



**ALPE ADRIA MOTORCYCLE UNION**  
**ALPE ADRIA CIRCUIT RACING TECHNICAL REGULATIONS (AACRTR) 2018**

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Each modification is prohibited, if it is not allowed expressively

Everything printed in **bold** is new or changed for **2018**

## **AACR 0 - GENERAL**

- a. The Alpe Adria Road Racing Commission may make amendments to the technical regulations at any time.
- b. Each rider can pass the Technical Control with one motorcycle only. The Technical Stewards should re-inspect any motorcycle that has been involved in any accident, and if it is necessary to issue a new technical control sticker for a rebuilt motorcycle. If a motorcycle is completely damaged, the Chief Technical Steward can allow the rider to pass the Technical Control with a second motorcycle. But at any time of the event only one motorcycle per rider and class is allowed.
- c. During practices: If a motorcycle is found not to be in conformity with the technical regulations during or after the practices, its rider will be given a penalty for the event such as a ride-through, a drop of any number of grid positions for the next race, suspension and/or withdrawal of Championship or Cup points.
- d. After a race: If a motorcycle is found not to be in conformity with the technical regulations after a race, its rider will be given a penalty such as time penalty or disqualification.
- e. If during the practice sessions or the race itself a Technical Steward states a fault in a motorcycle that could represent a danger for the other riders, he must immediately inform the Clerk of the Course.

Random technical controls can be carried out during practices and at the end of practices in the technical control area.

The rider is at all times responsible for his motorcycle.

## **AACR 0.1 - PROTECTIVE CLOTHING AND HELMETS**

- 0.1.1 Riders and passengers must wear a complete leather suit with additional leather padding or other protection on the principal contact points, knees, elbows, shoulders, hips etc.
- 0.1.2 Linings or undergarments must not be of a synthetic material, which might melt and cause damage to the rider's skin.
- 0.1.3 Riders must also wear leather gloves and boots, which with the suit provide complete coverage from the neck down.
- 0.1.4 Leather substitute materials may be used, provided the Chief Technical Steward has checked them.
- 0.1.5 Use of a back protector is mandatory.
- 0.1.6 Riders must wear a helmet, which is in good condition, provides a good fit and is properly fastened.
- 0.1.7 Helmets must be of the full-face type and must conform to one of the recognised international standards:
  - Europe: ECE 22-05, (P)
  - Japan: JIS T 8133 : 2007 (valid until 31.12.2019); JIS T 8133 : 2015
  - USA: SNELL M 2010 (valid until 31.12.2019); SNELL M 2015Helmets with double D-Ring fasteners are mandatory!
- 0.1.8 Visors must be made of a shatterproof material.
- 0.1.9 Disposable "tear-offs" are permitted.
- 0.1.10 Any question concerning the suitability or condition of the riders clothing and/or helmet should be decided by the Chief Technical Steward, who can, if he wishes so, consult the manufacturers of the product before making a final decision.

## **AACR 0.2 ADDITIONAL EQUIPMENT**

- 0.2.1 Brake lever protection:

Motorcycles must be equipped with a brake lever protection (**guard**), intended to protect the handlebar brake lever from being accidentally activated in case of collision with another motorcycle. Composite **guards** are not permitted. **FIM approved guards are permitted without regard to the material.**

The Chief Technical Steward has the right to refuse any guard not satisfying this safety purpose.

### 0.2.2 Chain guard:

All motorcycles must be equipped with a chain guard in such a way to reduce the possibility that any part of the rider's body becomes trapped between the lower chain run and the final drive sprocket at the rear wheel.

**Composite guards are not permitted. FIM approved guards are permitted without regard to the material. The Chief Technical Steward has the right to refuse any guard not satisfying this safety purpose.**

### 0.2.3 Rear safety light:

All motorcycles must have a functioning red light mounted **at the rear of the motorcycle**. This light must be switched on any time the motorcycle is on the track or is ridden in the pit lane and the Race Direction declares the session WET.

