	—
IAP sensor output voltage	Idle speed at 1 atm.	1.0 – 4.0 V	—
IAT sensor power supply voltage		4.5 – 5.5 V	—
IAT sensor resistance	40 °C (104 °F)	1041 – 1231 Ω	—
ECT sensor power supply voltage		4.5 – 5.5 V	—
ECT sensor resistance	40 °C (104 °F)	1041 – 1231 Ω	—
TP sensor power supply voltage		4.5 – 5.5 V	—
TP sensor output voltage	Closed	0.75 – 0.80 V	—
	Opened	3.80 – 4.20 V	
CKP sensor peak voltage	When cranking	2.8 V or more	—
CKP sensor resistance		80 – 120 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	20 °C (68 °F)	Approx. 19400 Ω	—
ECM power supply voltage		Battery voltage	—

Engine Mechanical

Item	Specification		Standard	Limit
Throttle body I.D. No.			37K0	—
Throttle body bore size			44 mm (1.7 in)	—
Throttle cable play			2.0 – 4.0 mm (0.079 – 0.16 in)	—
Idle speed	When engine warmed		2100 ± 50 r/min	—
Compression pressure	Automatic de-comp. actuated.		300 kPa (3.1 kgf/cm^2, 43.6 psi) or more	—
Cam height	Intake		35.78 – 35.83 mm (1.409 – 1.410 in)	35.48 mm (1.397 in)
	Exhaust	For U.S.A. and Canada	34.53 – 34.58 mm (1.360 – 1.361 in)	34.23 mm (1.348 in)
		For E.U. and Japan	34.48 – 34.53 mm (1.358 – 1.359 in)	34.18 mm (1.346 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		22.012 – 22.025 mm (0.8667 – 0.8671 in)	—
	Exhaust		22.012 – 22.025 mm (0.8667 – 0.8671 in)	
Camshaft journal O.D.	Intake		21.959 – 21.980 mm (0.8646 – 0.8653 in)	—
	Exhaust		21.959 – 21.980 mm (0.8646 – 0.8653 in)	
Cam chain pin	At punch mark		14th pin	—
Valve clearance	When engine cold	Intake	0.09 – 0.16 mm (0.0036 – 0.0062 in)	—
		Exhaust	0.17 – 0.24 mm (0.0067 – 0.0094 in)	
Valve diameter	Intake		36 mm (1.4 in)	—
	Exhaust		31 mm (1.2 in)	

Item	Specification		Standard	Limit
Valve stem runout	Intake & Exhaust		—	0.05 mm (0.0019 in)
Valve head radial runout	Intake & Exhaust		—	0.03 mm (0.0011 in)
Valve stem deflection	Intake & Exhaust		—	0.25 mm (0.0098 in)
Valve stem O.D.	Intake		5.475 – 5.490 mm (0.2156 – 0.2161 in)	—
	Exhaust		5.455 – 5.470 mm (0.2148 – 0.2153 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)	—
Valve guide I.D.	Intake		5.500 – 5.512 mm (0.2166 – 0.2170 in)	—
	Exhaust		5.500 – 5.512 mm (0.2166 – 0.2170 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		—	35.8 mm (1.41 in)
	Exhaust		—	35.8 mm (1.41 in)
Valve spring pre-load	When compressed to 30.90 mm (1.217 in)	Intake	146 – 168 N (14.9 – 17.1 kgf, 32.9 – 37.7 lbf)	—
		Exhaust	146 – 168 N (14.9 – 17.1 kgf, 32.9 – 37.7 lbf)	—
Cylinder head distortion			—	0.05 mm (0.0019 in)
Cylinder distortion			—	0.05 mm (0.0019 in)
Cylinder bore			96.000 – 96.015 mm (3.7796 – 3.7801 in)	No nicks or Scratches
Piston diameter	Measure at 16 mm (0.63 in) from the skirt end.		95.960 – 95.975 mm (3.7780 – 3.7785 in)	95.880 mm (3.7748 in)
Piston to cylinder clearance			0.035 – 0.045 mm (0.0014 – 0.0017 in)	0.120 mm (0.0047 in)
Piston ring to groove clearance	1st		—	0.180 mm (0.0070 in)
Piston ring groove width	1st		0.78 – 0.80 mm (0.0307 – 0.0314 in)	—
			1.30 – 1.32 mm (0.0512 – 0.0519 in)	—
	Oil		2.01 – 2.03 mm (0.0792 – 0.0799 in)	—
Piston ring thickness	1st		0.71 – 0.76 mm (0.028 – 0.029 in)	—
			1.08 – 1.10 mm (0.0426 – 0.0433 in)	—
Piston ring free end gap	1st		Approx. 8.7 mm (0.34 in)	6.9 mm (0.28 in)
Piston ring end gap	1st		0.20 – 0.30 mm (0.0079 – 0.0118 in)	0.50 mm (0.019 in)
Piston pin bore I.D.			19.002 – 19.008 mm (0.7482 – 0.7483 in)	19.030 mm (0.7492 in)

