

## **2.9 MOTOAMERICA JUNIOR 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 RULEBOOK 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**

Junior Cup motorcycles require an FIM homologation (see Appendix FIM homologation procedure for Superstock, Supersport and Superbike motorcycles). All motorcycles must comply in every respect with all the requirements for road racing as specified in these technical regulations, unless they are already equipped as such on the homologated model. FIM homologated machines must also enter into a participation agreement with MotoAmerica to be eligible for the class.

Once a motorcycle has been homologated, it may be used for racing in the corresponding class for a maximum period of 8 years (see homologation art 1.4.4), or until such time that the homologated motorcycle is disqualified by new rules or changes in the technical specifications of the corresponding class.

The appearance from the front, rear and the profile of Junior Cup motorcycles must (except when otherwise stated) conform to the homologated shape (as originally produced by the manufacturer). The appearance of the exhaust system is excluded from this rule.

### **2.9.1 Motorcycle specifications**

All parts and systems not specifically mentioned in the following articles must remain as originally produced by the manufacturer for the homologated motorcycle.

### **2.9.2 Eligible machines**

The class will be based around the machines sold in Europe as A2 class machines and excluding the A1 class machines. The MotoAmerica/FIM Commission has the right to decide which machines will be eligible in the class.

For 2018 the following will be legal (this list can be amended at any time by the MotoAmerica Commission):

Honda CBR500R  
Kawasaki Ninja 300 (EX300ADF)  
Yamaha YZF-R3  
KTM RC390  
Suzuki GSX250R \*Pending Homologation

### **2.9.3 Balancing various motorcycle concepts**

The MotoAmerica/FIM Commission reserve the right to apply balancing to the machines in the class as they see fit in order to maintain equality amongst machines. Methods may include but are not limited to the following:

**rev limit, weight limit changes**

The decision to apply the handicap will be taken by the MotoAmerica/FIM Commission at any time deemed necessary to ensure fair competition.

### **2.9.4 Minimum weight**

The minimum weight for each model is as follows:

Honda CBR500R	150Kg
Kawasaki Ninja 300 (EX300ADF)	140Kg
Yamaha YZF-R3	140Kg
KTM RC390	136Kg
Suzuki GSX250R	TBD

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.

The use of ballast is allowed to stay over the minimum weight limit and may be required due to the handicap system. The use of ballast and weight handicap must be declared to the technical director at the preliminary checks.

### **2.9.5 Numbers and number plates**

Numbers must be easily legible, in a clear simple font and contrast strongly with the background color. Backgrounds must be yellow (pantone yellow c) .

The sizes for all the front numbers are:	Minimum height:	140 mm
	Minimum width:	80 mm
	Minimum stroke:	20 mm
	Minimum space between numbers	10 mm

The size for all the side numbers are:	Minimum height:	120 mm
	Minimum width:	70 mm
	Minimum stroke:	20 mm
	Minimum space between numbers	10 mm

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 yellow 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 yellow background. Any change to this must be pre-approved a minimum of two (2) weeks before the first race by the MotoAmerica technical director.
- c. The numbers must use the fonts as detailed after Art 2. 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 two(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 three (3) mm. 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 technical director will be final.

#### **2.9.6 Fuel**

- a) Sunoco Apex is the designated fuel.
- b) Please refer to Article: 2.10 for additional details.

#### **2.9.7 Tires**

- a. The maximum number of tires, of any type, available to each rider during the event will be specified in Article: 2.3.7.1
- b. For the Junior 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.
- c. During free practices, qualifying practices, Superpole for Superbike, warm up session and races, front and rear tires are required to be marked with tire stickers
- d. See article. 2.3.7.

## **2.9.8 Engine**

**Machines will be randomly chosen for dyno testing.**

### **2.9.8.1 Fuel injection system**

**2.9.8.1.1** Fuel injection systems refer to throttle bodies, fuel injectors, variable length intake tract devices, fuel pumps and fuel pressure regulators.

