

SUZUKI

Way of Life!

TALLY A LONG

2019 RM-Z250 Press Information

Professional rider in closed conditions.

SUZU

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History of RM-Z series

- Suzuki introduced the RM-Z250 in 2004. An update in 2010 introduced electronic fuel injection for the first time on a four-stroke 250cm³ Suzuki motocross bike, and Suzuki Holeshot Assist Control (S-HAC) was added in 2016.
- Examples of the other changes made in regular updates between 2010 and 2016 include revisions to the frame and engine characteristics. The model is highly regarded in the market for its handling characteristics, and is also ranked as the motocross bike that offers the best overall balance.
- The RM-Z450 was completely revised for the 2018 model, and the front and rear suspension were once again updated for the 2019 model. Following suit, a full model change for the 2019 RM-Z250 aims to deliver an even higher level of performance.
- These serve as examples of Suzuki's commitment to continue upgrading and further evolving its lineup of motocross bikes each year.



RM-Z250 2004 model





RM-Z250 2010 model

RM-Z250 2016 model

Introduction



Introduction of the new RM-Z250

- As the model enters its 12th year of production, Suzuki has completely revised the RM-Z250. The new design, which is shared with the RM-Z450, gives the RM-Z series a unified appearance, while upgrades to the engine and chassis achieve better performance than ever.
- > The end objective was to make the RM-Z250 an even more formidable competitor.



Product Concept



Product concept is; The Winning Balance

- Suzuki has further evolved the fundamental performance elements of 'RUN', 'TURN' and 'STOP' to instill the 2019 RM-Z250 with the winning balance that will make it a highly successful racer in the years to come.
- Achieving a yet higher level of balance between the race-proven performance of its engine and chassis, the 2019 RM-Z250 is ready to dominate the competition. Particular attention focused on advancing its 'TURN' capabilities.



Engineering target



<u>RUN</u>

Increased Engine Performance

- Approximately 5% increase in power output and improved throttle response
- Evolved traction management
- Updated Suzuki Holeshot Assist Control (S-HAC)
- Adopts twin injectors
- Inner material and structure of muffler changed
- Updated gear reduction ratio

<u>TURN</u> Higher Cornering Performance

- All-new frame and swingarm
- Improved coil spring front forks
- Updated rear suspension
- Renthal Fatbar® aluminum handlebar
- New DUNLOP tires

Functional Styling

- All-new firm parts for performance
- Design unified with that of the RM-Z450

<u>STOP</u> <u>Better Braking Force</u>

- Larger front brake disc and updated brake pads

Product Concept





RUN: Engine design



Increased engine performance



2019 RM-Z250 Engine

- A newly designed cylinder head combines with intake and exhaust port tuning and crankcase revisions to achieve an approximately 5% increase in output.
- Both the A-mode and B-mode selections for Suzuki Holeshot Assist Control (S-HAC) are updated.
- The traction management system first adopted in 2010 has also been updated.
- In summary, not only is power output increased, but it is achieved while at the same time improving controllability.



 \triangleright

 \triangleright

 \geq

Increased maximum power output UPDATE



FEATURES
Primary changes include a thorough revision of the intake and fuel systems.
BENEFITS
An increase in power output of approximately 5%.
Extends responsiveness at higher rpm.

Produces greater torque at low rpm.



New cylinder head and intake/exhaust port shape UPDATE

FEATURES	BENEFITS
Changes to the shape increases air flow by 7% compared to the previous model.	The increased combustion efficiency results in achieving higher peak power, while also maintaining low-to-mid range power.





Previous model

New model



Larger air filter aperture UPDATE

FEATURE	BENEFIT	
30% larger than the previous model; improves intake efficiency	 Increases power output at all engine speeds. 	







Twin injector



FEATURES	BENEFIT
The 2019 RM-Z250 replaces the single injector of the previous model with a new twin injector. The main injector is positioned in the throttle body where it would be with a typical fuel injection system. The secondary injector is positioned near the air cleaner duct.	Increases power output in the high rev range
Positioning the secondary injector farther away from the combustion chamber gives the fuel and intake air more time to mix, and also cools the mixture prior to entering the combustion chamber. This contributes to improving charging efficiency.	