Item	Specification	Standard	Limit
Piston pin O.D.		18.992 – 19.000 mm (0.7478 – 0.7480 in)	18.980 mm (0.7473 in)
Conrod small end I.D.		19.012 – 19.038 mm (0.7485 – 0.7495 in)	19.040 mm (0.7496 in)
Conrod deflection		—	3.0 mm (0.11 in)
Conrod big end side clearance		0.20 – 0.65 mm (0.0079 – 0.0255 in)	1.0 mm (0.039 in)
Conrod big end width		19.75 – 19.80 mm (0.7776 – 0.7795 in)	—
Crank web to web width		61.9 – 62.1 mm (2.437 – 2.444 in)	—
Crankshaft runout		—	0.080 mm (0.0031 in)

Engine Lubrication System

Item	Specification	Standard	Limit
Oil pressure	At 50 °C (122 °F), 4000 r/min	50 kPa (0.5 kgf/cm^2, 7.25 psi)	—
Necessary amount of engine oil	Oil change	1050 ml (1.1 US qt, 0.9 Imp qt)	—
	Oil and filter change	1100 ml (1.2 US qt, 1.0 Imp qt)	
	Engine overhaul	1200 ml (1.3 US qt, 1.1 Imp qt)	

Cooling System

Item	Specification	Standard	Limit
Engine coolant		Approx. 1100 ml (1.2 US qt, 1.0 Imp qt)	—
Radiator cap valve opening pressure		107.9 – 137.3 kPa (1.1 – 1.4 kgf/cm^2, 15.7 – 19.9 psi)	—

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	78 ml (2.64 US oz, 2.75 Imp oz) or more	—
Fuel pressure		336 – 350 kPa (3.43 – 3.56 kgf/cm^2, 48.8 – 50.7 psi)	—

Ignition System

Item	Specification	Standard	Limit
Spark plug	Type	NGK DIMR8C10	—
	Gap	0.9 – 1.0 mm (0.036 – 0.039 in)	
Spark performance	At 1 atm	8 mm (0.3 in) or more	—
Ignition coil primary peak voltage		170 V or more	—
Ignition coil resistance	Primary	0.17 – 0.70 Ω	—
	Secondary	9000 – 14000 Ω	

Charging System

Item	Specification		Standard	Limit
Regulated voltage	Charging output	At 5000 r/min	13.5 – 15.0 V	—
Generator coil resistance			1.2 – 1.8 Ω	—
Generator no-load voltage	When engine cold	At 5000 r/min	100 V (AC) or more	—

Front Suspension

Item	Specification		Standard	Limit
Front fork inner tube O.D.			49 mm (1.9 in)	—
Front fork spring free length			472 mm (18.6 in)	462 mm (18.2 in)
Front fork oil capacity	Each leg	Outer tube	365 ml (12.34 US oz, 12.85 Imp oz)	—
		Damper rod	253 ml (8.55 US oz, 8.90 Imp oz)	—
Front fork damping force adjuster	Rebound side		11 clicks counterclockwise from stiffest position	—
	Compression side	L8	8 clicks counterclockwise from stiffest position	
		L9 –	9 clicks counterclockwise from stiffest position	