- a. The original homologated fuel injection system must be used without any modification.
- b. The fuel injectors must be stock and unaltered from the original specification and manufacture.
- c. Air funnels must remain as originally produced by the manufacturer for the homologated motorcycle.
- d. Butterfly valves cannot be changed or modified.
- e. Secondary throttle valves may be removed or fixed in the open position and the electronics may be disconnected or removed. Secondary throttle shafts must remain in place.
- f. Variable intake tract devices cannot be added if they are not present on the homologated motorcycle and they must remain identical and operate in the same way as the homologated system. All the parts of the variable intake tract device must remain exactly as homologated.
- g. Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.
- h. Electronically controlled throttle valves, known as 'ride-by-wire', may only be used if the homologated model is equipped with the same system.

### **2.9.8.2 Cylinder head**

- a. The cylinder head must be the originally fitted and homologated part with no modification allowed.
- b. The head gasket may be changed.

### **2.9.8.3 Camshaft**

- a. The camshaft(s) must be the originally fitted and homologated part with no modification allowed.
- b. At the technical checks: for direct cam drive systems, the cam lobe lift is measured; for non-direct cam drive systems (i.e. with rocker arms), the valve lift is measured.

### **2.9.8.4 Cam sprockets or gears**

- a. Cam gears may be slotted or replaced with an adjustable part. Cam sprockets must be on the approved parts list.
- b. The cam chain must remain as homologated.
- c. Cam chain tensioning devices must remain as homologated.

### **2.9.8.5 Cylinders**

- a. Must be the originally fitted and homologated parts with no modification allowed.

### **2.9.8.6 Pistons**

- a. Must be the originally fitted and homologated parts with no modification allowed.

### **2.9.8.7 Piston rings**

- a. Must be the originally fitted and homologated parts with no modification allowed.

### **2.9.8.8 Piston pins and clips**

- a. Must be the originally fitted and homologated parts with no modification allowed.

### **2.9.8.9 Connecting rods**

- a. Must be the originally fitted and homologated parts with no modification allowed.

### **2.9.8.10 Crankshaft**

- a. Must be the originally fitted and homologated part with no modification allowed.

### 2.9.8.11 Crankcase / gearbox housing

- a. Must be the originally fitted and homologated parts with no modification allowed.

#### 2.9.8.11.1 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 the 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 protected by a second cover made from metal, such as aluminum alloy, stainless steel, steel or titanium. Composite covers are not permitted.
- c. The secondary cover must cover a minimum of 1/3 of the original cover. It must have no sharp edges to damage the track surface. The technical directors decision on suitability is final.
- 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. FIM approved covers will be permitted without regard of the material or its dimensions.
- f. 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.
- g. Oil containing engine covers must be secured with steel bolts.
- h. The technical director has the right to refuse any cover not satisfying this safety purpose.

### 2.9.8.12 Transmission / Gearbox

- a. Only the originally fitted and homologated (stock) transmission shafts and gear set are permitted.
- b. Shimming is allowed.
- c. Undercutting and surface treatments are permitted.
- d. Shift star and detent may be replaced but must function as originally designed.
- e. Quick-shift (upshift) systems are allowed (including wire and potentiometer). **The unit must be the MotoAmerica /DWO approved quick shifter/rev limiter.**
- f. Downshift auto-blipping is not allowed.
- g. The countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.

- h. The sprocket cover may be modified or eliminated.
- i. The chain guard as long as it is not incorporated in the rear fender may be removed.

#### **2.9.8.13 Clutch**

- a. The clutch system (wet or dry type) and the method of operation (by cable or hydraulic) must remain as homologated.
- b. Friction and drive discs may be changed.
- c. Clutch springs may be changed.
- d. The clutch basket (outer) must be the originally fitted and homologated part but may be reinforced.
- e. The original clutch assembly may be modified or replaced by an aftermarket clutch, also may include back torque limiting capabilities (slipper type).

#### **2.9.8.14 Oil pumps, oil lines and water pump**

- a. The oil pump and oil lines must be the originally fitted and homologated parts with no modification allowed.
- b. The water pump must be the originally fitted and homologated part.

