



SPORTING AND TECHNICAL REGULATIONS 2023



[TO BE READ IN CONJUNCTION WITH
THE 2023 MCRCB YEARBOOK]

PLEASE NOTE: The Promoter/Organiser reserves the right to issue amendments to this document from time to time.

MSVR
MOTORSPORT VISION RACING

5.5 MCRCB JUNIOR SUPERSPORT TECHNICAL REGULATIONS

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 AUTHORISED AND PRESCRIBED IN THESE REGULATIONS IS STRICTLY FORBIDDEN.

Junior Supersport motorcycles require an FIM homologation or MCRCB approval. See www.fim-live.com for FIM Homologation procedure for Superstock, Supersport and Superbike motorcycles. All machines must be normally aspirated. All motorcycles must comply in every respect with all the requirements for road racing as specified in the MCRCB these Technical Regulations (G), unless they are already equipped as such on the homologated model.

Once a motorcycle has obtained the homologation, it may be used for racing in the corresponding class for a maximum period of 8 years (see Homologation art). 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 Supersport 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.

5.5.1 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. Where there is no individual tolerance indicated by a manufacturer in a machines homologated specifications for linear and angular dimensions and the manufacturer has stated the use of ISO 2768 tolerances or not stated any tolerance of any kind, then the only tolerance table from ISO 2768 that the MCRCB/MSVR will recognise for tolerance purposes is ISO 2768 – f (fine).

5.5.2 Eligible Machines

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

The following will be legal (this list can be amended at any time by the MCRCB):

- Honda CBR500R
- Kawasaki Ninja 300 (EX300ADF)
- Kawasaki Ninja 400 (EX400)
- KTM RC390
- KTM RC390R
- Yamaha YZF-R3

5.5.3 Balancing various motorcycle concepts

The MCRCB reserve the right to applying balancing to the machines in the class as they see fit in order to maintain equality amongst the models, in principle this will follow the FIM World Supersport 300 Championship regulations, but at all times the determination of the MCRCB will prevail.

Methods may include but are not limited to the following:

- Rev Limit
- Weight limit change
- Authorised parts, see MCRCB Authorised parts list

The decision to apply the handicap will be taken by the MCRCB at any time deemed necessary to ensure fair competition.

Balancing parts and modifications will be documented in the MCRCB Authorised parts list, published by the MCRCB and supersede all following regulations

5.5.4 Minimum weight

The minimum weight for each model and combined rider/machine weights are as follows:

Machine	Machine minimum	Machine Maximum	Combined rider/machine minimum
Honda CBR500R	147Kg	160kg	203Kg
Kawasaki Ninja 300 (EX300ADF)	133Kg	146kg	200Kg
Kawasaki Ninja 400	137Kg	150kg	210Kg
Yamaha YZF-R3	137Kg	150kg	204Kg
KTM RC390	133Kg	146kg	202Kg

The combined rider/machine weight is defined as the machine with the fuel tank and rider dressed as to race, including helmet.

IF the bike has achieved or exceeded the 'Machine Maximum Weight' then the combined minimum weight does not need to be reached. The bike alone may never at any time be below the 'Machine Minimum Weight'. This limits the maximum amount of ballast that can be added to the machines.

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 with rider will be weighed in the condition they finished the race, and the combined 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 for combined 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 must be declared to the Chief Technical Officer at the preliminary checks.

5.5.5 Numbers and number plates

See MCRCB General Technical Regulations (G-3.29). In case of a dispute concerning the legibility of numbers, the decision of the MCRCB will be final.

Front: the colours are:

Manufacturer:	Number/Figure	Background
Honda	White	Red
Kawasaki	White	Green
Yamaha	White	Blue
KTM	White	Orange

Side: Any colour background with a contrasting colour number that is clearly defined from the background and complies with G-3.29.3. To help identification the numbers they should be surrounded by a single black line of at least 5mm thickness.

5.5.6 Fuel

The MCRCB Control Fuel must be used in every practice session and race. This is supplied by Panta, see F-Championship Conditions and any Bulletins issued by MSVR.

