

2018 RM-Z450

Press Information



Professional rider in closed conditions.

RM-Z450

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History of RM-Z450

Suzuki introduced the RM-Z450 in 2005. An update in 2008 introduced electronic fuel injection for the first time on any production motocross bike, and Suzuki Holeshoot Assist Control (S-HAC) was added in 2015.

Examples of the other changes made in regular updates between 2008 and 2015 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.

A full model change for the 2018 RM-Z450 aims to deliver an even higher level of performance.



2005 model



2008 model



2015 model

RM-Z450 racing achievements

FIM Motocross World Championship

Year	Country	Championship	Rider
2007	World	MX1 World Motocross	Steve Ramon

AMA Pro Motocross/Supercross Championship

Year	Country	Championship	Rider
2005	USA	AMA Motocross Championship	Ricky Carmichael
2006	USA	AMA Supercross Championship	Ricky Carmichael
2006	USA	AMA Motocross Championship	Ricky Carmichael
2009	USA	AMA Motocross Championship	Chad Reed
2010	USA	AMA Supercross Championship	Ryan Dungey
2010	USA	AMA Motocross Championship	Ryan Dungey
2016	USA	AMA Motocross Championship	Ken Roczen

National Championship

Year	Country	Championship	Rider
2005	Australia	Australian Motocross Nationals	Daryl Hurley
2006	Belgium	BELGIAN MX CHAMPIONSHIP INT OPEN	Steve Ramon
2008	New Zealand	New Zealand Motocross Championship	Daryl Hurley
2008	New Zealand	New Zealand Supercross Championship	Daryl Hurley
2008	Australia	Australian Supercross Championship	Chad Reed
2008	Belgium	BELGIAN MX CHAMPIONSHIP INT OPEN	Steve Ramon
2009	Germany	ADAC MX MASTERS Championship	Ken Roczen
2010	Japan	All Japan Motocross Championship	Yoshitaka Atsuta
2010	Germany	ADAC MX MASTERS Championship	Ken Roczen
2010	Belgium	BELGIAN MX CHAMPIONSHIP INT OPEN	Steve Ramon
2012	Germany	ADAC MX MASTERS Championship	Marcus Schiffer
2013	Australia	Australian Motocross Nationals	Matt Moss
2013	Australia	Australian Supercross Championship	Matt Moss
2013	New Zealand	New Zealand Motocross Championship	Cody Cooper
2014	Australia	Australian Motocross Nationals	Matt Moss
2014	Australia	Australian Supercross Championship	Matt Moss
2015	Germany	ADAC MX MASTERS Championship	Glenn Coldenhoff
2015	Japan	All Japan Motocross Championship	Yohei Kojima
2016	Belgium	BELGIAN MX CHAMPIONSHIP INT OPEN	Kevin Strijbos

1 World title
7 AMA titles
19 National titles

Motocross World Championship



AMA Motocross Championship



AMA Supercross Championship



These outstanding results stand as a testament to the winning performance and competitive advantage the RM-Z450 offers.

Introduction of the new RM-Z450

As the model enters its 12th year of production, Suzuki has completely revised the RM-Z450 to give its design a fresh new look and to make both the engine and chassis perform better than ever. The end objective was to make it an even more formidable competitor.



Product concept is; ***The Winning Balance***

Suzuki has further evolved the fundamental performance elements of 'RUN', 'TURN' and 'STOP' to instill the 2018 RM-Z450 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 2018 RM-Z450 is ready to dominate the competition. Particular attention focused on advancing its 'TURN' capabilities.



RUN

Increased Engine Performance

- Greater power output and improved throttle response
- Evolved traction management
- Updated Suzuki Holeshoot Assist Control (S-HAC)

TURN

Higher Cornering Performance

- All-new frame and swingarm
- Improved coil spring front forks
- New SHOWA Balance Free Rear Cushion (BFRC)
- Renthal Fatbar® aluminum handlebar
- New tires