#### **2.9.8.15 Radiator / Oil cooler**

- a. The only liquid engine coolant permitted is 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 fans and wiring may be removed. Thermal switches, water temperature sensors and thermostats may be removed inside the cooling system.
- e. The radiator cap is free.
- f. An additional water radiator may be fitted but the appearance of the front, the rear and the profile of the motorcycle must not be changed. Extra mounting brackets to accommodate the additional radiator are permitted.

#### **2.9.8.16 Air box**

- a. The air box must be the originally fitted and homologated part with no modification allowed.
- b. The air filter element may be modified or replaced but not eliminated and must be mounted in the original position.
- c. The air box drains must be sealed.
- d. All motorcycles must have a closed breather system. All the oil breather lines must be connected (may pass through an oil catch tank) and exclusively discharge in the air box.

- e. No heat protection may be attached to the air box.

### **2.9.8.17 Fuel supply**

- a. The fuel pump and fuel pressure regulator must be the originally fitted and homologated parts with no modification allowed
- b. The fuel pressure must be as homologated.
- c. Fuel lines from the fuel tank up to the delivery pipe assembly (delivery pipe excluded) may be replaced and must be located in such a way that they are protected from crash damage.
- d. Quick connectors or dry break connectors may be used.
- e. Fuel vent lines may be replaced.
- f. Fuel filters may be added.

### **2.9.8.18 Exhaust system**

- a. Exhaust pipes and silencers may be modified or changed. Catalytic converters must be removed.
- b. The number of the final exhaust silencer(s) is free.
- c. For safety reasons, the exposed edges of the exhausts pipe(s) outlet must be rounded to avoid any sharp edges.
- d. 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.
- e. The noise limit for the Junior Cup will be 110 dB/A (with a three (3) dB/A tolerance after the race only).
- f. The test RPM will be as follows:

Machine:	Test rpm
Honda CBR500R	5,000rpm
Kawasaki Ninja 300 (EX300ADF)	6,500rpm
Yamaha YZF-R3	7,500rpm
KTM RC390	5,500rpm
Suzuki GSX250R	TBD

## **2.9.9 Electrics and electronics**

### **2.9.9.1 Ignition / Engine Control System (ECU)**

- a. The engine control system (ECU) must be either:
  - i. The original system as homologated, with no change of software.
  - ii. The original system. (option i.) with a MotoAmerica/DWO approved external fuel injection module added.
  - iii. The original system as homologated with a change of software from the MotoAmerica approved list.
- b. The central unit (ECU) may be relocated.



- c. Optional equipment sold by the motorcycle manufacturer for the homologated model is considered not homologated with the bike and must follow the requirements for approved electronics.
- d. During an event, the technical director has the right to ask a team to substitute their ECU or external module with the sample received from the manufacturer. The change must be done before the warm up session.
- e. No extra sensors may be added for control strategies except a shift rod sensor.
- f. The following strategies are NOT allowed:
  - i. Traction control (including anti-spin / rate of change of rpm)
  - ii. Launch control
  - iii. Anti-wheelie
  - iv. Closed loop engine brake control
  - v. Closed loop/auto tuning is not permitted.
  - vi. Corner by corner / distance based adjustments
  - vii. Rider adjusted trims
- g. External fuel injection modules may not alter any sensor signal relating to the ride by wire system or control/actuate any part of the machine except the fuel injectors. No fuel module may add traction control strategies. The modules may only connect to the fuel injectors and power supply.
- h. A compulsory MotoAmerica /DWO rev limiter / quick shift unit must be fitted: it is the team's discretion whether to use the quick shift function. This must remain fitted at all times. Fitting instructions are separately detailed.**
- i. The maximum rpm for each machine is as follows:
 

Machine:	Max rpm
Honda CBR500R	10,500rpm
Kawasaki Ninja 300 (EX300ADF)	13,000rpm
Yamaha YZF-R3	13,000rpm
KTM RC390	10,500rpm
- j. Data logging is not allowed.
- k. Telemetry is not allowed.
- l. 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.
- m. Harness:
  - i. The key/ignition lock may be relocated, replaced or removed.
  - ii. Cutting and removal of excess and unused wiring in the original wiring harness is allowed. All connectors must remain as originally fitted. No wires may be added.
  - iii. DWO/MotoAmerica approved manufacturer kit harnesses are allowed.
- n. The dashboard/display/tachometer is free. However, it cannot be

