2.13 KTM RC CUP TECHNICAL SPECIFICATIONS

The following rules are intended to permit limited changes to the homologated motorcycle in the interests of safety and improved competition between various motorcycle concepts.

EVERYTHING THAT IS NOT AUTHORIZED AND PRESCRIBED IN THIS RULE IS STRICTLY FORBIDDEN

If a change to a part or system is not specifically allowed in any of the following articles, then it is forbidden

KTM RC Cup motorcycles will be checked randomly for conformity of the rules.

Only KTM RC Cup bikes meeting the specifications of the KTM RC Cup powered by KTM and delivered officially for the series by KTM shall be allowed

The appearance from the front, rear and the profile of KTM RC Cup motorcycles must (except when otherwise stated) conform to the homologated shape (as originally produced by the manufacturer).

2.13.1 Motorcycle specifications

All parts and systems not specifically mentioned in the following articles must remain as originally produced by KTM for the KTM RC Cup specific race model.

2.13.2 Engine configurations and displacement capacities

The following engine configurations comprise the KTM RC Cup class:

373.2 cc 4-stroke 1 cylinder

The displacement capacity, bore and stroke (new), must remain at the homologated size.

2.13.3 Minimum weight

KTM RC 390 141kg (310.8lb)

At any time of the event, the weight of the whole motorcycle (including the tank and its contents) must not be lower than the minimum weight.

There is no tolerance on the minimum weight of the motorcycle.

During the final technical inspection at the end of the race, the selected motorcycles will be weighed in the condition they finished the race, and the established weight limit must be met in this condition. Nothing may be added to the motorcycle. This includes all fluids.

During the practice and qualifying sessions, riders may be asked to submit their motorcycle to a weight control. In all cases the rider must comply with this request.

2.13.4 Number plate colors

The background colors and figures (numbers) for KTM RC Cup are **TBD.**

The sizes for all the front numbers are:	Minimum height:	100mm
	Minimum width:	55mm
	Minimum stroke:	15mm
	Minimum space between numbers	10mm
The size for all the side numbers is:	Minimum height:	100mm
	Minimum width:	55mm
	Minimum stroke:	15mm
	Minimum space between numbers	10mm

The allocated number (& plate) for the rider must be affixed on the motorcycle as follows:

a. Once on the front, either in the center of the fairing or slightly off to one side. The number must be centered on the **TBD** background with no advertising within 25mm in all directions.
b. Once, on each side of the motorcycle. The preferred location for the numbers on each side of the motorcycle is on the lower rear portion of the main fairing near the bottom. The number must be centered on the red background. Any change to this position must be pre-approved a minimum of 2 weeks before the first race by the MotoAmerica Technical Director.
c. The numbers must use the fonts as detailed after Art2. Any numbers not using these fonts must have the design of the numbers and the layout pre-approved by the MotoAmerica Technical Director a minimum of 2 weeks before the first race. All digits must be of standard form.
d. Any outlines must be of a contrasting color and the maximum width of the outline is 3mm. The background color must be clearly visible around all edges of the number (including outline). Reflective or mirror type numbers are not permitted.
e. Numbers cannot overlap

In case of a dispute concerning the legibility of numbers, the decision of the MotoAmerica Technical Director will be final.

2.13.5 Fuel

Specified in Article: 2.8

2.13.6 Tires

a. You must use the KTM RC Cup series approved Dunlop tires only.
– Dry Tires – DOT All Tracks
Front - 110/70ZR17 ALPHA 13
Rear - 150/60ZR17 ALPHA 13
----Rain Tires----
Rain Front - 110/70R17 KR189
Rain Rear - 140/65R17 KR389