Rear Suspension

Item	Specification		Standard		Limit
Rear shock absorber spring free length			240 mm (9.45 in)		235 mm (9.26 in)
Rear shock absorber spring set length	L8	When compressed to 5.5 mm (0.22 in) from spring free length	234.5 mm (9.232 in)		—
	L9 –	When compressed to 1.0 mm (0.039 in) from spring free length	239.0 mm (9.409 in)		
Spring set length adjustable range	At spring free length 240 mm (9.45 in)		L8	226 – 237 mm (8.90 – 9.33 in)	—
			L9 –	227.0 – 239.0 mm (8.937 – 9.409 in)	
Rear shock absorber oil capacity			497 ml (16.81 US oz, 17.49 Imp oz)		—
Rear shock absorber damping force adjuster	Rebound side	L8	3.0 turns counterclockwise from stiffest position		—
		L9 –	1.0 turn counterclockwise from stiffest position		
	Compression side	L8	1.5 turns counterclockwise from stiffest position		
		L9 –	2.0 turns counterclockwise from stiffest position		
Swingarm pivot shaft runout			—		0.3 mm (0.011 in)
Rear shock absorber gas pressure			1100 – 1300 kPa (11.3 – 13.2 kgf/cm^2, 160 – 188 psi)		—

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 & Rear		—	0.25 mm (0.010 in)
Tire size	Front		80/100-21 51M	—
	Rear		110/90-19 62M	
Tire type	Front		BRIDGESTONE / BATTLECROSS X30F	—
	Rear		BRIDGESTONE / BATTLECROSS X30R	
Tire tread depth	Recommend depth	Front	—	4.0 mm (0.15 in)
		Rear	—	4.0 mm (0.15 in)
Cold inflation tire pressure	Front		70 – 110 kPa (0.70 – 1.10 kgf/cm^2, 10.2 – 15.9 psi)	—
	Rear		70 – 110 kPa (0.70 – 1.10 kgf/cm^2, 10.2 – 15.9 psi)	
Wheel rim size	Front		21 × 1.60	—
	Rear		19 × 2.15	

Drive Chain / Drive Train / Drive Shaft

Item	Specification	Standard	Limit
Drive chain	Type	DID 520DMA2K	—
	Links	114 Links	—
Drive chain 20-pitch length		—	323.8 mm (12.74 in)
Drive chain slack	On side-stand	35 – 45 mm (1.4 – 1.7 in)	—

Brake Control System and Diagnosis

Item	Specification	Standard	Limit
Rear brake pedal height		0 – 10 mm (0 – 0.39 in)	—
Master cylinder bore / piston diameter	Front	Approx. 11.0 mm (0.433 in)	—
	Rear	Approx. 11.0 mm (0.433 in)	
Brake lever adjuster length		11 – 15 mm (0.44 – 0.59 in)	—

Front Brakes

Item	Specification	Standard	Limit
Front brake disc thickness		3.0 mm (0.12 in)	2.5 mm (0.099 in)
Front brake disc runout		—	0.30 mm (0.012 in)
Front brake caliper cylinder bore / piston diameter		Approx. 27 mm (1.1 in)	—

Rear Brakes

Item	Specification	Standard	Limit
Rear brake disc thickness		4.0 mm (0.16 in)	3.5 mm (0.14 in)
Rear brake disc runout		—	0.30 mm (0.012 in)
Rear brake caliper cylinder bore / piston diameter		Approx. 25.4 mm (1.00 in)	—

Manual Transmission

Item	Specification	Standard	Limit
Gearshift fork to groove clearance	No.1	0.10 – 0.30 mm (0.0040 – 0.0118 in)	0.50 mm (0.019 in)
	No.2	0.10 – 0.30 mm (0.0040 – 0.0118 in)	0.50 mm (0.019 in)
	No.3	0.10 – 0.30 mm (0.0040 – 0.0118 in)	0.50 mm (0.019 in)
Gearshift fork groove width	No.1	5.00 – 5.10 mm (0.197 – 0.200 in)	—
	No.2	5.00 – 5.10 mm (0.197 – 0.200 in)	
	No.3	5.00 – 5.10 mm (0.197 – 0.200 in)	
Gearshift fork thickness	No.1	4.80 – 4.90 mm (0.189 – 0.192 in)	—
	No.2	4.80 – 4.90 mm (0.189 – 0.192 in)	
	No.3	4.80 – 4.90 mm (0.189 – 0.192 in)	
Gearshift lever height		2.51 mm (0.0988 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 cable play		2 – 3 mm (0.08 – 0.11 in)	—
Drive plate thickness	No.1	3.07 – 3.23 mm (0.121 – 0.127 in)	2.77 mm (0.109 in)
	No.2	3.07 – 3.23 mm (0.121 – 0.127 in)	2.77 mm (0.109 in)
Drive plate claw width	No.1	13.85 – 13.95 mm (0.5453 – 0.5492 in)	13.35 mm (0.5256 in)
	No.2	13.85 – 13.95 mm (0.5453 – 0.5492 in)	13.35 mm (0.5256 in)
Driven plate distortion	No.1	—	0.10 mm (0.004 in)
	No.2	—	0.10 mm (0.004 in)
Clutch spring free length		51.94 mm (2.045 in)	49.4 mm (1.95 in)