- capable of data logging.
- o. Lap timer data logging is not allowed except data that can be obtained by the lap timer itself and the use of the internally contained GPS sensor and gyro.
    - i. No connections can be made to the motorcycle except to power the lap timer.
  - p. Spark plugs may be replaced.
  - q. The original speedometer and tachometer may be altered or replaced.
  - r. The battery is free.

#### **2.9.9.2 Generator, alternator, electric starter**

- a. Must be the originally fitted and homologated part with no modification allowed.
- b. The stator must be fitted in its original position and without offsetting.
- c. The electric starter must operate normally and always be able to start the engine during the event.
- d. **During parc fermé the starter must crank the engine at a suitable speed for starting for a minimum of two (2) seconds without the use a boost battery. No boost battery may be connected to the machine after the end of the session.**

#### **2.9.10 Main frame**

- a. 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.
- b. In case the frame needs to be replaced, the rider or the team can request the use of a spare frame to the technical director.
- c. The pre-assembled spare frame must be presented to the technical director to receive the permission to rebuild the motorcycle. The pre-assembly of the frame shall be strictly limited to:
  - i. Main frame
  - ii. Bearings (steering pipe, swing arm, etc.)
  - iii. Swing arm
  - iv. Rear suspension linkage and shock absorber
  - v. Upper and lower triple clamps
  - vi. Wiring harness
- d. The spare frame will not be allowed in the pit box before the rider or the team has received authorization from the technical director.
- e. The motorcycle, once rebuilt, must be inspected before its use by the technical stewards for safety checks and a new seal will be placed on the motorcycle frame.
- f. No complete spare machine may be at the track. If found penalties will be applied. For the remainder of the event the machine will be impounded and

no part of that machine may be used for spare parts.

*For a full explanation of the procedures see article 2.5.10*

#### **2.9.10.1 Frame body and rear sub frame**

- a. The frame must be the originally fitted and homologated part with no modification allowed.
- b. Holes may be drilled in the frame only to fix approved components (i.e. fairing brackets, steering damper mount, sensors).
- c. 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.
- d. Nothing else may be added or removed from the frame body.
- e. All motorcycles must display a vehicle identification number punched on the frame body (chassis number).
- f. Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
- g. The front sub frame / fairing mount may be changed or altered.
- h. The rear sub frame may be changed or altered, but the type of material must remain as homologated or be material of a higher specific weight.
- i. Additional seat brackets may be added. Non-stressed protruding brackets may be removed if they do not affect the safety of the construction or assembly. Bolt-on accessories to the rear sub-frame may be removed.
- j. The paint scheme is not restricted but polishing the frame body or sub frame is not allowed

#### **2.9.10.2 Suspension - General**

- a. Participants in the Junior Cup class must only use the approved and listed suspension units for that season. The price limits are:
  - i. Forks: For the fork kit, including all parts such as but not limited to cartridge, springs (1 set), adjusters, fork caps, blanking inserts, seals, bushes but excepting oil and fitting the price limit is **€650** excluding tax.
  - ii. Shock Absorber/RCU: For the complete shock absorber / RCU including but not limited to spring (1 of), pre-load adjuster and length/ride height adjuster the price limit is **€800** excluding tax.
- b. The approved products from the suspension manufacturers must be available to all participants at least one (1) month before the first round of the MotoAmerica season, and remain available all season. The products must be available within six (6) weeks of a confirmed order.
- c. Setting parts and tuning parts must be provided by the suspension manufacturers to all customers/ teams/ participants using the manufacturer's products. These parts can be used by all participants during the season. These parts shall be available for immediate delivery to all

teams/customers.