b. The maximum number of tires, of any type, available to each rider during the event will be **specified in Article: 2.3.7**
c. For the KTM RC Cup race only, wet tires will not need to be marked with a tire sticker. They will not be considered in the total number of tires available for use, However normal allocation limits still apply.
d. Every tire used during the event must be marked with an adhesive sticker with a number allocated by the MotoAmerica Technical Director. The sticker will be a different color front and rear.
e. The tire stickers will be delivered to the teams in a sealed envelope, on the day before the first practice after which the teams will be responsible for their use.
f. Officials will check that all the motorcycles in the pit lane are fitted with tires carrying the sticker.
g. Stickers must be mounted to the left sidewall.
h. The use of motorcycles without the official stickers will be immediately reported to the Race Direction whom will take appropriate action.
i. Any modification or treatment (cutting, grooving) is forbidden.
j. At the beginning of the event, the Official Supplier may be requested by the MotoAmerica Technical Director to deliver to him four (4) samples of each type of tire to be used at the event.
k. The allocation of individual tires will be made on a random basis, with no involvement of any representative from the tire supplier, teams or riders. Those tires will be individually identified and may not be exchanged between riders, including between team mates, and may not be exchanged by the tire supplier after the allocation, except with the permission of the Race Direction.
l. In exceptional cases, should the sticker be damaged or applied in the wrong way, up to 2 extra stickers may be provided at the sole discretion of the MotoAmerica Technical Director. However, the damaged sticker must

be returned to the MotoAmerica Technical Director and/or the tire it was applied to, must be absolutely intact.

2.13.7 Engine

2.13.8.1 Fuel injection system

2.13.8.1.1 Fuel injection systems refer to throttle bodies, fuel injectors, variable length intake tract devices, fuel pump and fuel pressure regulator.

a. The fuel injection system must maintain the configuration that KTM delivers the machines with and cannot be altered or changed.
b. The fuel injectors must be stock and unaltered from the original specification and manufacture.
c. Bell mouths must remain as originally produced by the manufacturer for the homologated motorcycle.
d. Butterfly valves cannot be changed or modified.
e. Air and air/fuel mixture must exclusively enter the combustion chamber through the throttle body butterflies.

2.13.8.2 Cylinder Head

a. No modifications are allowed.
b. The cylinder head and cover must have the official tech seal intact.

2.13.8.3 Camshaft

a. No modifications are allowed.

2.13.8.4 Cam sprockets or gears

a. No modifications are allowed.

2.13.8.5 Cylinders

a. No modifications are allowed.

2.13.8.6 Pistons

a. No modifications are allowed (including polishing and lightening).

2.13.8.7 Piston rings

a. No modifications are allowed.

2.13.8.8 Piston pins and clips

a. No modifications are allowed.

2.13.8.9 Connecting rods

a. No modifications are allowed (including polishing and lightening).

2.13.8.10 Crankshaft

a. No modifications are allowed (including polishing and lightening).

2.13.8.11 Crankcase / Gearbox housing

a. No modifications are allowed.

2.13.8.11.1 Lateral covers and protection

a. Lateral (side) covers may be altered, modified or replaced. If altered or modified, the cover must have at least the same resistance to impact as the original one. If replaced, the cover must be made in material of same or higher specific weight and the total weight of the cover must not be less than the original one.
b. All lateral covers/engine cases containing oil and which could be in contact with the ground during a crash, must be either replaced by a 'heavier' engine cover or protected by a second cover made from metal such as aluminum alloy, stainless steel, steel or titanium, or an approved cover.
c. Any secondary covers must cover a minimum of 1/3 of the original cover. It must have no sharp edges to damage the track surface. These covers must be fixed properly and securely with a minimum of three (3) case cover screws that also mount the original covers/engine cases to the crankcases.
d. Plates or crash bars made from aluminum or steel also are permitted in addition to these covers. All of these devices must be designed to be resistant against sudden shocks, abrasions and crash damage.
e. **No oil containing engine case may be secured with aluminum bolts.**
f. FIM approved covers will be permitted without regard of the material or dimensions.
g. These covers must be fixed properly and securely with case cover screws that also mount the original covers/engine cases to the crankcases.
h. The Technical Director has the right to refuse any cover not satisfying this safety purpose.

2.13.8.12 Transmission / Gearbox

a. No modifications are allowed to the transmission or gearbox.
b. The sprocket cover may be modified or eliminated.

c. Final drive sprockets may be changed but must remain a 520 O-ring style chain.
d. Sprockets can be made of aluminum or steel.

2.13.8.13 Clutch

a. No modifications are allowed.
b. Replacement clutch parts (ie friction plates, steel plates, springs, etc.) must remain as homologated

2.13.8.14 Oil pumps and oil lines

a. No pump or oil line modifications are allowed.

2.13.8.15 Radiator, cooling system and oil cooler

a. The only liquid engine coolants permitted will be water
b. Protective meshes may be added in front of the oil and/or water radiator(s).
c. The cooling system hoses and catch tanks may be changed.
d. Radiator cap is free.