All lights must comply with the following:

- a) **The rear light must be mounted on the motorcycle during the whole time of the event.**
- b) **The rear light must be mounted properly with screws. Mounting the rear light with tape or hook-and-loop fasteners is not allowed.**
- c) **The luminous field must be at least 4cm<sup>2</sup> (e.g. rectangular 4 cm x 1 cm, circular Ø 2.25 cm).**
- d) Lighting direction must be parallel to the motorcycle centre line (motorcycle running direction), and be clearly visible from the rear at least 15 degrees to both left and right sides of the motorcycle centre line.
- e) The rear light must be mounted near the end of the seat/rear bodywork and approximately on the motorcycle centre line, in a position approved by the Chief Technical Steward. In case of dispute over the mounting position or visibility, the decision of the Chief Technical Steward will be final.
- f) **Power output/luminosity equivalent to minimum 10 W (incandescent) or 1 W (LED).**
- g) The output must be continuous - no flashing safety light allowed. Flashing is allowed **only** in the pit lane when the pit limiter is active.
- h) The safety light power supply may be separated from the motorcycle.
- i) The Chief Technical Steward has the right to refuse any light system not satisfying this safety purpose.

### 0.2.4 Kill switch:

All 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.

## **AACR 0.3 TYRES**

- a) If competitors use tyres of Dunlop, Pirelli or Bridgestone brand, these are distributed or approved exclusively by the official tyre suppliers during the event only:
  - **Dunlop tyres only by Maco Racing, s.r.o. I.D. 35804241**
  - **Pirelli tyres only by Pirelli Racing service /TBA.**
  - **Bridgestone tyres only by IVRacing, s.r.o. I.D. 26921961**
- b) All tyres in use must be easily identifiable with colour marking stickers, to be applied by the official tyre suppliers in case of Dunlop, Pirelli or **Bridgestone**.
- c) The stickers must be placed on the side of motorcycle which is facing to the pit lane before the motorcycle is entering the track.
- d) Sticker requirements:
  - i. In the case of two free practises:
    - Stickers are not required for Free Practice one.
    - Stickers are required for Free Practice two, Qualifying Practices and Races.
  - ii. In the case of three free practises:
    - Stickers are not required for Free Practice one and two.
    - Stickers are required for Free Practice three, Qualifying Practices and Races.
- e) **The stickers of 2017 season are not valid for 2018 season.**

The above regulations are not valid for AA Cup.

- f) Tyres must be a fully moulded type carrying all size and sidewall marking of the tyres for commercial sale to public.
- g) Tyres with a maximum W rating must be used.
- h) The depth of the tyre treads must be at least 2.5 mm. over the entire tyre pattern width at a pre-race control. The tyres must have a positive and negative tread of 96 % and minimum 4 % negative (land and sea ratio) The maximum distance from the external edge of the tyre to 50 % of the tread elements is 35 mm. Each size, front and rear, must be available with the same tread pattern as the commercial tyres for road use.
- i) The tyres must have a DOT and/or E-Mark, the DOT and/or E-mark must be on the tyre sidewall.
- j) Any modification or treatment of the tyres (cutting, grooving) is forbidden.
- k) Wet tyres and intermediate tyres can be used only when the Race Direction has declared the race or practice "WET".
- l) Wet tyres must be a fully moulded tyre.
- m) Wet tyres do not need to carry a DOT and/or E-marks; however, these tyres must be marked "not for highway use" or "NHS".
- n) The use of hand-cut tyres is not allowed.
- o) For class SST 600: The maximum size for rear tyres is **200/55/17**.
- p) For class SST 1000: Slick tyres are allowed, wheel size 17".

#### **AACR 0.4 STARTING NUMBERS AND BACKGROUNDS**

The colours of the starting numbers and backgrounds are defined separately in the regulation of the class concerned. The number must be clearly visible and in a good shape.