5.5.7 Tyres

All tyres must be provided by the official tyre supplier.

The MCRCB will impose a controlled tyre. Further conditions will be stated in F - Championship Conditions and any Bulletins issued by MSVR. The use of tyre warmers is allowed. Any modification (cutting, grooving) is forbidden.

5.5.8 Engine

Machines will be randomly chosen for dyno testing.

5.5.8.1 Fuel injection system

- 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 plates may be removed or fixed in the open position and the electronics may be disconnected or removed. The secondary throttle shaft(s) must remain in place.
- f. All the parts of the variable intake tract device must remain and operate exactly as homologated. They cannot be added if not fitted to the homologated machine.
- g. Air and air/fuel mixture must go to the combustion chamber exclusively through the throttle bodies.
- h. Electronically controlled throttle valves, known as 'ride-by-wire', may only be used if the homologated model is equipped with the same system. Software may not be modified and all the safety systems and procedures designed by the original manufacturer must be maintained.
- i. **The idle adjuster screw may be replaced or modified (the use of flexible remote adjuster is allowed).**

5.5.8.2 Cylinder Head

- a. Must be the originally fitted and homologated part with no modification allowed.
- b. The exhaust air bleed system must be blocked and the external fittings on the cam cover(s) may be replaced by plates.
- c. Valve spring shims maybe changed freely.
- ~~d.~~ **See MCRCB authorised Parts List for head and base gasket information.**
- e. A restrictor may be required to be fitted between the cylinder head and inlet manifold. It will be a flat plate. No blending or filling will be allowed with sealant or otherwise. See MSVR Authorised Parts List.

5.5.8.3 Camshaft Assembly

- a. 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.

5.5.8.4 Cam sprockets or gears

- a. Cam sprockets may be slotted to allow the adjustment of cam timing.
- b. Pressed on cam sprockets may be replaced with an adjustable boss and cam sprocket.
- c. The cam chain and tensioner must remain as homologated.

5.5.8.5 Cylinders

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

5.5.8.7 Pistons

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

5.5.8.8 Piston rings

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

5.5.8.9 Piston pins and clips

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

5.5.8.10 Connecting rods

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

5.5.8.11 Crankshaft

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

5.5.8.12 Crankcase / Gearbox housing

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

5.5.8.12.1 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 protected by a second cover made from metal, such as aluminium 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.
- d. Plates or crash bars made from aluminium 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. MCRCB authorised 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 Chief Technical Officer have the right to refuse any cover not satisfying this safety purpose.

5.5.8.13 Transmission / Gearbox

- a. Must be the originally fitted and homologated parts with no modification allowed except:
 - i. The positive neutral selector mechanism may be removed.
 - ii. Shift star/indexer and detent may be replaced but must function as originally designed.
- b. Downshift blipping is not allowed.
- c. Countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.
- d. The sprocket cover may be modified or eliminated.
- e. Chain guard as long as it is not incorporated in the rear fender may be removed.

5.5.8.14 Clutch

- a. 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 (and number) may be changed.
- d. The clutch basket (outer) must be the originally fitted and homologated part but may be reinforced.
- e. The original clutch inner assembly may be modified or replaced by an aftermarket clutch, also including back torque limiting capabilities (slipper type).

5.5.8.15 Oil pumps and oil lines

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

5.5.8.16 Cooling System

- 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 fan and wiring may be removed. Thermal switches, water temperature sensor and thermostat may be removed inside the cooling system.
- e. 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.

5.5.8.17 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 must exclusively discharge in the airbox. **Only the original breather vents may be used.**
- e. No heat protection may be attached to the airbox.

5.5.8.18 Fuel supply

- a. Fuel pump and fuel pressure regulator must be the originally fitted and homologated part 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.