Previous model



New model



Change of injector direction UPDATE

FEATURES	BENEFIT
 On the previous model, fuel is injected downward at an angle. In contrast, the new model injects fuel upward so it hits the butterfly valve directly. This system was first introduced by Suzuki. This improves atomization of the fuel 	Improves combustion efficiency and throttle response.



Previous model



New model



Change of outlet tube shape UPDATE

FEATURE	BENEFIT
 The layout of the outlet tube is changed from a curved to a straight design. This reduces intake resistance and improves charging efficiency. 	Increases power output at all engine speeds.



RUN: Engine design



1. Greater power output and improved throttle response



Higher fuel pump pressure



FEATURES

Increases fuel pressure by 17% over the previous model \geq and promotes the effective mixing of air and fuel.

BENEFIT

Improves throttle response. \geq



Throttle body UPDATE

FEATURES

- Elimination of the linkage realizes a direct feeling to throttle operation.
- A uniform fuel-air mixture realizes smoother throttle operation.

BENEFITS

- Improves throttle response. \geq
- Improves control characteristics.







Conical machining on piston UPDATE

FEATURES	BENEFITS
Conical machining to the wrist pin hole changes the distribution of load on the hole. This reduces stress on the piston crown, thereby improving durability.	Improves durability in conjunction with the approximate 5% increase in power output.



Conical machining



Muffler and exhaust pipe UPDATE

FEATURES

- The exhaust pipe is extended 99mm over the previous model (539mm -> 638mm) and the muffler entrance adopts a horn shape, (with the narrowest section toward the engine measuring φ35mm and the largest section toward the muffler measuring φ45mm).
- The structure of muffler is changed.
- > The material used for the punched metal pipe is changed.

BENEFITS

> Improves output throughout the rpm range, with low rpm range output most notably improved.





1. Greater power output and improved throttle response Gear reduction ratio UPDATE

FEATURESBENEFITThe ratio for 2nd gear is changed to a higher gear
ratio. In conjunction, the final reduction ratio is
changed to 3.846 (50/13).Improves the connection between
gears and improves controllability.

Changes marked in yellow highlight

		Previous model			New model		
Doduction ratio	Primary	63	19	3.315	63	19	3.315
Reduction fatio	Final	49	13	3.769	50	13	3.846
	1st	28	13	2.153	28	13	2.153
	2nd	30	17	1.764	29	17	1.705
Gear ratio	3rd	25	17	1.470	25	17	1.470
	4th	26	21	1.238	26	21	1.238
	5th	24	22	1.090	24	22	1.090



2. Evolved traction management system

Traction management overview diagram



The ECM monitors the throttle position, engine speed and gear position. This data is used to control ignition timing, adjust the fuel injection rate and control engine output to optimize traction to help match the riding conditions as best as possible.

Traction management for the RM-Z250 differs from the traction control systems used on road bikes in that it does not monitor rear tire slip. Because it operates based on programming coded into the ECM, it does not control traction once the tire slips. Instead, it offers constant control that maximizes traction the whole time it is functioning.

The improvements to controllability take the rider one step closer to winning races.



2. Evolved traction management system

The system has undergone four major stages of evolution since 2008.

First generation 2008 RM-Z450 2010 RM-Z250	The RM-Z450 was the first MX machine from any maker to introduce fuel injection. In conjunction, the concept of traction management was also adopted for the first time.		
Second generation 2013 RM-Z450 2016 RM-Z250 An update to the ECM realized faster processing of pertinent data, where the turn allowed for finer control over traction management.			
Third generation 2018 RM-Z450	Introduction of new components, including a new throttle body design and higher pressure fuel pump combined with updates to the intake system and S-HAC to improve overall performance. The latest iteration of the ECM boasts 1.6x faster data processing and 2.5x the memory capacity of the unit in the first generation.		
Fourth generation 2019 RM-Z250	ECM updated. Adopting the twin injector fitted with a reflector realizes both greater output and improved controllability.		



3. Update to Suzuki Holeshot Assist Control (S-HAC)

A quick launch out of the starting gate is an extremely important factor in motocross racing, one that can make the difference between winning and losing.

Suzuki Holeshot Assist Control (S-HAC) was developed to give the rider a distinct advantage at the start of each race. S-HAC optimizes ignition timing to help the rider launch quickly from the starting gate to take an early lead. The system offers a selection between two modes or can be turned off, as best suits the track conditions.

The A and B-mode settings have both been further evolved for the 2019 RM-Z250.