Functional Styling

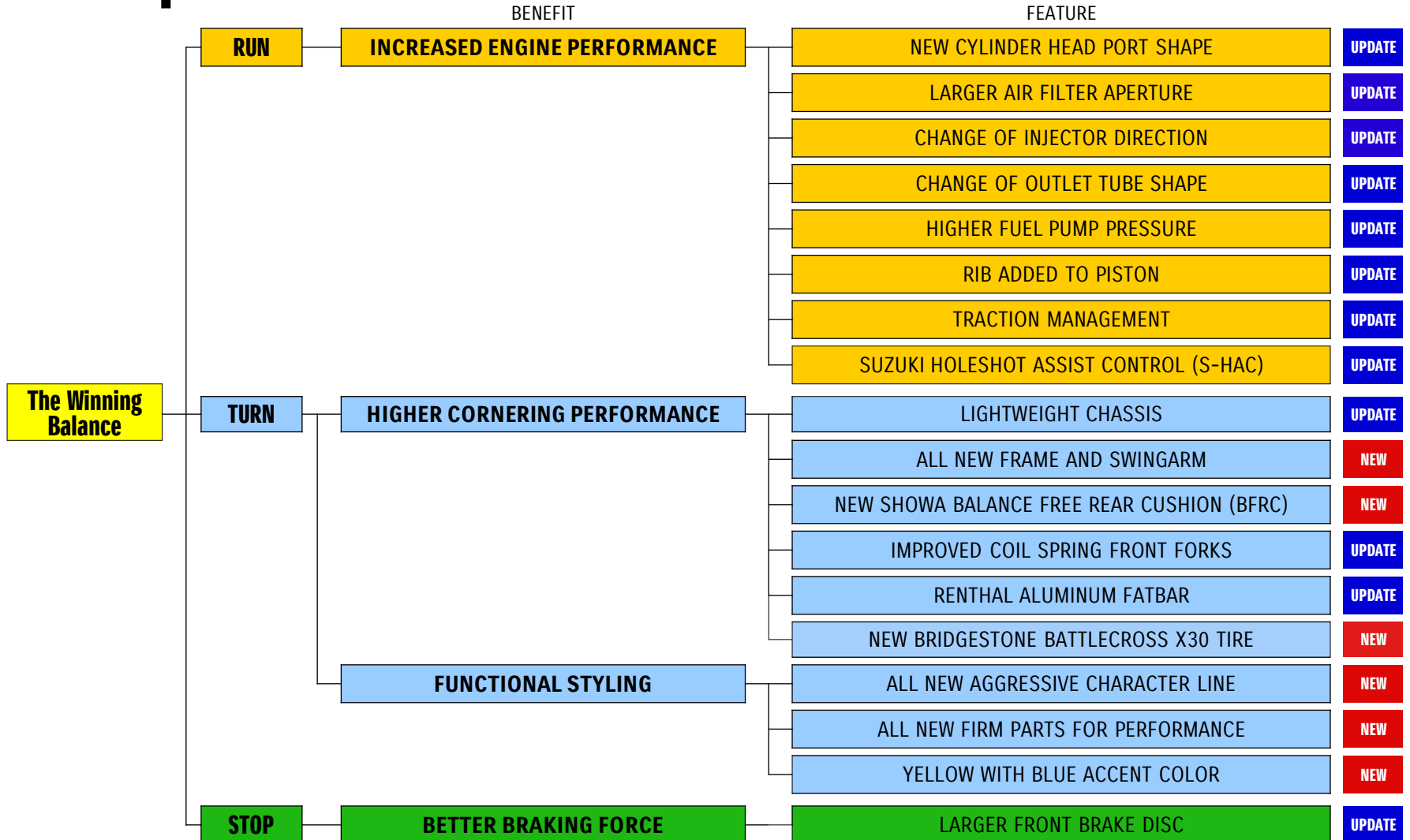
- All-new firm parts for performance

STOP

Better Braking Force

- Larger front brake disc

Concept chart



Increased engine performance



2018 RM-Z450 Engine

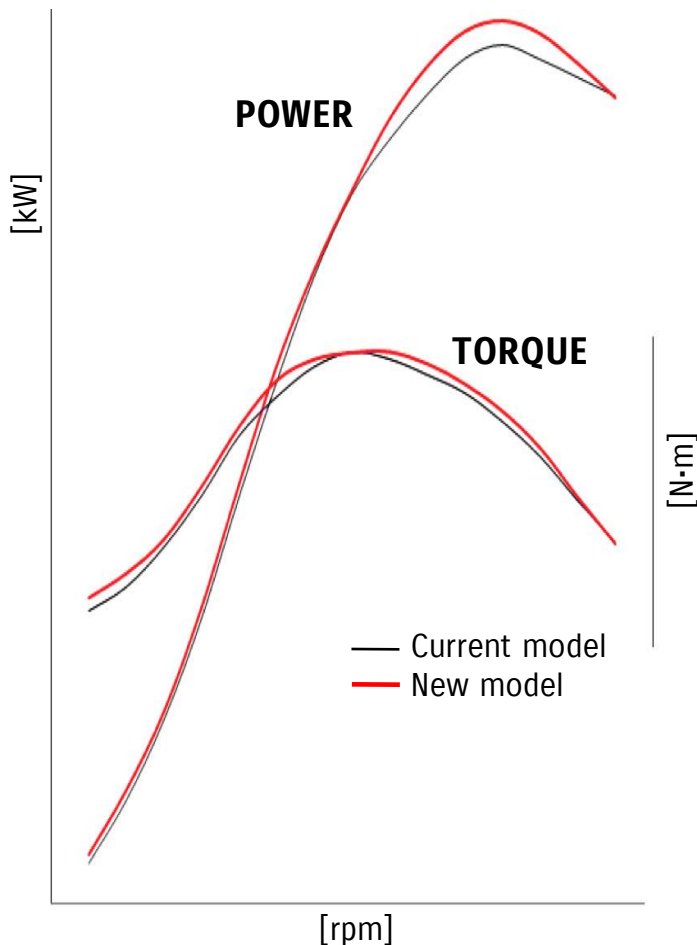
Updates to the intake system help account for greater output at high revs and more powerful torque at low revs. Faster, more controllable throttle response also helps make the 2018 RM-Z450 more competitive than ever.

Suzuki Holeshoot Assist Control (S-HAC) features an update to the A-mode selection.

In addition, the traction management system first introduced in 2008 has been further evolved.

1. Greater power output and improved throttle response

Increased maximum power output **UPDATE**



Primary changes include a thorough revision of the intake and fuel systems.

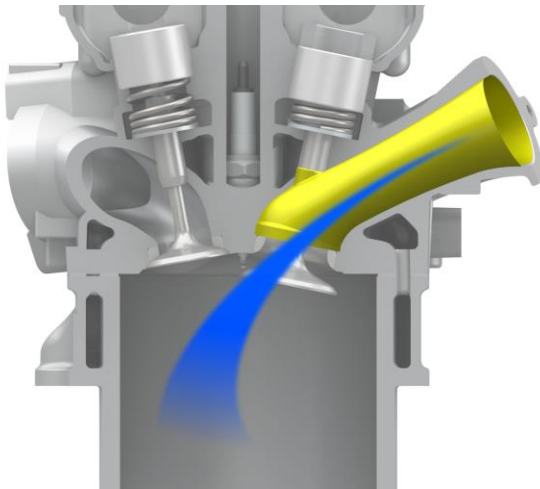
- Increases power output
- Extends responsiveness at higher rpm
- Produces greater torque at low rpm

1. Greater power output and improved throttle response

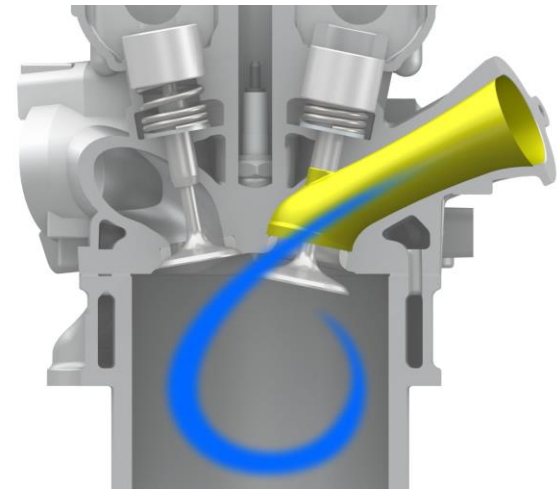
New cylinder head port shape **UPDATE**

The shape is changed and the strength of the tumble flow increased. Improvements to reduce surface roughness within the ports make them smoother, and this contributes to greater engine output.

- Tumble flow is increased by 25% throughout the engine's range when compared to the current model.
- Achieves higher peak power, while also maintaining low-to-mid range power.



Previous model



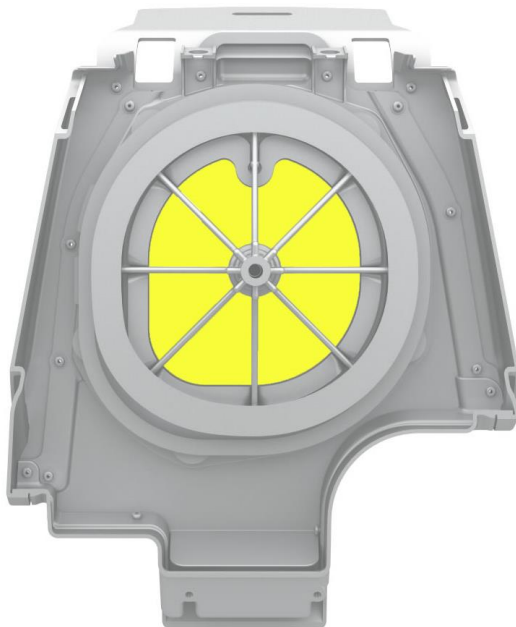
New model

1. Greater power output and improved throttle response

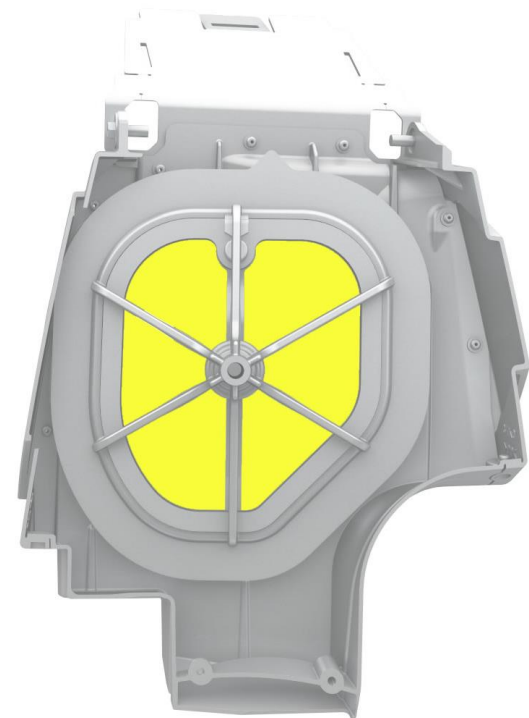
Larger air filter aperture **UPDATE**

30% larger than the current model; improves intake efficiency.

➤Increases power output at all engine speeds.