Tightening Torque List

Engine Electrical Devices

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
ECM bracket bolt	6.0	0.61	4.45
IAP sensor screw	3.5	0.36	2.60
IAT sensor screw	1.3	0.13	0.95
ECT sensor	12	1.2	9.0
TP sensor screw	2.0	0.20	1.50

Engine Mechanical

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Air cleaner mounting bolt	10	1.0	7.5
Throttle cable adjuster lock-nut	4.5	0.46	3.35
Throttle cable cover bolt	3.5	0.36	2.60
Engine mounting upper bracket bolt	35	3.6	26.0
Engine mounting head bolt	55	5.6	40.5
Choke plunger assembly	2.5	0.25	1.85
Intake pipe bolt	1.0 → 10	0.10 → 1.0	0.75 → 7.5
Cylinder head cover bolt	14	1.4	10.5
Camshaft housing bolt (L45)	10	1.0	7.5
Camshaft housing bolt (L40)	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
TDC plug	14	1.4	10.5
Cylinder head bolt (L120)	25 → 51	2.5 → 5.2	18.5 → 38.0
Cylinder head bolt (L140)	25 → 51	2.5 → 5.2	18.5 → 38.0
Cylinder head bolt (L25)	10	1.0	7.5
Cylinder bolt (L30)	10	1.0	7.5
Cam chain tensioner bolt	10	1.0	7.5
Cam chain guide retainer bolt	10	1.0	7.5
Oil gallery plug	10	1.0	7.5
Engine mounting front nut	66	6.7	49.0
Swingarm pivot nut	70	7.1	52.0
Engine mounting lower nut	66	6.7	49.0
Engine mounting front bracket bolt	55	5.6	40.5
Clutch cable bracket bolt	7.0	0.71	5.20
Crankcase bolt	11	1.1	8.5
Crankshaft bearing retainer screw	13	1.3	9.5

Engine Lubrication System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Oil gallery plug	10	1.0	7.5
Engine oil check bolt	5.5	0.56	4.05
Generator cover bolt	11	1.1	8.5
Engine oil drain plug	12	1.2	9.0
Engine oil filter cap bolt	11	1.1	8.5
Engine oil strainer cap	21	2.1	15.5
Oil Pump No.1 bolt	5.5	0.56	4.05
Oil Pump idle gear shaft	23	2.3	17.0
Oil Pump No.2 bolt	11	1.1	8.5

Engine Cooling System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Water pump case bolt	11	1.1	8.5
Radiator louver bolt	5.5	0.56	4.05
Water pump impeller	8.0	0.82	5.90

Fuel System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Fuel tank front bolt	10	1.0	7.5
Fuel pump bolt	10	1.0	7.5
Fuel delivery pipe 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
Ignition coil bolt	10	1.0	7.5
Coupler bracket bolt	10	1.0	7.5

Starting System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Kick starter lever screw	10	1.0	7.5
Kick starter lever bolt	29	3.0	21.5
Kick starter guide bolt	10	1.0	7.5
Clutch cover bolt	11	1.1	8.5

Charging System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Generator stator bolt	5.5	0.56	4.05
CKP sensor bolt	5.5	0.56	4.05
Generator rotor nut	80	8.2	59.0
Generator cover bolt	11	1.1	8.5
Regulator/rectifier bolt	6.0	0.61	4.45
Engine mounting upper bracket bolt	35	3.6	26.0
Engine mounting head bolt	55	5.6	40.5