2.13.8.16 Air box

a. The air box must remain as originally produced by the manufacturer on the homologated motorcycle.
b. The air filter element may be replaced but must be included on the approved air filter list.
c. The air box drains must be sealed.
d. All motorcycles must have a closed breather system. All oil breather lines must be connected and discharge in the airbox.

2.13.8.17 Fuel supply

a. Fuel pump and fuel pressure regulator must remain as homologated.
b. The fuel pressure must be as homologated.
c. Fuel lines from the fuel tank to the delivery pipe assembly (excluded) may be replaced.
d. Fuel vent lines may be replaced.

2.13.8.18 Exhaust system

a. The MotoAmerica approved KTM RC Cup Akrapovic exhaust system is the only system that can be used.
b. Wrapping of exhaust systems is not allowed except in the area of the rider's foot or an area in contact with the fairing for protection from

heat.

c. **The silencer noise insert may be removed.**

2.13.8.19 Lubrication system

a. The MotoAmerica approved KTM RC Cup **Motorex "POWER SYNT 4T Fully Synthetic 10w/50"** engine oil must be used.

3.13.9 Electrics and electronics

3.13.9.1 Ignition / Engine Control System (ECU)

a. The engine control system (ECU) must be:
   i. The original system as homologated.
b. Optional equipment sold by the motorcycle Manufacturer for the homologated model is considered not homologated with the bike
c. During an event the Technical Director has the right to ask a team to substitute their ECU with the sample received from the Manufacturer. The change has to be done before Sunday warm up.
d. No extra sensors may be added for control strategies.
e. The addition of an infrared (IR) or GPS based lap timing system is allowed.
f. Data logging is not allowed. **Lap timers using any data recording with the exception of lap time are not allowed.**
g. Telemetry is not allowed.
h. No remote or wireless connection to the bike for any data exchange or setting is allowed whilst the engine is running or the bike is moving.
i. Harness:
   a. No modifications are allowed.
   b. An on/off circuit may be added for the rain light
j. Spark plugs may be replaced.
k. Battery is free.

3.13.9.2 Generator, alternator, electric starter

c. No modifications are allowed.
d. The electric starter must operate normally and always be able to start the engine during the event.

3.13.10 Main frame and spare frame

During the entire duration of the event, each rider can only use one (1) complete motorcycle, as presented for Technical Control, with the frame clearly identified with a seal. In case the frame will need to be replaced the rider or the team can request the use of a spare frame to the MotoAmerica Technical Director. The

spare frame must be inspected before assembly can begin.

The spare frame will not be allowed in the pit box before the rider or the team has received authorization from the MotoAmerica Technical Director.

The rebuilt motorcycle must be inspected before its use by the technical number stewards for safety checks and a new seal will be placed on the motorcycle frame.

In extraordinary circumstances the technical director may give permission for the KTM supplied spare machine to be used if it is felt the damaged machined cannot be repaired safely and in the available time.

EXPLANATION OF THE PROCEDURES

Only one (1) complete motorcycle may be presented for the preliminary technical checks and it will be the only motorcycle allowed on the track and in the pit box during the practices, qualifying, warm up and race.

The frame of this motorcycle will be officially sealed by the MotoAmerica Technical Director or by his appointed staff. The seal will bear a serial number, which will be recorded. Any attempt made to remove the seal will damage it irreparably.

At any time during the event the technical stewards, under the direction of the MotoAmerica Technical Director, may check the seal and verify that it conforms to the motorcycle and rider it was assigned to. For cross reference, every frame must have a unique number punched on it, preferably on the steering-head.

If the motorcycle is damaged in a crash or in any other incident, it is allowed to use the pre-assembled spare frame to rebuild the motorcycle.

The spare frame may be pre-assembled with the following items: main frame assembly, swing-arm, rear suspension linkage, shock-absorber, steering head bearings, upper and lower triple clamps and wiring harness.

When a team decides that a crashed or damaged motorcycle requires a change of frame, it must inform the MotoAmerica Technical Director. Only at this point may the spare frame be brought into the pit box.

Parts may be transferred from the damaged motorcycle for the assembly of the replacement motorcycle.