5.5.8.19 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) must remain as homologated. The silencer(s) must be on the same side(s) of the homologated model.
- 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 Junior Supersport to be 107 dB/A (with a 3 dB/A tolerance after the race only).
- f. The test RPM will be as follows:

Machine:	Test rpm
Kawasaki Ninja 400 (EX400)	6,500rpm
Yamaha YZF-R3	7,500rpm
KTM RC390	5,500rpm

5.5.9 Electrics and electronics

5.5.9.1 Ignition / Engine Control System (ECU)

- a. The engine control system (ECU) must be either:
 - i. The FIM Supersport 300 Control Electronics System. See art 5.5.9.2
 - ii. The original system (with the production ECU and no change of software or manufacturers authorised software) with an MCRCB authorised external fuel injection module. See Art. 5.5.9.3
- b. Rev Limits:

Machine:	Max rpm, with Solosystem, HM Firmware 3.1 or higher	With HM firmware 3.0
Kawasaki Ninja 400 (EX400)	10,350rpm	10,150rpm
Yamaha YZF-R3	13,300rpm	13,100rpm
KTM RC390	11,150rpm	10,950rpm

5.5.9.2 FIM Control Electronics System

- a. The ECU/Dashboard/Harness must be the World Supersport 300 Control Electronic System. The MCRCB have adopted the FIM's official supplier of the Control Electronics System is Solo Engineering. www.soloengineering.com, sales@solengineering.com as documented in the MCRCB Authorised Parts List.
- b. The software and firmware used must be from the list of legal software/firmware versions on the MCRCB Authorised Parts List.
- c. **The ECU must have the 'FIM Settings' section up to date at all times – it is the teams responsibility to ensure that this is done.**
- d. Optional equipment sold by the motorcycle Manufacturer for the homologated model is considered not homologated with the bike and must follow the requirements for authorised electronics.
- e. At any time during an event the Chief Technical Officer has the right to make a team substitute their ECU with a Solo Engineering supplied sample.
- f. Sensors may not be replaced, modified or substituted unless noted and the allowed OEM ECU sensors / channels are:
 - a. Throttle position Sensor(s)
 - b. Grip position sensor – see MCRCB Authorised Parts List for substitutions
 - c. Map sensor, Map Sync (pressure sensor on the intake port used to synchronize the engine during the start)
 - d. Airbox Pressure
 - e. Engine pick-ups (Cam, crank)
 - f. Twist grip position
 - g. Front Speed (from ABS sensor)
 - h. Rear Speed (from ABS sensor)
 - i. Gearbox output shaft speed
 - j. Gear position
 - k. Barometric air pressure
 - l. Water temperature
 - m. Air temperature
 - n. Oil Pressure Switch
 - o. Tip-Over Switch (Internal to ECU)

The following may be added:

- p. Gear shift load cell / switch (signal to ECU only)

- q. Lambda sensor (Bosch LSU4.9)
- r. Left and Right Hand switches (may be replaced from kit)
- s. Fork position (teams choice)*
- t. Shock position (teams choice)*
- u. Front brake pressure sensor (teams choice)*
- v. Transponder / Lap time signal
- w. GPS receiver unit

* (note logging is not allowed but these sensors may remain fitted).

- g. If handlebar switches are replaced from those supplied in the kit then they must meet the specification documented on www.soloengineering.com Their basic layout, switch function, position and colour must follow those supplied in the kit.
- h. No external modules may be fitted except:
 - a. Part of a quickshifter where the module may only provide a signal to the control ECU and only be connected to the battery and the quickshift connector on the harness.
 - b. Championship mandated devices (e.g. 2 way RF system).
- i. Data logging is not allowed.
- j. Plug cap must remain as homologated
- k. Spark plugs may be replaced.
- l. Battery is free.

5.5.9.3 MCRCB Original Junior Supersport Electronics Systems

- a. The engine control system (ECU) must be either:
 - i. The original system as homologated, with no change of software or with a manufacturers authorised software.
 - ii. The original system (with the production ECU and no change of software or manufacturers authorised software) (option i) with an MCRCB authorised external fuel injection module added.
 - iii. During an event MCRCB will exchange ECU's with samples held by MCRCB. The exchange will take place on the grid or in a holding area before the pit lane opens. The team will have the option to use the same ECU in the morning warm up and it will be impounded between warm up and the race. Also see point g.
- b. The software and the firmware must be supplied and authorised by the machines manufacturer. The Chief Technical Officer must be supplied with the software/firmware and it must be added to the authorised parts list before it may be used.
- c. The manufacturer must provide the MCRCB with the tools/software to perform software checks.
- d. Throughout the season the manufacturer may update the software and the updates must be made available simultaneously to all users of the system with no charge, updating by a team is not compulsory.
- e. Central unit (ECU) may be relocated.