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

- a) One on the front, either in the centre of the fairing or slightly off to one side. **The number must be centred on the background with no advertising within 25 mm in all directions.**
- b) One, on each side **on the lower rear portion of the lower fairing**; see Appendix A. **The number must be centred on the background.**
- c) Numbers must be easily legible in a clear simple font and contrast strongly with the background colour.
- d) Backgrounds must be of one single colour and must be clearly visible around all edges of the number (including outline). **Backgrounds must protrude the numbers within 15 mm in all directions.**
- e) Any outlines must be of a contrasting colour and the maximum width of the outline is 3 mm.
- f) Reflective or mirror type numbers are not permitted.
- g) Numbers cannot overlap.

In case of a dispute concerning the legibility of numbers, the decision of the Chief Technical Steward is final.

The sizes for all the front numbers are:	Minimum height	120 mm
	Minimum width	60 mm
	Minimum stroke	20 mm
	Minimum space between numbers	10 mm
The sizes for all the side numbers are:	Minimum height	100 mm
	Minimum width	50 mm
	Minimum stroke	15 mm
	Minimum space between numbers	10 mm

#### **AACR 0.5 FUEL**

- a) All engines must function on normal unleaded fuel with a maximum lead content of 0.005 g/l (unleaded) and a maximum MON of 90 based on the FIM SBK 2016 Rules, Art. 2.7 and its sub articles 2.7.1 – 2.7.6 (see Appendix D).
- b) Normal unleaded fuel from any public petrol station and racing fuels according to the FIM SBK 2016 Rules, Art. 2.7 and its sub articles 2.7.1 – 2.7.6 (see Appendix D) can be used.

- c) At the technical control, each rider has to declare the brand and type of fuel he is using.
- d) At least 1 litre fuel must remain in the fuel tank of all the motorcycles that finished the race to take samples if needed.

### **AACR 0.6 HOMOLOGATION**

For AA-classes Superstock 600/1000, Supersport and Superbike all motorcycles must have a **valid FIM-Homologation from 2009 onwards**.

**For AA class Supersport 300 see Appendix F.**

### **AACR 0.7 SOUND LEVEL CONTROL**

For AA-classes Superstock 600/1000, Supersport and Superbike look at the ~~FIM Road Racing World Championship Superbike & Supersport Regulations 2016, Art. 2.11~~ see Appendix E.

**The noise limits are defined separately in the regulation of the class concerned.**

**For AA class Supersport 300 see Appendix F.**

For all AA classes the methods of measurement will be according to the methods described in the **FIM Superbike & Supersport World Championship & FIM Superstock Cup Regulations 2016, Art. 2.11**.

### **AACR 0.8 TIMEKEEPING INSTRUMENTS**

All motorcycles must have a correctly positioned timekeeping transponder. The transponder must be ~~supplied or~~ approved by the official Timekeeper and fixed to the motorcycle in the position advised by the official Timekeeper and approved by the Chief Technical Steward.

**Mounting the transponder with tape or hook-and-loop fasteners is not allowed.**

### **AACR 0.9 TECHNICAL CONTROL**

- a) **All motorcycles must be presented at the technical control with the lower fairing removed. The oil pan, oil drain plug, oil filler cap, oil filter and - if existing - oil radiator and oil lines must be clearly visible.**
- b) **All riders / teams must be prepared to completely disassemble their engines at the Parc Ferme inspection. Therefore, all necessary tools and spare parts must be available.**

### **AACR 1 - SUPERSPORT 300 (SSP 300)**

Look at the code European SSP 300 Cup Technical Regulations 2018 (see Appendix F) and its annexations except the following: TBA

### **AACR 2 - SUPERSPORT (SSP)**

Look at the code FIM Supersport World Championship Regulations 2013 (**see Appendix G**) and its annexations except the following:

#### **FIM 2.5.5 Number plate colours**

**See Art. AACR 0.4 and Appendix A.**

#### **FIM 2.5.7 Tyres**

**See Art. AACR 0.3, the number of tyres is free.**

#### **FIM 2.5.8 Engines**

The total number of engines that can be used by each rider is free.