Once the assembly of the replacement motorcycle is completed, it will then undergo technical and safety checks and it will be officially sealed. The seal on the damaged motorcycle will be destroyed by the technical staff and the chassis of this motorcycle must not be used for the remainder of the event. The new serial number will be recorded by the MotoAmerica Technical Director.

The replacement motorcycle may be used on the track only after the end of the practice and qualifying sessions or race in which the damage occurred. The damaged motorcycle must be removed from the pit box as soon as possible and put in storage outside the pit box.

After the spare part frame has been used, should it become necessary to replace the frame again because of a further crash or damage, the assembly work must be done using a bare frame with no components attached. The MotoAmerica Technical Director must inspect the bare frame and give his approval before work can start.

Any actions contrary to these procedures will result in a penalty as described in the Sporting Regulations.

3.13.10.1 Frame body and rear sub frame

a. The frame must remain as originally produced by the manufacturer for the homologated motorcycle.
b. The sides of the frame-body may be covered by a protective part made of a composite material. These protectors must fit the form of the frame.
c. Nothing else may be added or removed from the frame body.
d. All motorcycles must display a vehicle identification number punched on the frame body (chassis number).
e. Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
f. The frame paint scheme is restricted to the original KTM orange.

3.13.10.2 Front Forks

a. Forks (stanchions, stem, wheel spindle, upper and lower crown, etc.) must remain as originally produced by the manufacturer for the homologated motorcycle.
b. The upper and lower fork clamps (triple clamp, fork bridges) must remain as originally produced by the manufacturer on the homologated motorcycle.
c. Steering stem pivot position must remain in the homologated position (as supplied on the production bike).
d. Original internal parts of the homologated forks may not be modified or changed.
e. Springs may be changed with the following:
   i. **7040-9005 Fork spring 7.0**
   ii. **7040-9006 Fork spring 7.5 (mounted stock in the RC390 cup bike)**
   iii. **7040-9007 Fork spring 8.0**
f. Oil weight/height may be changed.
g. Additional surface treatments are not allowed.

h. Modifications to the pistons, valve stacks, or oil passage ways is not allowed.

3.13.10.3 Rear fork (Swing arm)

a. The rear fork must remain as originally produced by the manufacturer for the homologated motorcycle.
b. A stock or aftermarket chain guard must be fitted in such a way to reduce the possibility that any part of the riders' body may become trapped between the lower chain run and the rear wheel sprocket.

3.13.10.4 Rear suspension unit

a. All rear suspension linkage parts must remain as originally produced by the manufacturer for the homologated motorcycle.
b. Rear suspension unit cannot be changed.
c. Normal service components (seals, oil, bushings) may be changed or replaced.
d. Springs may be changed with the following:
   i. **7018-9001 Shock spring 72/130 (mounted stock in RC390 cup bike)**
   ii. **7018-9002 Shock spring 74/130**
   iii. **7018-9003 Shock spring 76/130**
   iv. **7018-9004 Shock spring 78/130**
   v. **7018-9005 Shock spring 80/130**
e. Modifications to the pistons, valve stacks, or oil passage ways is not allowed.

3.13.10.5 Wheels

a. Wheels must remain as originally produced by the manufacturer for the homologated motorcycle.
b. A non-slip coating / treatment may be applied to the bead area of the rim.
c. The original KTM RC Cup orange paint must remain as homologated.
d. Wheel **axles and bearings must remain** as homologated, wheel spacers may be modified or replaced.
e. Wheel balance weights may be discarded, changed or added to.
f. Any inflation valves may be used.

3.13.10.6 Brakes

a. Brake discs must remain as homologated.
b. The front and rear brake caliper (mount, carrier, hanger) must remain as originally produced by the manufacturer for the homologated motorcycle.
c. The front and rear master cylinder must remain as originally produced by the manufacturer for the homologated motorcycle.

d. Front and rear brake fluid reservoirs may be changed with aftermarket products.
e. Front and rear hydraulic brake lines may not be changed.
f. Front and rear brake pads **Can only be replaced with the homologated brake pads (part# 90813030000 or 90113030000)**
g. Additional air scoops or ducts are not allowed.
h. Motorcycles must be equipped with brake lever protection, intended to protect the handlebar brake lever from being accidentally activated in case of collision with another motorcycle. Composite guards are not permitted with the exception of the original equipment as delivered by KTM. FIM approved guards will be permitted without regard to the material.
i. The MotoAmerica Technical Director has the right to refuse any guard not satisfying this safety purpose.