- f. Optional equipment sold by the motorcycle Manufacturer for the homologated model is considered not homologated with the bike and must follow the requirements for authorised electronics/data loggers.
- g. At any time during an event the Chief Technical Officer has the right to make a team substitute their ECU or external module with the MCRCB sample.
- h. Sensors may not be replaced, modified or substituted unless noted and the allowed OEM ECU sensors / channels are:
 - a. Throttle position (multiple allowed)
 - b. Map sensor, Map Sync (pressure sensor on the intake port used to synchronize the engine during the start)
 - c. Airbox Pressure
 - d. Engine pick-ups (Cam, crank)
 - e. Twist grip position
 - f. Rear Speed Only (from ABS sensor) (No front speed sensor permitted)
 - g. Gearbox output shaft speed
 - h. Gear position
 - i. Air pressure
 - j. Water temperature
 - k. Air temperature
 - l. Tip-Over Switch (No lean angle)
 - m. Gear shift load cell / switch (Championship MCRCB Authorised part – see k)
 - n. Lambda sensor (may be OEM or a replacement sensor. It may be connected to the original harness/ECU or to an authorised lambda control module.
- i. No extra sensors may be added for control strategies except the shift rod sensor of the MCRCB revlimiter / quickshifter
- j. The MCRCB authorised 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 excepting the fuel injectors. No fuel module may add traction control strategies. The modules may only connect to the fuel injectors, lambda sensor, power supply and 'piggyback the Throttle Position, Gear and RPM signals'. Lambda closed loop/auto tuning is permitted. ONLY MCRCB authorised auto tuning units may be used.
- k. A compulsory MCRCB rev limiter / quickshift unit must be fitted, it is the teams discretion whether to use the quickshift function. This must remain fitted and active at all times. It must only be installed as detailed in the supplied instructions. Contact: info@hmquickshifter.com +44 (0) 1795 429168

Machine:	Part Number
Kawasaki Ninja 400 (EX400)	HMGP-KA1712
Yamaha YZF-R3	HMGP-YA1016
KTM RC390 No ABS	HMGP-KT1016A

KTM RC390 ABS	HMGP-KT1016B
KTM RC390R 2017 (Euro 4)	HMGP-KT1712

HM Quickshifter wheel speed kits may be fitted as noted on the MCRCB Authorised parts list.

- l. **It is the team's responsibility to inform the Chief Technical Officer or his appointed staff if they believe that the rev limiter is not acting correctly.**
- m. The following strategies are NOT allowed:
 - a. Traction control (including anti-spin / rate of change of rpm)
 - b. Launch Control
 - c. Anti Wheelie
 - d. Closed loop Engine Brake Control
 - e. Corner by Corner / Distance based adjustments
 - f. Rider adjusted trims
- n. Other additional electronic hardware equipment not on the original homologated motorcycle cannot be added with the exceptions noted below.
- o. Resistors/load may be added to replace the parts of the electrical system that have been removed (including lights and lambda sensors), to prevent ECU errors.
- p. Data logging is not allowed
- q. Telemetry is not allowed.
- r. 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.
- s. 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. MCRCB authorised manufacturer Kit Harness is allowed.
- t. To be authorised samples of external modules with their tuning tools must be sent by the Manufacturers to the Chief Technical Officer at least 3 weeks before the beginning of the Championship, with technical data and selling price. The manufacturer must provide the CTO with the tools to control the module.
- u. Dashboard is free however it may only replace the functions of the standard dashboard (including switch logic and display) and may not perform any other logic function on the bike. The dashboard may only display those channels noted in 5.5.9.3.h and lap times. There must remain a working Tachometer display.
- v. A lap timer may be fitted from MCRCB authorised lap timer list.
- w. Spark plugs may be replaced.
- x. Battery is free.