Mode	Character	Good for	Mechanism
A UPDATE	Restrain engine speed before race start	Hard surfaces or slippery conditions	Ignition timing is optimized to maximize traction and deliver smooth acceleration out of the gate. (Only during start)
B UPDATE	Aggressive engine response	Normal dirt road surface	Advance ignition timing (Only during start)
Off	Normal	-	Standard

The system turns off (returning ignition to normal operation) 6 seconds after launch, when the rider shifts into fourth gear, or when the throttle is closed.

RUN: Engine design



3. Update to Suzuki Holeshot Assist Control (S-HAC)



Pressing the Control Mode Switch activates S-HAC. Based on information received from the throttle position and gear position sensors, the system's ECM judges launch operation and changes the ignition mapping to optimize traction.



3. Update to Suzuki Holeshot Assist Control (S-HAC)

Changes made to A- and B-modes UPDATE

Comparison between the new and previous A- and B-modes



FEATURES

- Maintaining proper engine speed prior to the start is important, and this requires extremely fine control over throttle action.
- The new A- and B-modes add control that makes throttle operation easier and broaden the range of throttle action that still enables the rider to maintain proper engine speed.
- Differing from the operating range of A-mode, B-mode delivers control at higher rpms.

BENEFIT

The improvement in controllability this places in the hands of the rider takes the rider one step closer to victory in races.



3. Update to Suzuki Holeshot Assist Control (S-HAC) 3-Stage Control



- 1. Moment of launch
- 2. Riding over the gate
- 3. Acceleration out of the gate

Each sequence requires different engine managements for a quicker launch.

The ignition timing is therefore optimized for each of the three stages.



3. Update to Suzuki Holeshot Assist Control (S-HAC)

How to Operate S-HAC



Light stays on

Light flashes

Light flashes more quickly

- The system can be turned off by pressing the switch again.
- The system automatically turns off 3 minutes after it is initially activated.

RUN: Engine design



3. Update to Suzuki Holeshot Assist Control (S-HAC) Multi-function indicator light

- S-HAC indicator lights.
- Fuel injection self diagnosis indicator.
- Engine run time indicator.





Higher cornering performance

- New frame and swingarm designs combine with other changes to improve the fundamental performance capabilities of 'RUN', 'TURN' and 'STOP'.
- Particular effort went into improving the aspect of 'TURN' performance to get the win in any race.







Way of Life!

1. All new frame and swingarm

New frame



	FEATURES	BENEFITS
\mathbf{b}	While retaining strength and fore-aft rigidity, a change to a hollow square section (by removing the rib that previously ran down the center) reduces weight by 370g.	Improves cornering performance. Improves its ability to absorb shock. Improves handling stability.
	Change of parts structure.	
	10% increase in torsional rigidity.	



Previous model



New model



1. All new frame and swingarm

New swingarm



FEATURES	BENEFITS
In contrast to the previous model, which used a swaging process of pounding the material to form the shape of the swingarm, the 2019 RM-Z250 adopts a new hydroforming process that uses pressure to expand the pipe and form the shape.	Improves cornering performance. Improves handling stability. Reduces weight
Since it requires no welding, this new process contributes to a reduction in weight.	Increases rigidity.
In addition, the new swingarm adopts a tapered cross-section, which makes it more rigid.	
Maintaining the same level of strength while reducing the thickness of the walls, the new swingarm reduces weight by 80g.	





Way of Life!

1. All new frame and swingarm

New seat rail



FEATURE	BENEFITS
On the new RM-Z250, hexagonal pipe replaces the square pipe used for the seat rail on the	This contributes to realizing a more rigid, lighter and slimmer frame.
previous model.	The change to hexagonal pipe also makes it easier to remove the air filter.





Previous model

New model



2. Dimensions UPDATE

	FEATURES	BENEFITS
	The seat rails are moved closer together and raised to secure adequate air cleaner capacity. Even so, adjustments to seat thickness avoid raising its height.	Quick, nimble handling.
\triangleright	Change of foot rest positioning (moved 3.3mm forward, 5.2mm upward)	
\triangleright	Changed handle position (moved 7.4mm forward, 3.8mm downward)	





2. Dimensions UPDATE



FEATURES

Slimmer styling makes the new model easier to handle and enables the rider to handle the RM-Z250 more freely.