- d. Teams may not modify any part of the forks or shock absorber; all setting parts must be supplied by the suspension manufacturer and available to all teams/riders.
- e. The suspension manufacturers are allowed to offer service contracts when the team is using the approved and listed suspension products. The suspension manufacturers cannot demand a service contract for a customer or participant in order to obtain a suspension product.
- f. Electronically-controlled suspension must be removed.
- g. Electronic controlled steering damper cannot be used if not installed in the homologated model for road use. However, it must be completely standard (any mechanical or electronic part must remain as homologated).

#### **2.9.10.3 Front forks**

- a. Forks (stanchions, stem, wheel spindle, upper and lower crown, etc.) must be the originally fitted and homologated parts with the following modifications allowed:
- b. The upper and lower fork clamps (triple clamp, fork bridges) must remain as originally produced by the manufacturer on the homologated motorcycle.
- c. The steering stem pivot position must remain in the homologated position (as supplied on the production bike). If the standard bike has inserts, then the orientation/position of the original insert may be changed but the insert cannot be replaced or modified.
- d. A steering damper may be added or replaced with an after-market damper.
- e. The steering damper cannot act as a steering lock limiting device.
- f. Fork caps may only be modified or replaced to allow external adjustment.
- g. Dust seals may be modified, changed or removed if the fork remains totally oil-sealed
- h. Original internal parts of the homologated forks may be modified or changed. After-market damper kits or valves may be installed. The original surface finish of the fork tubes (stanchions, fork pipes) may be changed.

#### **2.9.10.4 Swing-arm (rear fork)**

- a. The rear fork must be the originally fitted and homologated part with no modification allowed.
- b. The rear fork pivot bolt must be the originally fitted and homologated part with no modification allowed.
- c. The rear swing-arm pivot position must remain in the homologated position (as supplied on the production bike). If the standard bike has inserts then the orientation/position of the original insert may be changed but the insert cannot be replaced or modified.
- d. A chain guard must be fitted in such a way as to reduce the possibility that

any part of the riders' body may become trapped between the lower chain run and the rear wheel sprocket.

- e. Rear wheel stand brackets may be added to the rear fork by welding or by bolts. Brackets must have rounded edges (with a large radius). Fastening screws must be recessed. An anchorage system or point(s) to keep the original rear brake caliper in place may be added to the rear swing-arm.
- f. The sides of the swing-arm may be protected by a thin vinyl cover only: no composite or structural covers are allowed.

#### **2.9.10.5 Rear suspension unit (shock)**

- a. The rear suspension unit (shock) may be modified or replaced, but the original attachments to the frame and swing arm or linkage must be as homologated.
- b. All the rear suspension linkage parts must be the originally fitted and homologated parts with no modification allowed.
- c. Removable top shock mounts must be the originally fitted and homologated parts with no modification allowed. A nut may be made captive on the top shock mount and shim spacers may be fitted behind it to adjust ride height.
- d. Rear suspension unit and spring may be changed.

#### **2.9.10.6 Wheels**

- a. Wheels must be the originally fitted and homologated part with no modification allowed.
- b. A non-slip coating / treatment may be applied to the bead area of the rim.
- c. If the original design includes a cushion drive for the rear wheel, it must remain as originally produced for the homologated motorcycle.
- d. Wheel axles 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.

#### **2.9.10.7 Brakes**

- a. Brake discs may be replaced by aftermarket discs which comply with the following requirements:
  - i. Only steel (max. carbon content 2.1 wt.%) is allowed for brake discs.
  - ii. Carriers must retain the same material as the homologated discs and carriers.
  - iii. The outside and inner diameters of the brake disc must not be larger than the ones on the homologated disc.
  - iv. The thickness of the brake disc may be increased but the disc must fit into the homologated brake caliper without any modification. The number of floaters is free.