#### **FIM 2.5.8.18 Exhaust system**

**Catalytic converters must be removed.**

**For 2020: The noise limit will be 102 dB/A with a tolerance of + 3dB/A after the race only.**

#### **FIM 2.5.10 Main frame and pre-assembled 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 and a valid frame number / chassis number. In case the frame will need to be replaced, the rider or team must request the use of a spare frame to the AA Technical Delegate.**

#### FIM 2.5.10.5 Wheels

Metal valve stems with metal stem caps are highly recommended.

**Wheels must remain as originally produced by the manufacturer for the homologated motorcycle. Wheels can be from different variants of the same base model and from different model years, but only if these variants and model years are homologated by the FIM.**

**A non-slip coating/treatment may be applied to the bead area of the rim.**

**The paint scheme is not restricted but polishing the wheels is not allowed.**

#### FIM 2.5.10.6 Brakes

The front brake master cylinder can be changed or replaced.

#### FIM 2.5.10.7 Handlebars and hand controls

- a. Throttle grip can be modified or substituted.
- b. Throttle assembly and associated cables can be modified or replaced but the connection to the throttle body and the throttle controls must remain as homologated. 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.
- c. Clutch and brake lever may be exchanged by an after-market model. An adjuster to the brake lever is allowed.
- d. Switches can be changed but electric starter switch and engine stop switch must be located on the handle bars.
- e. Welding of handle bars is not allowed.
- f. The use of carbon fibre, Kevlar or carbon composite materials for handlebars is not allowed.
- g. Handlebar ends must be plugged with a solid material or rubber covered.
- h. The minimum angle of rotation of the steering stem on each side of the centre line or mid position must be of 15°.
- i. In any position of the handlebars /steering stem, the front wheel, tyre and mudguard must maintain a minimum gap of 10 mm to the bodywork and radiator(s).
- j. Solid stops (other than steering dampers) must be fitted to ensure a minimum clearance of 30 mm between the handlebar with levers and the tank, frame or other bodywork when on full lock to prevent trapping the rider's fingers.
- k. All handlebar levers must be ball-ended (diameter of this ball at least 16 mm). This ball can also be flattened, the minimum thickness of the flattened part is 14 mm and the edges must be rounded. These ends must be permanently fixed and form an integral part of the lever.
- l. Each control lever must be mounted on an independent pivot.
- m. The rear brake lever, if pivoted on the footrest axis, must work under all circumstances, such as the footrest being bent or deformed.
- n. A thumb operated rear brake solution will be considered for the mobility challenged only subject by the Medical Director and the Technical Directors decision is final.

#### FIM 2.5.10.13 Rear safety light

See Art. AACR 0.2.3

### **AACR 3 – SUPERSTOCK 600 / 1000**

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 RULES IS STRICTLY FORBIDDEN.

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

As the name **SUPERSTOCK** implies, limited modifications are allowed to the Motorcycles. Most modifications are only allowed for safety reasons.

**SUPERSTOCK** motorcycles require a FIM homologation (see Appendix 1.1 “FIM HOMOLOGATION PROCEDURE FOR SUPERBIKE, SUPERSTOCK AND SUPERSPORT MOTORCYCLES (2017)” and AACR 0.6).

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 motorcycle.

The appearance from both front, rear and the profile of Superstock 600 / 1000 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.

### **5.1 Discipline Specifications Superstock 600 / 1000**

#### **Superstock 600**

4 cylinders	over 401 cc up to 600 cc	4-stroke
3 cylinders	over 401 cc up to 675 cc	4-stroke
2 cylinders	over 401 cc up to 750 cc	4-stroke

#### **Superstock 1000**

3 and 4 cylinders	over 750 cc up to 1000 cc	4-stroke
2 cylinders	over 850 cc up to 1200 cc	4-stroke

The displacement capacities must remain at the homologated size. Modifying the bore and stroke to reach class limits is not allowed. All engines must be normally aspirated.

### **5.2 Minimum Weights / Starting Numbers and Backgrounds**

#### Minimum weights:

In the final inspection at the end of the race, the checked s will be weighed in the condition they were at the end of the race.