BENEFITS

High performance of handling, maneuverability and nimble feel.

Front-rear weight distribution

Model	Front	Rear
Previous model	51kg (48.1%)	55kg (51.9%)
New model	ТВА	TBA

Way of Life!

3. Engine layout



FEATURE BENEFITS Nimble handling. The engine mount position has been changed. \geq \geq Centered on the pivot point, the center of the Improved "Turn" performance. \geq crank has been moved 8.5mm upward.





3. Engine layout

UPDATE

FEATURES	BENEFITS
The method for mounting the engine has been changed. In contrast to the four engine mount brackets suspending the engine from a single location on the previous model, the new model places four brackets on both sides of the engine as though to surround and suspend it.	Increased rigidity.
Changing the material for the brackets from steel to aluminum reduces weight by 90g.	Reduced weight.





New model

Previous model



4. Improved coil spring front forks



FEATURES

- High-performance KYB coil spring front forks replace the PSF2 Pneumatic Spring Fork previously used on the RM-Z250.
- While they adopt the same left and right mechanism as previously used on the RM-Z250, with spring dampers on both forks, each of the components has been redesigned to improve its characteristics.
- Optimization of upper and lower bracket rigidity also reduces weight by 60g. The result is a significant increase in basic performance.

BENEFITS

- Redesign of each component optimizes the suspension's damping characteristics.
- > Ease of daily maintenance.



4. Improved coil spring front forks





5. Updated rear suspension UPDATE





FEATURES		BENEFITS
A change to the lever ratio suppresses short stroke movement while demonstrating positive long stroke characteristics.	\mathbf{A}	Improved traction characteristics
The adjuster allows for a wide range of damping strength characteristics.	$\boldsymbol{\lambda}$	Riders can freely adjust it to suit their preferences
The fully adjustable KYB rear suspension adopts lightweight springs with thin wire diameter inherited from MotoGP racing (Ø11.7mm -> Ø11.0mm). This reduces weight by 370g.	A	Improved damping characteristics
A change in the layout of the tank cylinder and optimization of the shape and wall thickness contribute to reducing weight.		
Rear suspension link reduced in weight by 14.9g.		

Way of Life!

Improved base valve flow path Changes to initial response and lift distance, along with optimized damping

change contributes to weight reduction.

strength characteristics

5. Updated rear suspension UPDATE

New spring material adopted Wire diameter ϕ 11.7→ ϕ 11 Use of super-strong materials enables Changes to the spring guide and weight reduction cushion rubber guide Previous model New model Lowering the position of the spring lowers the center of gravity - to Tank cylinder shaped changed Optimization of the shape and wall thickness in conjunction with the layout



6. RENTHAL[®] aluminum tapered handlebar UPDATE

FEATURE	BENEFIT
The handlebar adopted for the 2019 RM-Z250 is straighter than previous model. This marks a change from the one on the previous model, which curves back toward the rider.	The new handlebar enables riders to easily shift their weight to the front.





7. New DUNLOP MX33 tire

GEOMAX *мхээ*



Front tire size	80/100-21 51M
Rear tire size	100/90-19 57M

The 2019 RM-Z250 adopts new DUNLOP "GEOMAX MX33" tires.

- While designed with soft tracks in mind, these general-purpose tires also perform well on medium surfaces.
- This high performance tire, developed on the race track, has been further evolved to maximize performance.
- The weight of the tires is reduced, by 50g for the front and 300g for the rear tire.

The range of adaptation to the track

Surface Tire	Sand/Mud	Soft	Medium	Hard
Previous model				
New model				

Way of Life!

7. New DUNLOP MX33 tire

Front



Rear

Tie bars introduced between the middle shoulder blocks optimize strength to the blocks being torn off.

NEW





Progressive Cornering Block Technology improves traction when accelerating, grip when cornering, as well as controllability.



8. Other features

New seat NEW

FEATURES	BENEFITS
Change in shape and hardness optimized.	Weight reduced by 274g.
	Easy for riders to move and to shift weight.





Previous model

New model



8. Other features

New fuel tank



FEATURE	BENEFIT
Change of material (Aluminum \Rightarrow Resin).	Weight reduced by 312g



Previous model



New model



8. Other features

Rear master cylinder UPDATE

FEATURE	BENEFIT
The shape of the rear master cylinder adopts a design that better prevents dirt from getting inside and the rider's boot from catching on it.	Improves operation



Previous model



New model



8. Other features

Lighter front/rear wheel rims UPDATE

FEATURE	BENEFITS
The cross-sectional shape of the rims is changed.	Front rim weight is reduced by 40g, and the rear rim by 60g.