Previous model



New model

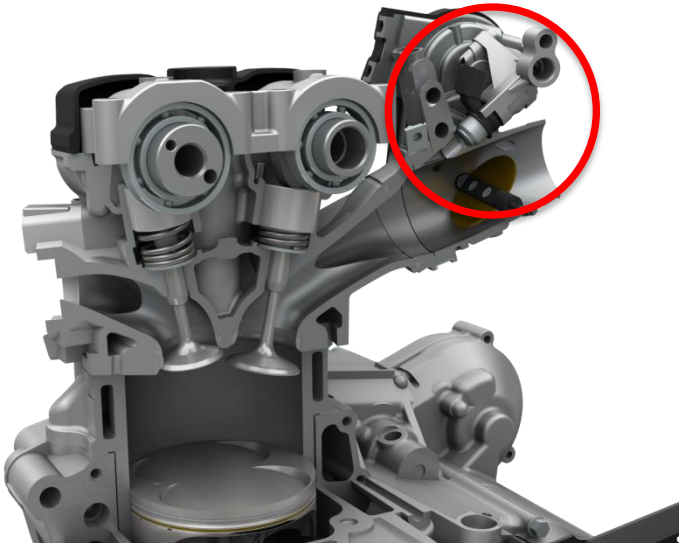
1. Greater power output and improved throttle response

Change of injector direction **UPDATE**

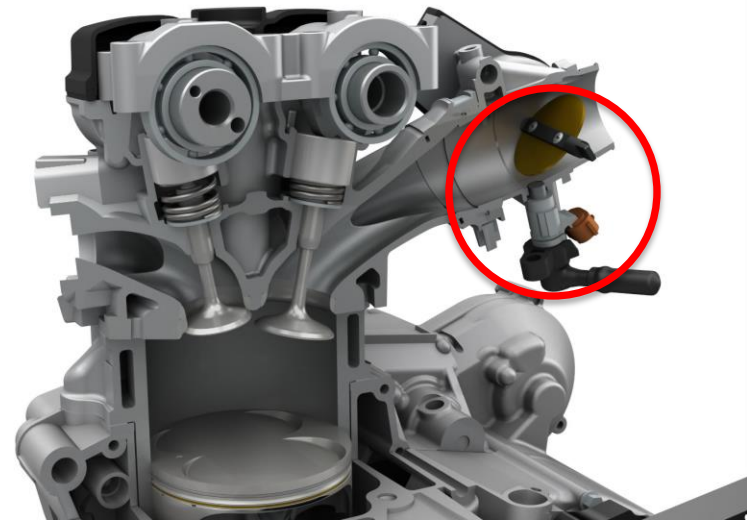
On the current model, fuel is injected downward on an angle. In contrast, the new model injects fuel upward so it hits the butterfly valve directly. This system was first introduced by Suzuki.

This improves atomization of the fuel.

➤ Improves combustion efficiency and throttle response



Previous model



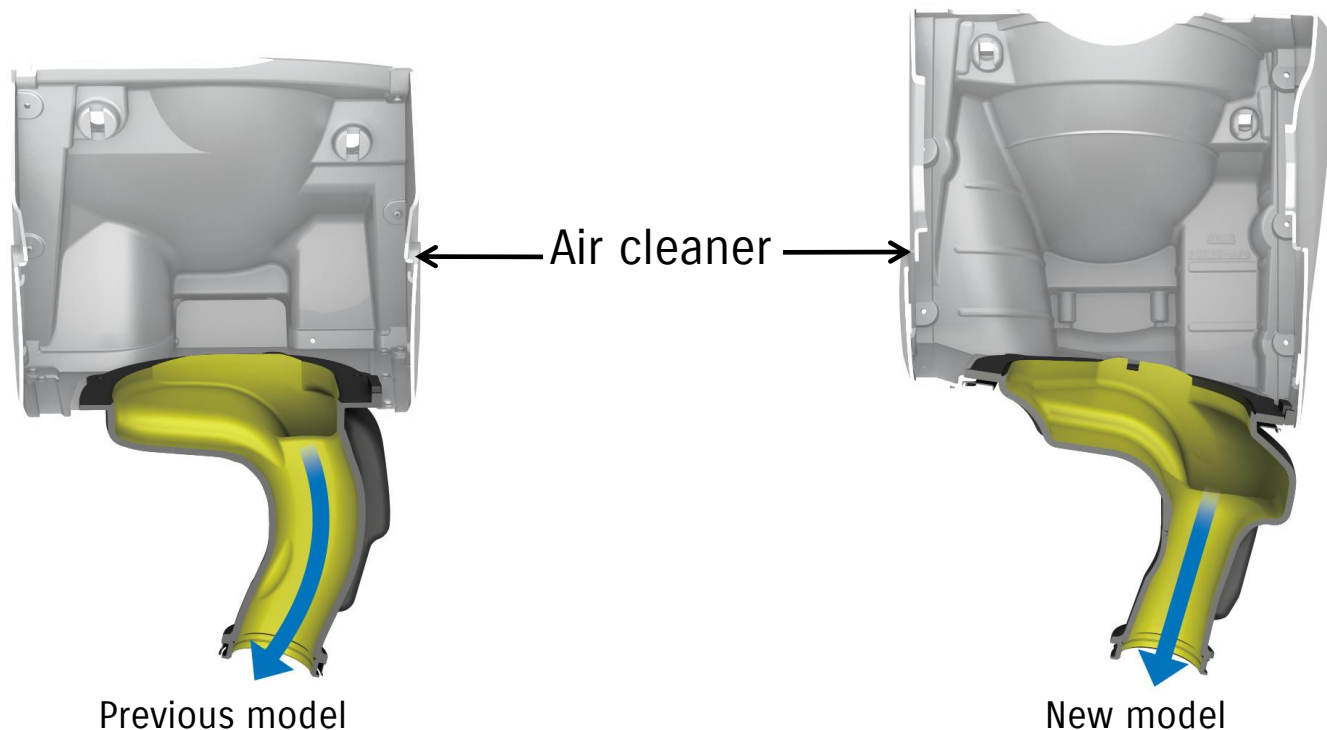
New model

1. Greater power output and improved throttle response

Change of outlet tube shape **UPDATE**

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



1. Greater power output and improved throttle response



Higher fuel pump pressure **UPDATE**

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

- Improves throttle response



Throttle body **UPDATE**

Elimination of the linkage realizes a direct feeling to throttle operation.

A uniform fuel-air mixture realizes smoother throttle operation.