5.5.9.2 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 2 seconds without the use of a boost battery. No boost battery may be connected to the machine after the end of the session.

5.5.10 Main 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 must request the use of a spare frame to the Chief Technical Officer.

Certain pre-assembled parts may be prepared they will be strictly limited, see F 1.1.3 One Bike Regulation

5.5.10.1 Frame body and sub frames

- a. The frame must be the originally fitted and homologated part with no modification allowed.
- b. Holes may be drilled on 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. Crash protectors may be fitted to the frame using existing points (max. length: 50 mm), or pressed into the ends of the wheel axles (max. length: 30mm). Without exception, the wheel axles cannot be modified.
- d. The sidestand bracket may be cut or removed.
- e. Nothing else may be added or removed from the main frame body.
- f. All motorcycles must display a vehicle identification number punched on the frame body (chassis number).
- g. Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
- h. Front sub frame / fairing mount may be changed or altered, but the use of titanium and carbon (or similar composite materials) is forbidden.
- i. Rear Sub Frame:
 - i. If removable it may be changed or altered, but the type of material must remain as homologated, or be material of a higher specific weight.
 - ii. If part of the main frame assembly then it may not be altered except as noted below.
 - iii. Additional seat support 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 frames is not allowed

5.5.10.2 Suspension - General

- a. Participants in the Junior Supersport class must only use the authorised and listed suspension units for that season. The price limits are:
 - a. Fork: 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 **€800** excluding tax.
 - b. Shock Absorber/RCU: For the complete shock absorber / RCU including but not limited to spring (1 of), and length/ride height adjuster the price limit is **€935** excluding tax.
The pre-load adjuster is free and excluded from the price limit.
- b. The authorised products from the suspension manufacturers must be available to all participants at least one month before the first round of the season, and remain available all season. The products must be available within 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 authorised 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. No type of electronic suspension may be used even when fitted to the homologated machine.
- 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).

5.5.10.3 Front Forks

- a. Forks (stanchions, stem, wheel spindle, upper and lower crown, etc.) Must be the originally fitted and homologated part 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. 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 on the mechanical forks may only be modified or replaced to allow external adjustment. (This does not include the mechanical fork leg that is part of the homologated electronic fork set).
- 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. Only authorised aftermarket damper kits or valves may be installed. The original surface finish of the fork tubes (stanchions, fork pipes) may be changed. Additional surface treatments are allowed. (See 5.5.10.2.a)
- i. Electronic forks must have their complete internal parts (including all electronic control) replaced with a conventional damping system.

5.5.10.4 Rear fork (Swing-arm)

- a. The rear fork must be the originally fitted and homologated part with no modification allowed.
- b. Rear fork pivot bolt Must be the originally fitted and homologated part with no modification allowed.
- c. Rear swingarm 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 solid protective cover (shark fin) shall be fixed to the swing-arm, and must always cover the opening between the lower chain run, swingarm and the rear wheel sprocket, irrespective of the position of the rear wheel.
- 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.

5.5.10.5 Rear suspension unit

- a. Rear suspension unit (shock absorber) may be replaced with an authorised unit, but the original attachments to the frame and rear fork (swing arm) (or linkage) must be as homologated.(See 5.5.10.2.b)
- b. All the rear suspension linkage parts must be the originally fitted and homologated part with no modification allowed.

- c. Removable top shock mounts must be the originally fitted and homologated part 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. An electronic shock absorber can be replaced with a mechanical one.