Exhaust System

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Exhaust pipe nut	23	2.3	17.0
Connector bolt	17	1.7	12.5
Muffler support front bolt	21	2.1	15.5
Muffler support rear bolt	23	2.3	17.0
Exhaust pipe cover bolt	11	1.1	8.5
Rear muffler body bolt	10	1.0	7.5

Front Suspension

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Front fork air bleeder valve	1.3	0.13	0.95
Front fork cap bolt	76	7.7	56.0
Front fork lower clamp bolt	23	2.3	17.0
Front fork upper clamp bolt	23	2.3	17.0
Front fork protector bolt	4.9	0.50	3.65
Compression damper unit	30	3.1	22.5
Lock-nut/center bolt	28	2.9	21.0
Front fork center bolt	69	7.0	51.0

Rear Suspension

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Rear shock absorber spring adjuster lock bolt	5.0	0.51	3.70
Rear shock absorber lower nut	50	5.1	37.0
Rear shock absorber upper nut	50	5.1	37.0
Seat rail upper bolt	35	3.6	26.0
Seat rail lower bolt	35	3.6	26.0
Plug	35	3.6	26.0
Cushion lever nut	80	8.2	59.0
Cushion rod rear nut	80	8.2	59.0
Cushion rod front nut	80	8.2	59.0
Swingarm rear axle plate screw	4.5	0.46	3.35
Swingarm pivot nut	70	7.1	52.0
Rear brake master cylinder mounting bolt	10	1.0	7.5

Wheels and Tires

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Front axle nut	35	3.6	26.0
Front axle pinch bolt	18	1.8	13.5
Rear axle nut	100	10.2	74.0
Spoke nipple (front wheel)	5.5	0.56	4.05
Spoke nipple (rear wheel)	6.0	0.61	4.45
Front wheel bead stopper nut	14	1.4	10.5
Rear wheel bead stopper nut	14	1.4	10.5

Drive Chain / Drive Train / Drive Shaft

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Rear axle nut	100	10.2	74.0
Drive chain roller lower nut	23	2.3	17.0
Drive chain roller upper bolt	23	2.3	17.0
Engine sprocket bolt	32	3.3	24.0
Rear sprocket nut	30	3.1	22.5
Engine sprocket cover bolt	11	1.1	8.5

Brake Control System and Diagnosis

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Front brake lever adjuster lock-nut	5.0	0.51	3.70
Rear brake master cylinder rod lock-nut	6.0	0.61	4.45
Front brake air bleeder valve	6.0	0.61	4.45
Front reservoir cap screw	1.5	0.15	1.10
Rear brake air bleeder valve	6.0	0.61	4.45
Rear reservoir cap screw	1.5	0.15	1.10
Front brake lever pivot bolt	6.0	0.61	4.45
Front brake lever pivot bolt lock-nut	6.0	0.61	4.45
Front brake master cylinder holder bolt	10	1.0	7.5
Brake hose union bolt	23	2.3	17.0
Rear brake master cylinder mounting bolt	10	1.0	7.5
Brake pedal pivot bolt	29	3.0	21.5

Front Brakes

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Front brake pad mounting pin	17	1.7	12.5
Front brake pad mounting pin plug	2.5	0.25	1.85
Front brake caliper mounting bolt	26	2.7	19.5
Brake hose union bolt	23	2.3	17.0
Front brake caliper pin A	25	2.5	18.5
Front brake caliper pin B	28	2.9	21.0
Front brake air bleeder valve	6.0	0.61	4.45
Front brake disc bolt	11	1.1	8.5

Rear Brakes

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Rear brake pad mounting pin	17	1.7	12.5
Brake hose union bolt	23	2.3	17.0
Rear brake air bleeder valve	6.0	0.61	4.45
Rear brake caliper pin A	43	4.4	32.0
Rear brake caliper pin B	12	1.2	9.0
Rear brake disc bolt	26	2.7	19.5

Manual Transmission

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Driveshaft bearing retainer screw	8.5	0.87	6.30
Countershaft bearing retainer screw	8.5	0.87	6.30
Gearshift cam bearing retainer screw	8.5	0.87	6.30
GP switch bolt	6.5	0.66	4.80
Gearshift arm stopper	23	2.3	17.0
Gearshift cam stopper bolt	10	1.0	7.5
Gearshift cam plate bolt	24	2.4	18.0
Gearshift pawl lifter screw	8.5	0.87	6.30