3.13.10.7 Handlebars and hand controls

a. Handlebars may be replaced with homologated or aftermarket parts.
b. The original mounting location for the handle bars must be used.
c. Throttle controls must be self-closing when not held by the hand.
d. Throttle assembly and associated cables may not be modified or replaced.
e. Clutch and brake lever may be replaced.
f. Switches may be changed but the electric starter switch and engine stop switch must be located on the handlebars.
g. Motorcycles must be equipped with a functional ignition kill switch or button mounted on the right hand handlebar (within reach of the hand while on the hand grips) that is capable of stopping a running engine. The button or switch must be RED.

3.13.10.8 Foot rest / Foot controls

a. Foot rest/foot controls may be replaced with homologated or aftermarket parts.
b. Foot rest/foot controls may be relocated but brackets must be mounted to the frame in the original mounting points.
c. Foot rests may be rigidly mounted or a folding type which must incorporate a device to return them to the normal position.
d. The end of the foot rest must have at least an 8 mm solid spherical radius.
e. Non folding footrests must have an end (plug) which is permanently fixed, made of aluminum, plastic, Teflon® or an equivalent type material (minimum radius 8mm). The plug surface must be designed to reach the widest possible area. The MotoAmerica Technical Director has the right to refuse any plug not satisfying this safety aim.

3.13.10.9 Fuel tank

a. Fuel tank must remain as originally produced by KTM for the homologated motorcycle.
b. The sides of the fuel tank may be protected with a cover made of a composite material. These covers must fit the shape of the fuel tank.

3.13.10.10 Fairing / Bodywork

a. Fairing, bodywork, and windscreen must be as originally fitted on KTM RC Cup model motorcycle.
b. The rear fender upper cover may be removed or modified only for the purpose of accessing rear shock adjustments.

3.13.10.11 Seat

a. Seat padding may be replaced with parts of similar appearance as originally produced by the manufacturer for the homologated motorcycle. The appearance from the front, rear and profile must conform to the homologated shape.

3.13.10.12 Rear Safety Light

All motorcycles must have a functioning red light mounted at the rear of the machine, this light must be switched on any time the motorcycle is on the track or being ridden in the pit-lane and the session is declared WET. All lights may be the KTM light as originally supplied or comply with the following:

a. Lighting direction must be parallel to the machine center line (motorcycle running direction), and be clearly visible from the rear at least 15 degrees to both left and right sides of the machine center line.
b. The rear light must be mounted near the end of the seat/rear bodywork and approximately on the machine center line, in a position approved by the Technical Director. In case of dispute over the mounting position or visibility, the decision of the Technical Director will be final.
c. Power output/luminosity equivalent to approximately: 10 – 15 (incandescent), 0.6 – 1.8 W (LED).
d. The output must be continuous - no flashing safety light whilst on track, flashing is allowed in the pit lane when pit limiter is active.

e. Safety light power supply may be separated from the motorcycle.
f. The Technical Director has the right to refuse any light system not satisfying this safety purpose.

3.13.10.13 Fasteners

a. Standard fasteners may be replaced with fasteners of any material and design but titanium fasteners cannot be used. The strength and design must be equal to or exceed the strength of the standard fastener.
b. Fasteners may be drilled for safety wire, but intentional weight-reduction modifications are not allowed.
c. Threads may be repaired using inserts of different material such as helicoils and timeserts.
d. Fairing / bodywork fasteners may be replaced with the quick disconnect type.
e. Aluminum fasteners may only be used in non-structural locations.

3.13.11 The following items MAY be altered or replaced from those fitted to the homologated motorcycle

a. Any type of lubrication, brake or suspension fluid may be used with the exception of engine oil.
b. Material for brackets connecting non original parts (fairing, exhaust, instruments, etc.) to the frame (or engine) cannot be made from titanium or fiber reinforced composites.
c. Protective covers for the frame, chain, footrests, etc. may be made in other materials like fiber composite material if these parts do not replace original parts mounted on the homologated model
d. The OEM chain guard may be modified for the purpose of making rear wheel changes more efficient as long as the chain guard still functions as intended.