- Improves throttle response
- Improves control characteristics

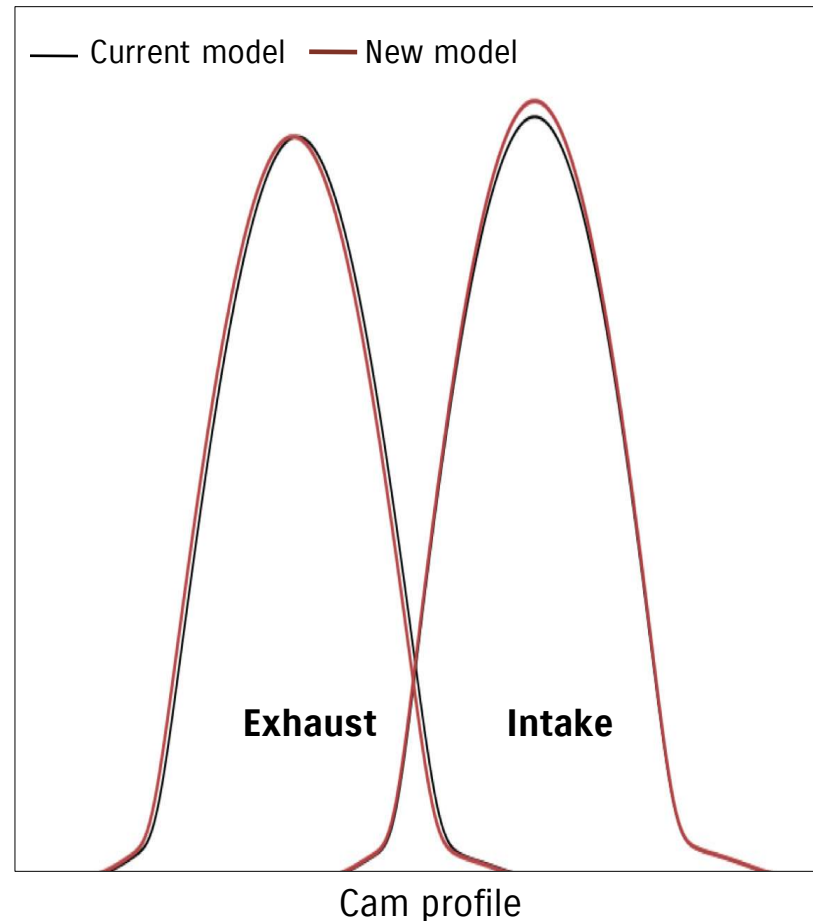
1. Greater power output and improved throttle response

Intake camshaft

UPDATE

The intake cam profile is changed and its amount of lift increased. This improves intake efficiency.

➤Increases power output at all engine speeds



1. Greater power output and improved throttle response



Current model



New model

Rib added to piston **UPDATE**

The rib is added to endure higher peak power.

- Greater strength to better support high engine output

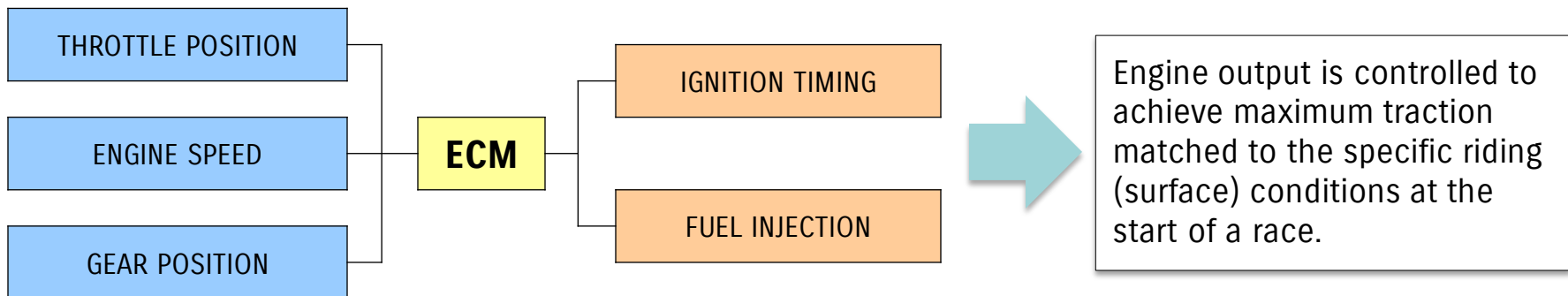
Muffler **UPDATE**

- American and Canadian specifications comply with AMA sound control regulations.
- Japanese and European specifications comply with FIM sound control regulations.
- * The ECM, silencer and exhaust cam for the American specifications differ from that of the European specifications.



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 best match the riding conditions.

Traction management for the RM-Z450 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.

2. Evolved traction management system

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



**2008
First
generation**

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.



**2013
Second
generation**

An update to the ECM realized faster processing of pertinent data, which in turn allowed for finer control over traction management.



**2018
Third
generation**

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.

3. Update to Suzuki Holeshoot 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.

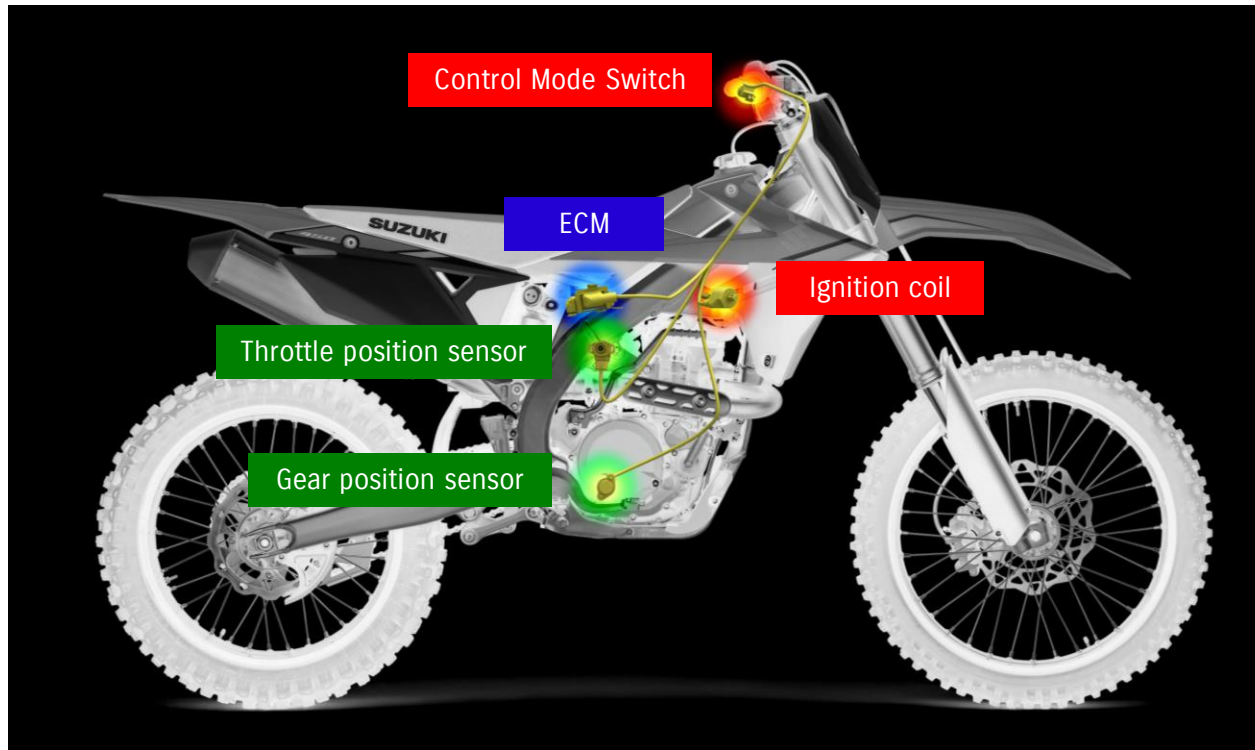
Suzuki Holeshoot Assist Control (S-HAC) was developed to give the rider a distinct advantage at the start of each race. S-HAC optimizes ignition timing to help the rider launch quickly from the starting gate to take an early lead. The system offers a selection between two modes or can be turned off,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

The A-mode setting has been further evolved for the 2018 RM-Z450.

Mode	Character	Good for	Mechanism
A UPDATE	Restrain engine speed before race start	Hard surfaces or slippery conditions	Ignition timing is retarded to deliver smooth acceleration as the bike launches from the gate. (Only during start)
B	Aggressive engine response	Normal dirt (with better traction)	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 fifth gear, or when the throttle is closed.