Front rim



Rear rim





8. Other features

New chain guide



FEATURE	BENEFITS
The shape is changed to ensure that the	Improves durability
chain strikes it more evenly.	Weight reduced by 30g



Previous model



New model

TURN: Styling Design



Functional styling NEW

- The design adopts blue accents on a yellow base color to create a unified look shared with the MXGP machine.
- Adopting the same cosmetic design as the RM-Z450 creates a unified appearance shared across the RM-Z series.



2019 RM-Z450

2019 RM-Z250

TURN: Styling Design



Functional styling

- NEW
- The new look also features \geq functional styling that enables the rider to easily shift his/her weight.
- Cover parts reduce weight by 150.4.g.





1. Aggressive new character line The design keyword is **"BEAK DNA"**

Distinctive 'beak' design was first introduced by SUZUKI. "BEAK DNA" means Suzuki's speed feeling and sharpness in off-road bikes. By adopting this signature detail, the RM-Z250 conveys how this off-road model faithfully inherits the brand's heritage and DNA.

NEW



Like a flash of thunder, the front fender and radiator shroud are arranged to form a straight line.

A blue decal is added to highlight the line of the front fender and radiator shroud.

The key theme is the edgy and narrow triangles that express uniqueness and toughness.



2. Color – yellow with blue accents

Taking the blue image color of its on-road models and using it to accent the yellow image color of its off-road machines creates a look of solidarity shared by Suzuki's motorcycles and TEAM SUZUKI.



ON ROAD MODEL BLUE WITH YELLOW ACCENT UNIFIED "Team SUZUKI" IMAGE COLOR



OFF ROAD MODEL YELLOW WITH BLUE ACCENT



1. Larger front brake disc and updated brake pads

	FEATURES	BENEFITS
\triangleright	Wider outer diameter (250mm → 270mm).	Greater braking performance
	The brake pad material was changed to provide more linear characteristics in response to the rider's input.	Improved brake control characteristics







Previous model

New model

Specifications



		New model	Previous model
Overall Length		N/A	2170mm (85.4 in)
Overall width		N/A	830mm (32.7 in)
Overall height		N/A	1270mm (50.0 in)
Wheelbase		N/A	1475mm (58.1 in)
Ground clearance		N/A	345mm (13.6 in)
Seat height		N/A	955 mm (37.6 in)
Curb mass		N/A	106kg (234lbs)
Engine type		4-stroke, liquid cooled, DOHC	4-stroke, liquid cooled, DOHC
Bore x stroke		77.0 mm x 53.6 mm (3.0 in x 2.1 in)	77.0 mm x 53.6 mm (3.0 in x 2.1 in)
Engine displac	ement	249 cm ³	249 cm ³
Compression ratio		13.75 : 1	13.75 : 1
Fuel system		Fuel injection	Fuel injection
Starter system	l	Primary kick	Primary kick
Lubrication system		Semi-dry sump	Semi-dry sump
Transmission		5-speed constant mesh	5-speed constant mesh
Primary reduction ratio		3.315 (63 / 19)	3.315 (63 / 19)
Final reduction ratio		3.846 (50 / 13)	3.769 (49 / 13)
Suspension	Front	Inverted telescopic, coil spring, oil damped	Inverted telescopic, air spring, oil damped
	Rear	Link type, coil spring, oil damped	Link type, coil spring, oil damped
Rake / trail		N/A	29.20° /130mm (5.1in)
Brakes	Front	Disc	Disc
	Rear	Disc	Disc
Tires	Front	80/100-21 51M, tube type	80/100-21 51M, tube type
	Rear	100/90-19 57M, tube type	100/90-19 57M, tube type
Ignition system		Electronic Ignition (CDI)	Electronic Ignition (CDI)
Fuel tank capacity		6.3 L (1.6/1.4 US/Imp gal)	6.5 L (1.7/1.4 US/Imp gal)
Oil capacity (Overhaul)		1.1 L (0.26/0.24 US/Imp gal)	1.0 L (0.24/0.22 US/Imp gal)