- v. The fixing of the carrier on the wheel must remain the same as on the homologated disc.
- b. The front and rear brake calipers (mount, carrier, hanger) must be the originally fitted and homologated parts with no modification allowed.
- c. In order to reduce the transfer of heat to the hydraulic fluid it is permitted to add metallic shims to the calipers, between the pads and the calipers, and/or to replace light alloy pistons with steel pistons made by the same manufacturer of the caliper.
- d. The rear brake caliper bracket may be mounted fixed on the swing-arm, but the bracket must maintain the same mounting (fixing) points for the caliper as used on the homologated motorcycle.
- e. The swing-arm may be modified for this reason to aid the location of the rear brake caliper bracket, by welding, drilling or by using Helicoils.
- f. The front and rear master cylinders must be the originally fitted and homologated parts with no modification allowed.
- g. Front and rear brake fluid reservoirs may be changed.
- h. Front and rear hydraulic brake lines may be changed.
- i. The split of the front brake lines for both front brake calipers must be made above the lower fork bridge (lower triple clamp).
- j. "Quick" (or "dry-break") connectors in the brake lines are **not** allowed.
- k. Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type.
- l. Additional air scoops or ducts are not allowed.
- m. If equipped the anti-lock brake system (ABS) must be removed.
- n. 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.
  - i. Composite guards are not permitted. FIM approved guards will be permitted without regard to the material. Only composite guards need to be approved.
  - ii. The technical director has the right to refuse any guard not satisfying this safety purpose.
- o. Brake caliper bolts must be safety wired, the use of clips is permitted.**

#### **2.9.10.8 Handlebars and hand controls**

- a. Handlebars may be replaced (except for the brake master cylinder).
- b. Handlebars and hand controls may be relocated.
- c. Throttle controls must be self-closing when not held by the hand.
- d. The throttle assembly and associated cables may be modified or replaced but the connection to the throttle body and to the throttle controls must remain as on the homologated motorcycle. Cable operated throttles (grip assembly) must be equipped with both an opening and a closing cable including when actuating a remote drive by wire grip/demand sensor.
- e. Clutch and brake lever may be replaced with an after-market model. An

- adjuster to the brake lever is allowed.
- 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.

#### **2.9.10.9 Foot rest / Foot controls**

- a. Foot rests, hangers/brackets and hardware may be replaced and relocated but the hangers/brackets must be mounted to their original frame mounting points.
- b. Foot controls; gear shift and rear brake must remain operated manually by foot.
- 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 eight (8) mm solid spherical radius. (see diagram A & C).
- 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 technical director has the right to refuse any plug not satisfying this safety aim.

#### **2.9.10.10 Fuel tank**

- a. The fuel tank must be the originally fitted and homologated part with no modification allowed.
- b. All fuel tanks must be completely filled with fire retardant material (open-celled mesh, i.e. Explosafe®).
- c. Fuel tanks with tank breather pipes must be fitted with non-return valves that discharge into a catch tank with a minimum volume of 250cc made of a suitable material.
- d. Fuel caps may be changed. Fuel caps when closed must be leak proof. Additionally, they must be securely locked to prevent accidental opening at any time.
- e. A rider spacer/pad may be fitted to the rear of the tank with non-permanent adhesive. It may be constructed of foam padding or composite material.
- f. The tank may not have a cover fitted over it unless the homologated machine also features a full cover.
- g. 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.