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

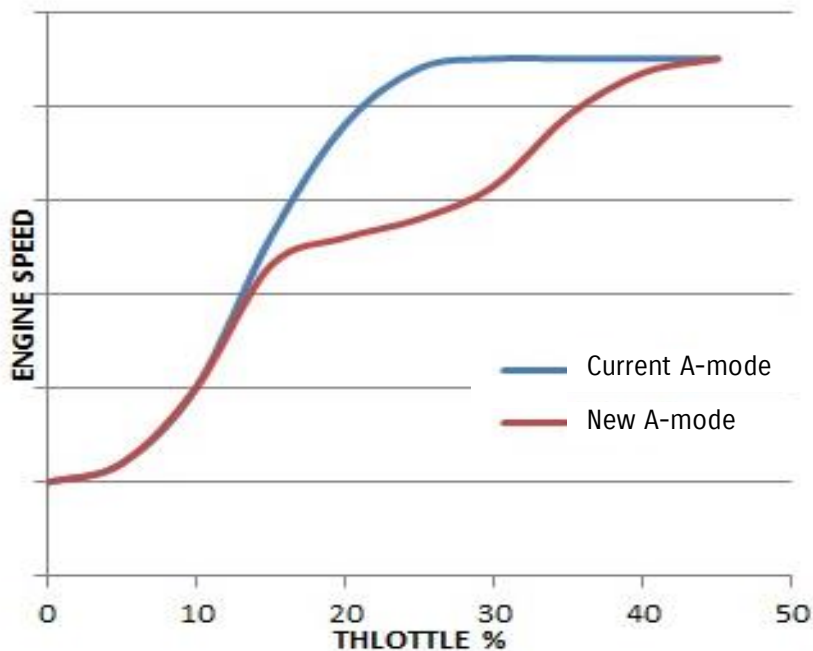


Pressing the Control Mode Switch activates S-HAC. Based on information received from the throttle position and gear position sensors, the system's ECM judges launch operation and changes the ignition mapping to optimize traction.

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

The change made to A-Mode **UPDATE**

Comparison between new A-mode and current A-mode



Maintaining proper engine speed prior to the start is important, and this requires extremely fine control over throttle action.

The update to A-mode adds control that makes throttle operation easier and broadens the range of throttle action that still enables the rider to maintain the proper engine speed.

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

3-Stage Control



3. Acceleration out of the gate

2. Riding over the gate

1. Moment of launch

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

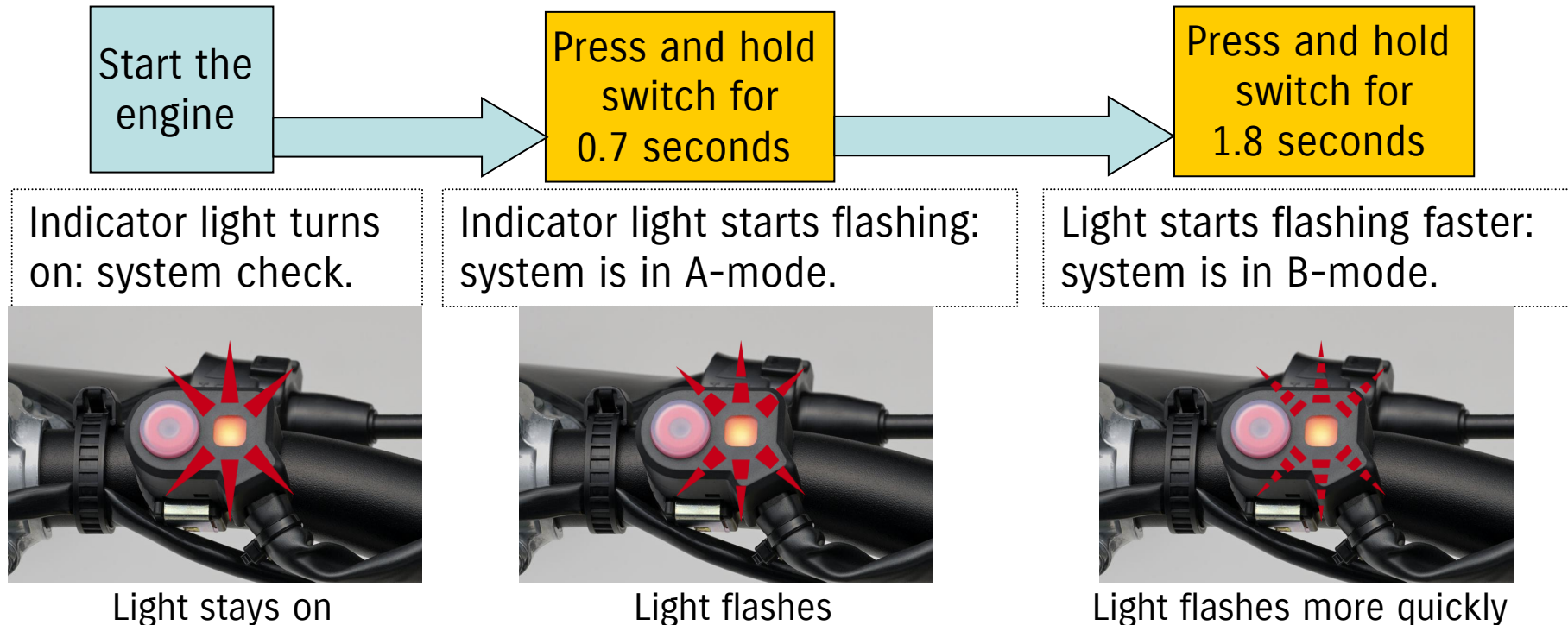


Each sequence requires different engine managements for a quicker launch.

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

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

How to Operate S-HAC



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

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

Multi-function indicator light

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



Higher cornering performance **UPDATE**

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.

Front-rear weight distribution

Model	Front	Rear
New model	54kg (48.2%)	58kg (51.8%)



1. All new frame and swingarm

New frame

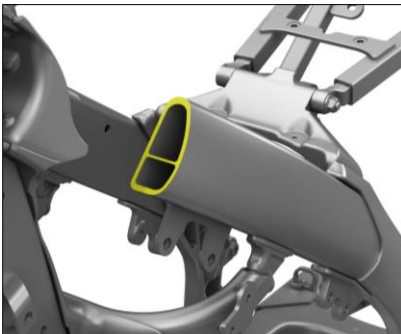
NEW

Increases fore-aft rigidity and optimizes the rigidity.

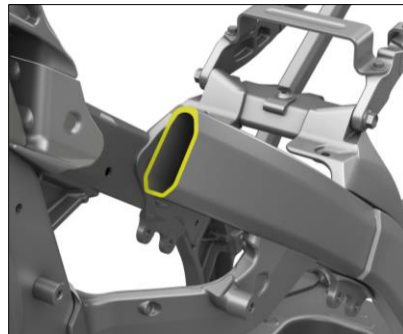
Reduces weight by 700g.

Change of parts structure.