Clutch

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Clutch cable lock-nut	2.1	0.21	1.55
Clutch cable bracket bolt	7.0	0.71	5.20
Clutch lever pivot bolt	4.0	0.41	2.95
Clutch lever pivot nut	4.0	0.41	2.95
Clutch release camshaft retainer bolt	10	1.0	7.5
Clutch sleeve hub nut	90	9.2	66.5
Clutch spring bolt	10	1.0	7.5
Clutch outer cover bolt	11	1.1	8.5
Primary drive gear nut	110	11.2	81.5

Steering / Handlebar

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Handlebar clamp bolt	25	2.5	18.5
Throttle case screw	3.8	0.39	2.80
Clutch lever holder bolt	3.0	0.31	2.25
Steering stem head nut	100	10.2	74.0
Front fork upper clamp bolt	23	2.3	17.0
Handle lower holder nut	45	4.6	33.5
Steering stem nut	45 N·m (4.6 kgf-m, 33.5 lbf-ft) → turn counterclockwise 1/4 – 1/2		
Front brake hose guide bolt	3.0	0.31	2.25

Exterior Parts

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Seat bolt	10	1.0	7.5
Radiator cover bolt	10	1.0	7.5
Front protector bolt	12	1.2	9.0
Frame cover bolt	10	1.0	7.5
Front fender bolt	10	1.0	7.5
Front number plate bolt	5.5	0.56	4.05
Rear fender front bolt	10	1.0	7.5

Body Structure

Fastening part	Tightening torque		
	N·m	kgf-m	lbf-ft
Footrest bracket bolt	50	5.1	37.0

Special Tools and Equipment

Fuel / Oil / Fluid / Coolant Recommendation

BENJ37K10308001

Fuel

NOTICE

Do not use leaded gasoline. If it is used, the engine will be damaged.

For U.S.A. and Canada
Use unleaded gasoline with an octane rating of 90 AKI or higher.
Unleaded gasoline containing up to 10% ethanol by volume may be used.

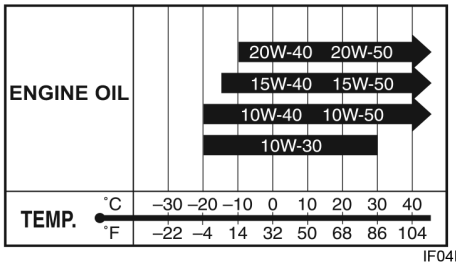
For other countries
Use unleaded gasoline with an octane rating of 95 RON or higher.
Unleaded gasoline containing up to 10% ethanol by volume may be used. (if E10 label is attached)

Engine Oil

Use engine oils which meet the following requirements.

	Engine oil
API service classification	SG, SH, SJ, SL, SM or SN
JASO T903 standard	MA
Viscosity	SAE 10W-40

If SAE 10W-40 engine oils are not available, select oils of an appropriate viscosity grade according to the following chart.



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Suzuki does not recommend the use of engine oils which have an “ENERGY CONSERVING” or “RESOURCE CONSERVING” indication in the API service symbol for any of its motorcycles / ATVs. They can affect the engine life and the clutch performance.

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For U.S.A.
Suzuki recommends the use of SUZUKI PERFORMANCE 4 MOTOR OIL or SUZUKI ECSTAR OIL SUPER DELUXE.

Brake Fluid

Specification and classification: DOT 4

⚠ WARNING

Since the brake system of this motorcycle is filled with a glycol-based brake fluid by the manufacturer, do not use or mix different types of fluid such as silicone-based and petroleum-based fluid for refilling the system, otherwise serious damage will result.
Do not use any brake fluid taken from old or used or unsealed containers.
Never reuse brake fluid left over from a previous servicing, which has been stored for a long period.

Engine Coolant

Suzuki recommends the use of SUZUKI LONG LIFE COOLANT or SUZUKI SUPER LONG LIFE COOLANT.