#### **2.9.10.11 Fairing / Bodywork**

- a. The fairing and bodywork may be replaced with exact cosmetic duplicates of the original parts, but must appear to be as originally produced by the manufacturer for the homologated motorcycle, with slight differences due to the racing use (different pieces mix, fixing points, fairing bottom, etc.). The material may be changed. The use of carbon fiber or carbon composite materials is not allowed. Specific reinforcements in Kevlar® or carbon are allowed locally around holes and stressed areas. Headlights must be included even when considered external.
- b. Overall size and dimensions must be the same as the original part, with a tolerance of  $\pm 5$  mm, respecting the design and features of the homologated fairing as far as possible. The overall width of the frontal area may be +5 mm maximum. The decision of the technical director is final.
- c. The wind screen may be replaced with an aftermarket product. The height of the windscreen is free, within a tolerance of  $\pm 15$  mm referred to the vertical distance from/to the upper fork bridge. The screen must conform to the same profile from the front as the original: no double bubble or wide types are permitted. From a top view, the length of the windscreen may be shortened by 25 mm to allow clearance for the rider. The edge of the screen must have no sharp edges
- d. Motorcycles that are not originally equipped with streamlining are not allowed to add streamlining in any form, with the exception of a lower fairing device, as described in point (g). This device cannot exceed above a line drawn horizontally from wheel axle to wheel axle and must follow the specifications described in point (g).
- e. The original combination instrument/fairing brackets may be replaced, but the use of titanium and carbon (or similar composite materials) is forbidden. All other fairing brackets may be altered or replaced.
- f. The ram-air intake must maintain the originally homologated shape and dimensions.
- g. The original air ducts running between the fairing and the air box may be altered or replaced. Carbon fiber composites and other exotic materials are forbidden. Particle grilles or "wire-meshes" originally installed in the openings for the air ducts may be removed.
- h. The lower fairing must be constructed to hold, in case of an engine breakdown, a minimum of four (4) liters. The lower edge of all the openings in the fairing must be positioned at least 70 mm above the bottom of the fairing.
- i. The upper edge of the rear transverse wall of the lower fairing must be at least 70 mm above the bottom. The angle between this wall and the floor must be  $\leq 90^\circ$ .
- j. Original openings for cooling in the lateral fairing/bodywork sections may be partially closed only to accommodate sponsors' logos/lettering. Such modification shall be made using wire mesh or perforated plates. The material is free but the distance between all opening centers, circle centers



and their diameters must be constant. Holes or perforations must have an open area ratio > 60%.

- k. Motorcycles may be equipped with a radiator shroud (inner ducts) to improve the air stream towards the radiator but the appearance of the front, the rear and the profile of the motorcycle must not be changed.
- l. The lower fairing must incorporate a single opening of Ø 25 mm diameter in the front lower area. This hole must remain sealed in dry conditions and must be opened only in wet race conditions as declared by the race director.
- m. The front fender may be replaced with a cosmetic duplicate of the original parts and may be spaced upward for increased tire clearance.
- n. The rear fender fixed on the swing arm may be modified, changed or removed

#### **2.9.10.12 Seat**

- a. The seat, seat base and associated bodywork may be replaced
- b. The appearance from the front, rear and profile must conform to the homologated shape
- c. The top portion of the rear bodywork around the seat may be modified to a solo seat.
- d. The homologated seat locking system (with plates, pins, rubber pads etc.) may be removed.
- e. The same material as the fairing must be used (article 2.9.10.11.a)
- f. All exposed edges must be rounded.

#### **2.9.10.13 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 must 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 the 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 is allowed whilst on track. Flashing is allowed in the pit lane when the pit limiter is active.
- e. The 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.

#### **2.9.10.14 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. Thread repair may be made 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.

#### **2.9.11 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.
- b. Gaskets and gasket materials.
- c. Painted external surface finishes and decals.
- d. 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 except the exhaust silencer hanger that may be in carbon.
- e. Protective covers for the frame, chain and footrests may be made in other materials like fiber composite material if these parts do not replace original parts mounted on the homologated model.

#### **2.9.12 The following items MAY BE removed**

- a. Emission control items (anti-pollution) in or around the air box and engine (O2 sensors, air injection devices).
- b. Tachometer.
- c. Speedometer.
- d. Chain guard as long as it is not incorporated in the rear fender.

#### **2.9.13 The following items MUST BE removed**

- a. Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing). Openings must be covered by suitable materials.
- b. Rear-view mirrors
- c. Horn
- d. License plate bracket
- e. Toolkit

- f. Helmet hooks and luggage carrier hooks
- g. Passenger foot rests
- h. Passenger grab rails
- i. Safety bars, center and side stands must be removed (fixed brackets must remain).

**2.9.14            The following items MUST BE altered**

- a. All drain plugs must be wired. External oil filter(s), screws and bolts that enter an oil cavity must be safety wired (i.e. on crankcases).
- b. Where breather or overflow pipes are fitted they must discharge via existing outlets. The original closed system must be retained; no direct atmospheric emission is permitted.
- c. Motorcycles must be equipped with a red light on the instrument panel that will illuminate in the event of oil pressure drop.