- Improves cornering performance
- Improves its ability to absorb shock
- Improves handling stability



Previous model



New model

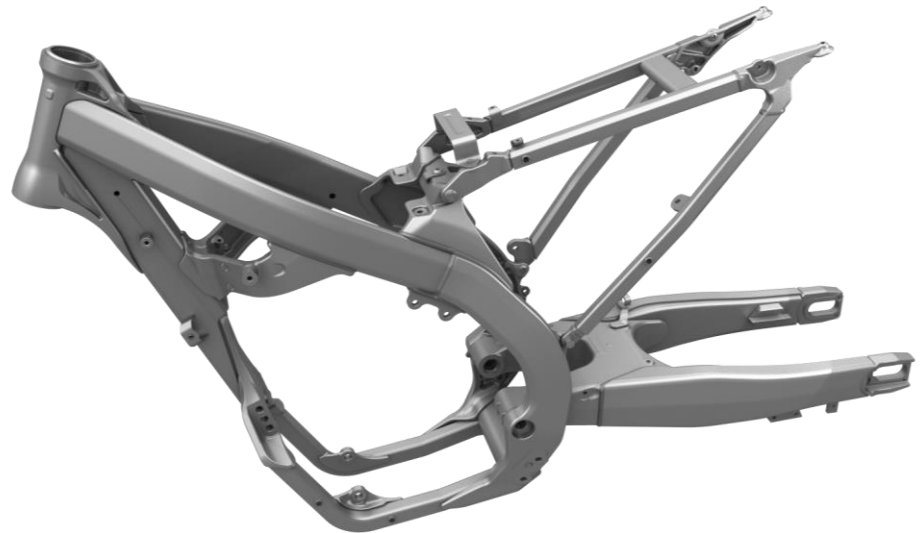
New swingarm

NEW

Optimizes rigidity.

Adoption of thinner material reduces weight by 100g.

- Improves cornering performance
- Improves handling stability

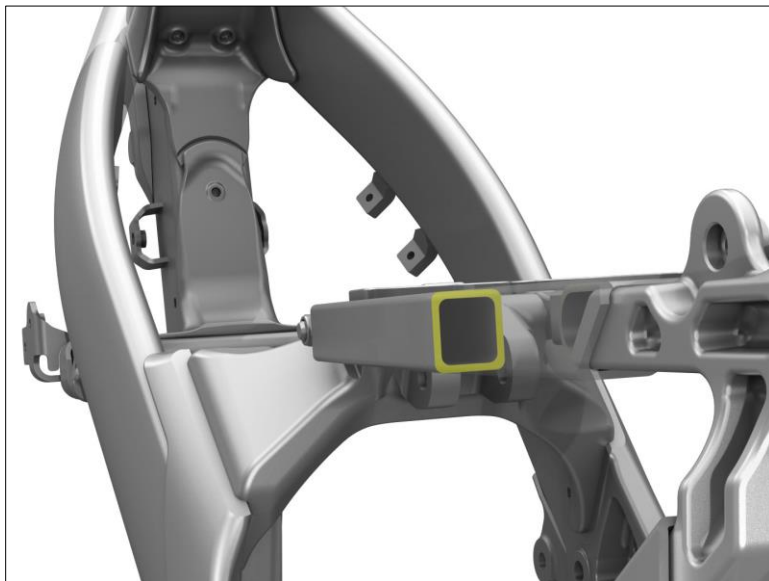


1. All new frame and swingarm

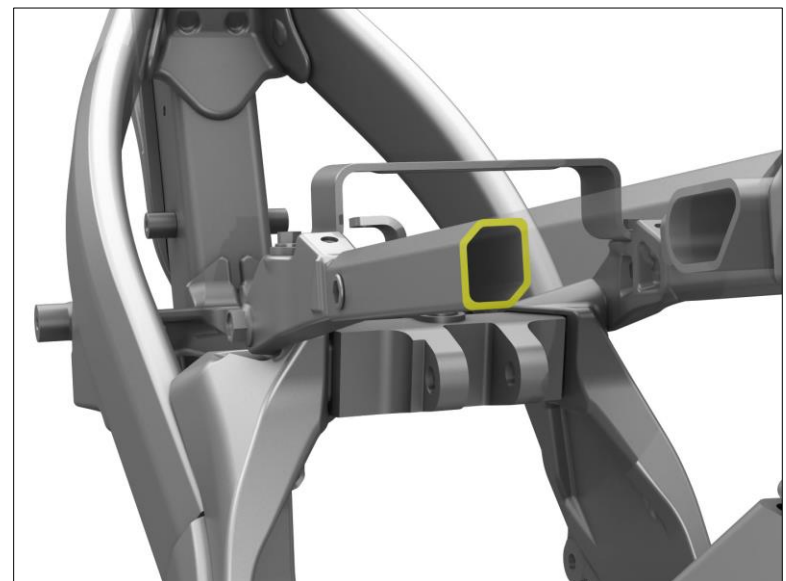
New seat rail **NEW**

On the new RM-Z450, hexagonal pipe replaces the square pipe used for the seat rail on the current model. This contributes to realizing a more rigid and slimmer frame.

The change to hexagonal pipe also makes it easier to remove the air filter.



Previous model



New model

2. Dimensions **UPDATE**

The seat rails are moved closer together and raised to secure adequate air cleaner capacity and to accommodate the new BFRC rear shock. Even so, adjustments to seat thickness avoid raising its height.

Shorter wheelbase
(1495mm $\Rightarrow$ 1480mm)

Change of head pipe point
(10mm backward (get 10mm closer to the rider))

Changed handle position
(7mm backward (get 7mm closer to the rider))

➤ Quick, nimble handling



2. Dimensions **UPDATE**

Slimmer styling makes the new model easier to handle and enables the rider to handle the RM-Z450 more freely.



Previous model

New model

3. New SHOWA Balance Free Rear Cushion (BFRC) **NEW**



The 2018 RM-Z450 becomes the first production motocross bike to adopt SHOWA's new Balance Free Rear Cushion (BFRC).

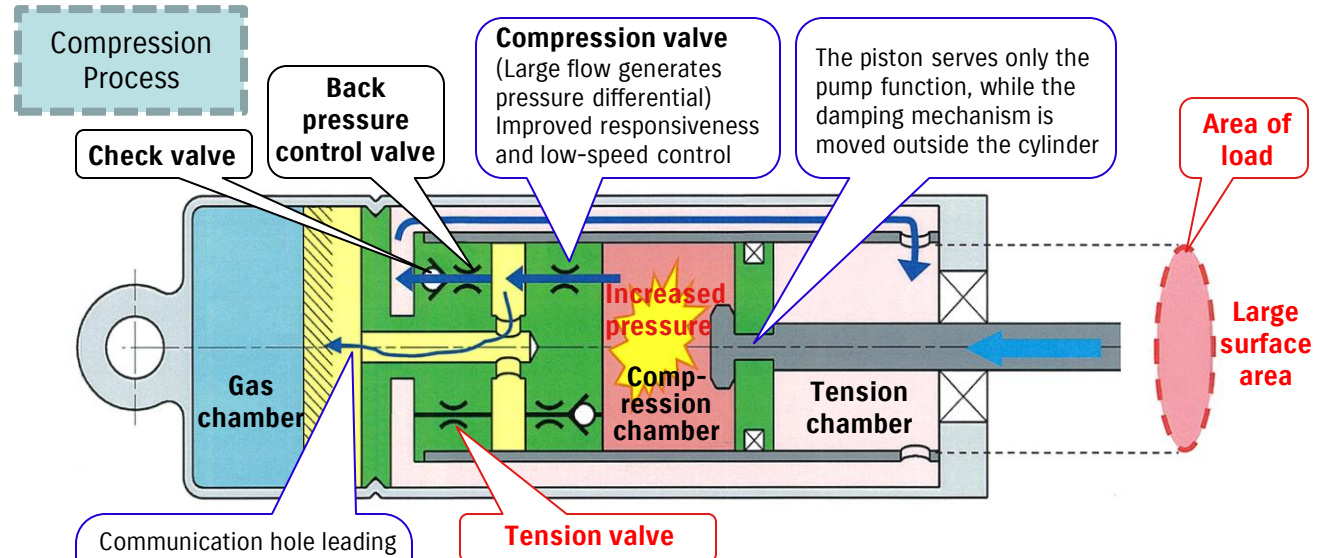
The BFRC adopts an external damping circuit, because it does not cause variations in the balance of pressure. By moving the damping mechanism to the outside of the cylinder for both the compression and tension strokes, BFRC achieves smooth, optimized oil flow, which in turn realizes improved responsiveness of damping force to deliver excellent traction and better absorption over bumps. Fine control over initial response also helps it achieve a high level of balance between the two seemingly conflicting characteristics of ride comfort at lower speeds and stability at higher speeds.