Coolant 99000–99032–12X (SUZUKI LONG LIFE COOLANT (GREEN))
Coolant 99000–99032–20X (SUZUKI SUPER LONG LIFE COOLANT (BLUE))

For SUZUKI LONG LIFE COOLANT

NOTICE

- **Use a high quality ethylene glycol base anti-freeze, mixed with distilled water. Do not mix an alcohol base anti-freeze and different brands of anti-freeze.**
- **Do not put in more than 60% anti-freeze or less than 50%. (Refer to Fig. 1 and 2.)**

The 50:50 mixture of distilled water and ethylene glycol anti-freeze will provide the optimum corrosion protection and excellent heat protection, and will protect the cooling system from freezing at temperatures above –31 °C (–24 °F).
If the vehicle is to be exposed to temperatures below –31 °C (–24 °F), this mixing ratio should be increased up to 55% or 60% according to the figure.

Anti-freeze Proportioning Chart

Anti-freeze density	Freezing point
50%	–31 °C (–24 °F)
55%	–40 °C (–40 °F)
60%	–55 °C (–67 °F)

Fig.1: Engine coolant density-freezing point curve

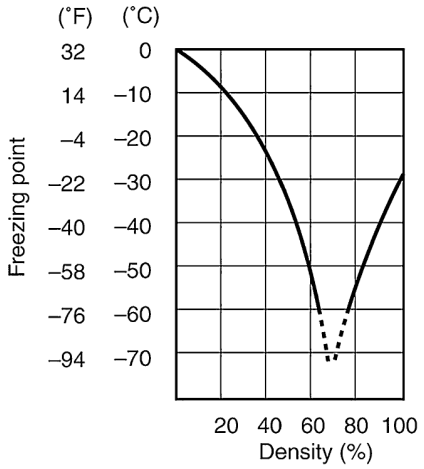

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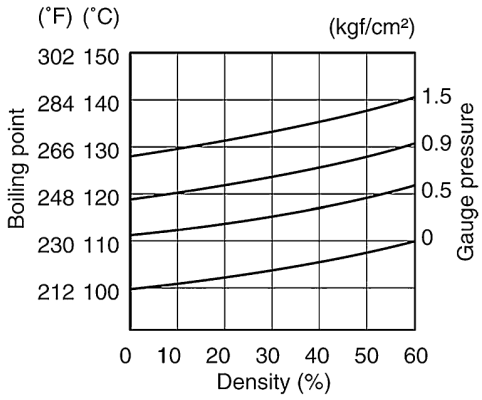
Fig.2: Engine coolant density-boiling point curve



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For SUZUKI SUPER LONG LIFE COOLANT

NOTICE

- **Ethanol or methanol base coolant or water alone should not be used in cooling system at any time as damage to cooling system could occur.**
- **Do not mix the distilled water, SUZUKI LONG LIFE COOLANT (coolant color: Green) or equivalent.**

SUZUKI SUPER LONG LIFE COOLANT will provide the optimum corrosion protection and excellent heat protection, and will protect the cooling system from freezing at temperatures above –36 °C (–33 °F).

Anti-freeze concentration table

Anti-freeze density	Freezing point
50%	–36 °C (–33 °F)

Water for mixing
Use distilled water only. Water other than distilled water can corrode and clog the aluminum radiator.
For engine coolant mixture information, refer to “Engine Coolant” (Page 0C-11).

NOTICE

Mixing of anti-freeze/engine coolant should be limited to 60%. Mixing beyond it would reduce its efficiency. If the anti-freeze/engine coolant mixing ratio is below 50%, rust inhabiting performance is greatly reduced. Be sure to mix it above 50% even though the atmospheric temperature does not go down to the freezing point.

Anti-freeze / Engine coolant
The engine coolant perform as a corrosion and rust inhibitor as well as anti-freeze. Therefore, the engine coolant should be used at all times even though the atmospheric temperature in your area does not go down to freezing point.
Suzuki recommends the use of SUZUKI COOLANT anti-freeze/engine coolant. If this is not available, use an equivalent which is compatible with an aluminum radiator.

Front Fork Oil
Use SHOWA SUSPENSION FLUID SS-19.

Fork oil (SHOWA SUSPENSION FLUID SS-19)

Rear Shock Absorber Oil
Use SHOWA SUSPENSION FLUID SS-25.

Rear suspension oil (SHOWA SUSPENSION FLUID SS-25)