5.5.10.6 Wheels

- a. Wheels must be the originally fitted and homologated part with no modification allowed.
- b. The wheel may be overpainted but the original finish cannot be removed.
- c. A non-slip coating / treatment may be applied to the bead area of the rim.
- d. If the original design includes a cushion drive for the rear wheel, it must remain as originally produced for the homologated motorcycle.
- e. Wheel axles and retaining nuts (or bolts) must remain as homologated, wheel spacers may be modified or replaced.
- f. Bearing spacers must remain as homologated.
- g. Wheel balance weights may be discarded, changed or added to.
- h. Aluminium or steel inflation valves are compulsory. Angled valves are recommended**

5.5.10.7 Brakes

- a. Brake discs may be replaced by aftermarket discs which comply with following requirements:
 - i. Brake discs must retain the same material as the homologated disc or be steel (max. carbon content 2.1 wt%).
 - ii. Non-floating or single piece discs may be replaced with floating discs. The disc carrier must be the same material as the homologated carrier, steel or aluminium.
 - iii. The outside diameters of the brake disc must not be larger than 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 caliper (mount, carrier, hanger) must be the originally fitted and homologated part 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 a helicoil.

- f. The front and rear master cylinder must be the originally fitted and homologated part 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. The Antilock Brake System (ABS) must be removed. The ABS units electronic board may remain fitted to stop ECU errors.
- 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. Composite guards are not permitted. MCRCB authorised guards will be permitted without regard of the material. Chief Technical Officer has the right to refuse any guard not satisfying this safety purpose.

5.5.10.8 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. 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.

5.5.10.9 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 8 mm solid spherical radius. (See Diagram A & C).

- e. Non folding footrests must have an end (plug) which is permanently fixed, made of aluminium, plastic, Teflon® or an equivalent type material (minimum radius 8mm). The plug surface must be designed to reach the widest possible area. Chief Technical Officer has the right to refuse any plug not satisfying this safety aim.

5.5.10.10 Fuel tank

- a. 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.

5.5.10.11 Fairing / Bodywork

- a. 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 fibre 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. For all bodywork paint and decal design is free.
- c. Overall size and dimensions must be the same as the original part, with a tolerance of +-5mm, respecting the design and features of the homologated fairing as far as possible. The overall width of the frontal area may be +5mm maximum. The decision of the Chief Technical Officer is final.
- d. Wind screen may be replaced with an aftermarket product. The height of the windscreen is free. The screen must conform to the same profile from the front as the original – no double bubble or wide types. From a top view the length of the windscreen may be shortened by 25mm to allow clearance for the rider. The edge of the screen must have no sharp edges
- e. 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 fibre 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 minimum 4 litres. 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 plate. The material is free but the distance between all opening centres, circle centres 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. Front mudguards may be replaced with a cosmetic duplicate of the original parts and may be spaced upward for increased tyre clearance.
- m. Rear mudguard fixed on the swing arm may be modified, changed or removed. The chain guard may be removed as long as it is not incorporated in the rear fender.

5.5.10.12 Seat

- a. Seat, seat base and associated bodywork may be replaced
- b. The appearance from 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. Material as Fairing (article 5.5.10.10.a)
- f. All exposed edges must be rounded.

5.5.10.13 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. Thread repair using inserts of different material such as helicoils and timeserts.

- d. Fairing / bodywork fasteners may be replaced with the quick disconnect type.
- e. Aluminium fasteners may only be used in non-structural locations.

5.5.10.14 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 centre line (motorcycle running direction), and be clearly visible from the rear at least 15 degrees to both left and right sides of the machine centre line.
- b. The rear light must be mounted near the end of the seat/rear bodywork and approximately on the machine centre line, in a position approved by the Chief Technical Officer. In case of dispute over the mounting position or visibility, the decision of the Chief Technical Officer 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 Chief Technical Officer has the right to refuse any light system not satisfying this safety purpose.

5.5.11 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. Material for brackets connecting non original parts (fairing, exhaust, instruments, etc) to the frame (or engine) cannot be made from titanium or fibre reinforced composites excepting the exhaust silencer hanger that may be in carbon.
- d. Protective covers for the frame, chain and footrests may be made in other materials like fibre composite material if these parts do not replace original parts mounted on the homologated model.

5.5.12 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. Bolt-on accessories on a rear sub frame.

5.5.13 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, centre and side stands must be removed (fixed brackets must remain excepting side stand bracket).
- j. Catalytic converters

5.5.14 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. Motorcycles must be equipped with a red light on the instrument panel that will illuminate in the event of oil pressure drop.