BFRC - major features

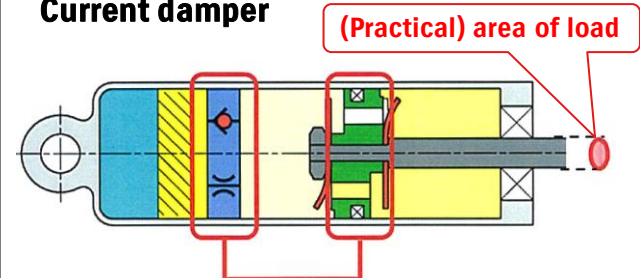
- Stable pressure balance
 - Cavitation generation is minimized, improving damping responsiveness
 - Easy to make settings
 - Operates under low pressure, which reduces friction
- Compression side area of load significantly increased
 - Stable damping force in response to minute stroke input
 - Improved damping responsiveness

3. New SHOWA Balance Free Rear Cushion (BFRC) **NEW**

External pressure control balances pressure in the cylinder



Current damper



Under the influence of two different resistance, the pressure differential is caused.

4. Improved coil spring front forks **UPDATE**



SHOWA improved coil spring front forks replace the SFF-Air forks previously used on the RM-Z450.

While they adopt the same left and right mechanism as previously used on the RM-Z450, with spring dampers on on both forks, each of the components has been redesigned to be larger. The result is a significant increase in basic performance.

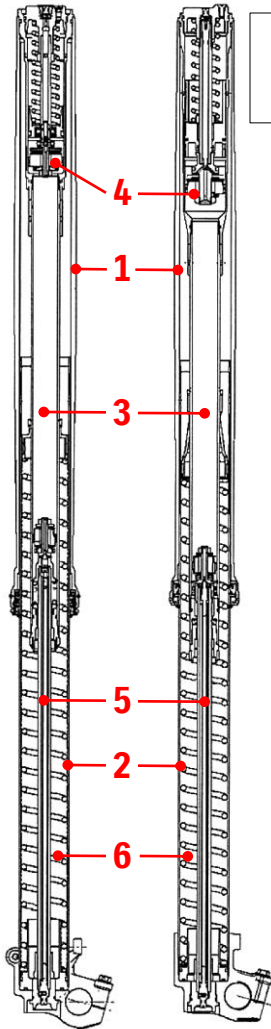
- Greater rigidity by larger inner tubes and rod pipes
- More responsive by larger cylinder
- Better feeling of control by larger cylinder
- Ease of daily maintenance

4. Improved coil spring front forks

UPDATE

Before

New model



Specification and Benefit

		Before	L8 model	Benefit
1	Outer tube	Ø58.5mm	Ø59.3mm	Increased size increases rigidity
2	Slide pipe	Ø47mm	Ø49mm	
3	Cylinder	Ø23mm	Ø25mm	Increased piston area of load improves responsiveness
4	Sub tank	Ø34mm	Ø39mm	Increased area of load improves controllability (area of load: +30%)
5	Rod pipe	Ø12.5mm	Ø14mm	
6	Spring	K=4.71N/mm	K=5.0N/mm	Improved operation of each component enables a higher spring rate without making the ride stiffer

5. RENTHAL aluminum tapered handlebar

UPDATE

The handlebar adopted for the 2018 RM-Z450 is straighter than current model. This marks a change from the one on the current model, which curves back toward the rider.

- The new handlebar enables riders to easily shift their weight to the front.



Previous model



New model

6. New BRIDGESTONE X30 tire

NEW

BATTLECROSS X30

The 2018 RM-Z450 adopts new BRIDGESTONE “BATTLECROSS X30” tires.

This high performance tire, developed on the race track, has been further evolved to maximize performance.



Front

Rear

Front tire size	80/100-21 51M
Rear tire size	110/90-19 62M

7. Other features

New seat **NEW**

Change in shape and hardness optimized.

- Weight reduction by 246g.
- Easy for riders to move and to shift weight.



Previous model



New model

7. Other features

New fuel tank **NEW**

Change of material (Aluminum $\Rightarrow$ Resin).

- Weight reduction by 275g
- Increased fuel tank capacity (6.2L $\Rightarrow$ 6.3L)



Previous model



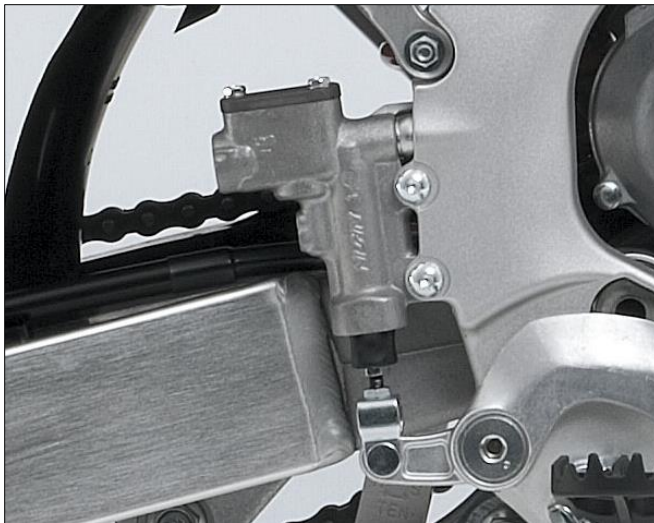
New model

7. Other features

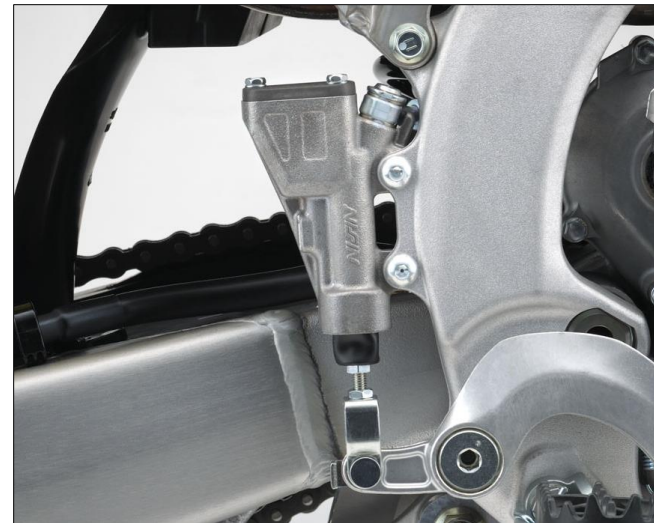
Rear master cylinder **UPDATE**

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

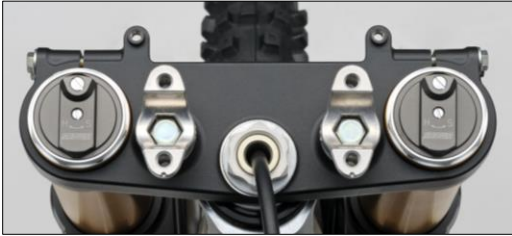


Previous model



New model

7. Other features



Lighter front fork upper bracket

UPDATE

The shape is changed.

➤weight reduction by 34g



Front rim



Rear rim

Lighter front/rear wheel rims

UPDATE

The cross-sectional shape of the rims is changed.

➤Achieves a total weight reduction by 70g
(front and rear combined)



Engine protector

It protects the water pump on the right side and magneto cover on the left side from flying stones.