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

There is no tolerance on the minimum weight.

During the final inspection at the end of the race, the selected motorcycles will be weighted 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.

**Superstock 600:** Minimum weight **see APPENDIX C: MINIMUM WEIGHTS.**

**Superstock 1000:** In any case the minimum weight of SST 1000 motorcycles cannot be lower than **170 kg!** **See APPENDIX C: MINIMUM WEIGHTS.**

#### Starting Numbers and Backgrounds:

**Superstock 600:** Red background with yellow numbers, with the RAL colour table values being 3020 for red and 1003 for yellow. (see Appendix A **and AACR 0.4**).

**Superstock 1000:** Red background with white numbers, with the RAL colour table values being 3020 for red and 9010 for white. (see Appendix A **and AACR 0.4**).

### **5.4 Fuel**

All engines must function on normal unleaded fuel with a maximum lead content of 0,005 g/l (unleaded) and a maximum MON of 90 (see also Appendix D).

### **5.5 Tyres**

**See Art. AACR 0.3**

### **5.6 Engine**

#### **5.6.1 Fuel Injection System**

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

- The original homologated fuel injector system must be used without any modification.
- The fuel injectors must be stock and unaltered from the original specification and manufacture.
- Bell mouths must remain as originally produced by the manufacturer for the homologated motorcycle.
- Butterfly valves cannot be changed or modified.

- e. 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 parts of the variable intake tract device must remain exactly as homologated.
- f. Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.
- g. Electronically controlled throttle valves, known as “ride-by-wire”, may be only used if the homologated model is equipped with the same system. Software may be modified but all the safety systems and procedures designed by the original manufacturer must be maintained.

#### **5.6.2 Cylinder Head**

- a. **Must be the original fitted and homologated part with no modification allowed.**
- b. No material may be added or removed from the cylinder head.
- c. The gaskets can be changed.
- d. The valves, valve seats, guides, springs, tappets, oil seals, shims, cotter valve, spring base and spring retainers must be as originally produced by the manufacturer for the homologated motorcycle.
- e. Additional Valve spring shims are not allowed.
- f. Only normal maintenance interventions as prescribed by the Manufacturer in the Service Manual of the motorcycle are authorized.

#### **5.6.3 Camshaft**

- a. **Must be the original fitted and homologated part with no modification allowed.**
- b. At the technical checks for direct valve operation systems the cam lobe lifts are measured; for indirect valve operation systems (i.e. where cam followers are fitted), the valve lift is measured.
- c. The timing of the camshafts is free; however, no machining of the camshaft is authorized.

#### **5.6.4 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 / cam drive system **and tensioner must be the original fitted and homologated part with no modification allowed.**

#### **5.6.5 Cylinders**

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

#### **5.6.6 Pistons**

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

#### **5.6.7 Piston Rings**

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

#### **5.6.8 Piston Pins and Clips**

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

#### **5.6.9 Connecting Rods**

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

#### **5.6.10 Crankshaft**

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

#### **5.6.11 Crankcase and all other Engine Cases (i.e. ignition case, clutch case.)**

- a. Crankcases must remain as homologated. No modifications are allowed (including painting, polishing and lightening).
- b. It is not allowed to add a pump or any other device to create a vacuum in the crankcase. If a vacuum pump is installed on the homologated motorcycle then it may be used only as homologated.
- c. 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 from material of the same or higher specific weight and the total weight of the cover must not be less than the original one.
- d. 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.

- e. 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.
- f. Plates or crash bars made from aluminium or steel are also permitted in addition to these covers. All of these devices must be designed to be resistant against sudden shocks, abrasions and crash damage.
- g. FIM approved covers will be permitted without regard of the material or its dimensions.
- h. 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.
- i. The Chief Technical Steward has the right to refuse and forbid any cover not satisfying this safety purpose, if the evidence shows that the cover is not effective.
- j. Oil containing engine covers must be secured with steel bolts.