➤Helps prevent troubles that could force a rider to retire during a race

7. Other features

New chain guide

NEW

The shape is changed to ensure that the chain strikes it more evenly.

- Improves durability
- weight reduction by 30g



Previous model



New model

7. Other features

Air cleaner mud guard **UPDATE**

A protective barrier positioned near the intake for the air cleaner helps prevent mud and dirt from getting inside.

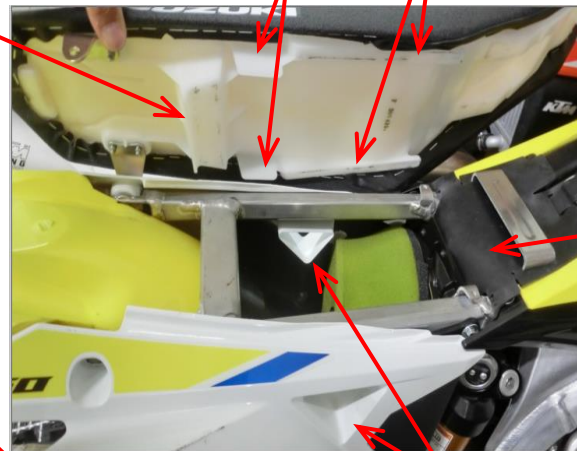
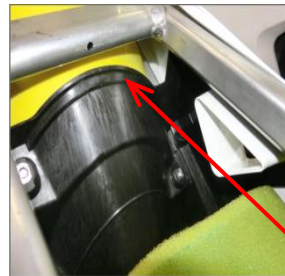
It was inspired by feedback from MXGP machines.

➤Improves engine durability

5. Fits snugly against the seat rail to prevent mud from entering from the rear

3. Bulkhead helps prevent mud from entering from the sides

2. Fits snugly against the seat rail to seal the sides



1. Mud guard prevents mud from entering from the front

7. The fender and frame cover fit together snugly to prevent dust and dirt from entering

4. Vertical bulkhead prevents dust and dirt from entering inside the air cleaner

6. Intake ducts prevent objects from striking the filter element directly

Functional styling **NEW**

The design adopts blue accents on a yellow base color to create a unified look shared with the MXGP machine.

The design features an aggressive-looking character line that runs from the front fender to the shroud.



2018 RM-Z450



MXGP Machine

Functional styling **NEW**

The new look also features functional styling that enables the rider to easily shift his/her weight.

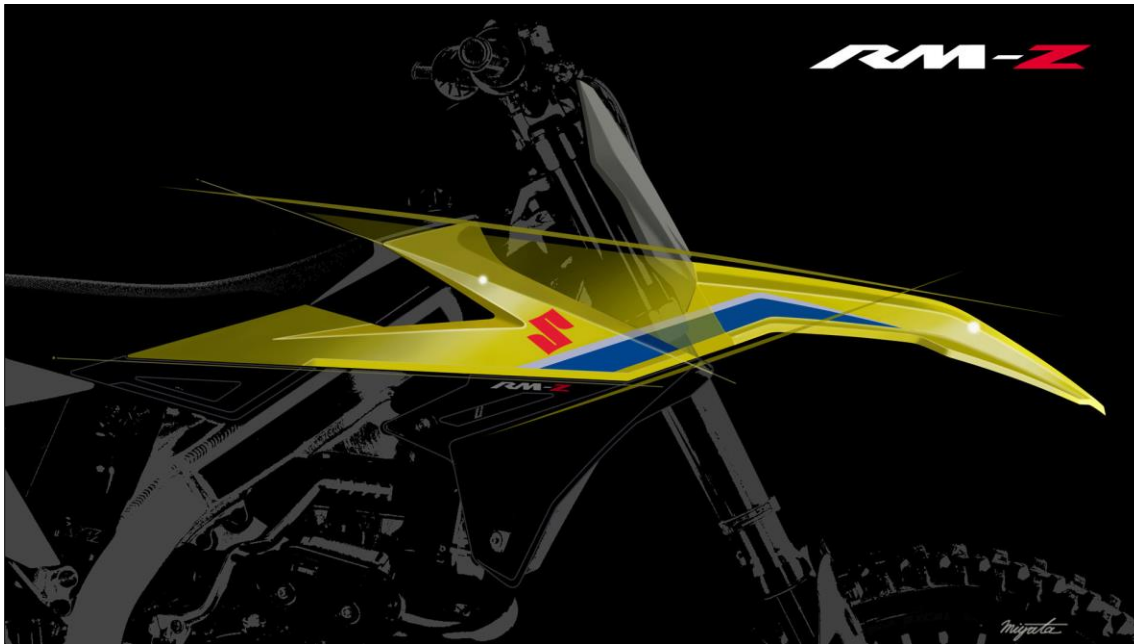


1. Aggressive new character line

NEW

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-Z450 conveys how Suzuki’s flagship off road model faithfully inherits the brand’s heritage and DNA.



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 **NEW**

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.



UNIFIED
“Team SUZUKI”
IMAGE COLOR



3. Other features

Color coordinate to express rigidity and toughness UPDATE

Dark gold is used on the front and rear suspension, and black used on the front and rear rims to express rigidity and toughness.



Front suspension



Rear suspension



Wheel rim

STOP: Better Braking Force



Way of Life!

1. Larger front brake disc

UPDATE

Wider outer diameter (250mm → 270mm).

➤ Greater braking performance



Previous model



New model

Specifications



Way of Life!

		New model	Previous model
Overall Length		2175 mm (85.6 in)	2190mm (86.2 in)
Overall width		835 mm (32.9in)	830mm (32.7 in)
Overall height		1260 mm (49.6 in)	1270mm (50.0 in)
Wheelbase		1480 mm (58.3 in)	1495mm (58.9 in)
Ground clearance		330 mm (13.0 in)	325mm (12.8 in)
Seat height		960 mm (37.8 in)	955 mm (37.6 in)
Curb mass		112 kg (247lbs)	112kg (247lbs)
Engine type		4-stroke, liquid cooled, DOHC	4-stroke, liquid cooled, DOHC
Bore x stroke		96.0 mm x 62.1 mm (3.8 in x 2.4 in)	96.0 mm x 62.1 mm (3.8 in x 2.4 in)
Engine displacement		449 cm ³	449 cm ³
Compression ratio		12.5 : 1	12.5 : 1
Fuel system		Fuel injection	Fuel injection
Starter system		Primary kick	Primary kick
Lubrication system		Semi-dry sump	Semi-dry sump
Transmission		5-speed constant mesh	5-speed constant mesh
Primary reduction ratio		2.625 (63 / 24)	2.625 (63 / 24)
Final reduction ratio		3.846 (50 / 13)	3.846 (50 / 13)
Suspension	Front	Inverted telescopic, coil spring, oil damped	Inverted telescopic, air spring, oil damped
	Rear	BFRC (Link type, coil spring, oil damped)	
Rake / trail		27.8° /120mm (4.7in)	27.8° /120mm (4.7in)
Brakes	Front	Disc	Disc
	Rear	Disc	Disc
Tires	Front	80/100-21 51M, tube type	80/100-21 51M, tube type
	Rear	110/90-19 62M, tube type	110/90-19 62M, tube type
Ignition system		Electronic Ignition (CDI)	Electronic Ignition (CDI)
Fuel tank capacity		6.3 L (1.6/1.4 US/Imp gal)	6.2L (1.6/1.4 US/Imp gal)
Oil capacity (Overhaul)		1.2 L (1.3/1.1 US/Imp gal)	1.2 L (1.3/1.1 US/Imp gal)