#### **5.6.12 Transmission/Gearbox**

- a. Must be the original fitted and homologated part with no modification allowed.
- ~~b. An external quick shift system on the gear selector (including wire and potentiometer) is allowed.~~
- c. Other modifications to the gearbox or selector mechanism are not allowed.
- d. Countershaft sprocket, rear wheel sprocket, chain pitch and size can be changed.
- e. The sprocket cover can be modified or eliminated.
- f. Chain guard as long as it is not incorporated in the rear fender may be removed.
- g. Transmission gear shifter shaft supporting brackets can be added.
- h. Add on quick shift modules / additional modules will only be allowed to enable upshifts, no "downshift-blipping" add-ons are allowed. "Downshift blipping" controlled by the manufacturer supplied ECU / Kit-ECU is allowed.**

#### **5.6.13 Clutch**

- a. Clutch system (wet or dry type) and the method of operation (by cable or hydraulic) must remain as homologated.
- b. Only friction and drive discs may be changed, but their number must remain as original.
- c. Clutch springs may be changed.
- d. Clutch outer basket and inner basket must remain as originally produced for the homologated motorcycle.**

~~Only for AA: The clutch can be changed by an anti-hopping clutch system.~~

#### **5.6.14 Oil Pumps and Oil Lines**

- a. Must be the original fitted and homologated part with no modification allowed.**
- b. Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or threaded connectors.

#### **5.6.15 Radiator and oil coolers**

- a. The only liquid engine coolants permitted ~~is water or water mixed with ethyl alcohol.~~
- b. Protective meshes may be added in front of the oil and/or water radiator(s).
- c. The cooling system hoses/pipes and catch tanks may be modified or changed.
- d. Radiator fan and wiring may be removed. Thermal switches, water temperature sensor and thermostat can be removed inside the cooling system.
- e. Radiator cap is free.
- f. Additional radiators and/or oil coolers are not allowed.
- g. The original water radiator must be used without any modifications.
- h. The original oil radiator must be used without any modifications can be modified or replaced.**

#### **Only for class SST 1000:**

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.

#### **5.6.16 Air Box**

- a. Must be the original fitted and homologated part with no modification allowed**, but the air box drains must be sealed.
- b. The air filter element may be modified or replaced but must be mounted in the original position.
- c. All motorcycles must have a closed breather system. The oil breather line must be connected, **may pass through an oil catch tank and must exclusively** discharge in the air box.
- d. No heat protection may be attached to the air box.

### **5.6.17 Fuel Supply**

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

### **5.6.18 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) must remain as homologated. The silencer(s) must be on the same side(s) as on the homologated motorcycle.
- c. For safety reasons the exposed edge(s) of the exhaust pipe(s) outlet must be rounded to avoid any sharp edges.
- d. Wrapping of the exhaust system 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 will be 107 dB/A with a tolerance of + 3dB/A after the race only.
- f. Titanium and carbon exhaust and silencers are allowed.

**For 2020: The noise limit will be 102 dB/A with a tolerance of + 3dB/A after the race only.**

### **5.6.19 Sound level control**

See AACR 0.7 (see also Appendix E).

## **5.7 Electrics and Electronics**

### **5.7.1 Ignition / Engine control system (ECU) / Electronics**

- a. The engine control system (ECU) must be either:
  - i. The original system as homologated, with **no** change of software being allowed.
  - ii. The original system (with the production ECU **and no change of software**) (option i.) may have FIM/AA approved external ignition and/or injection module/s added. The total combined retail price (software and tuning tools included) on sale to the general public cannot be higher than € 3.000 (tax excluded). A special connector may be used to connect the module/s and the ECU.
  - iii. An FIM/AA approved "Superstock Kit" model **with approved software** (produced and/or approved by the motorcycle manufacturer) may be used. A special connector/adaptor may be used to connect the ECU(s) and the original wiring harness. The combined retail price of the full system including software, tuning tool, download / connection cable any activations, upgrades and wiring harness(s) must be less than:

1. **€ 3.000 (tax excluded) if the system excludes data logging.**
2. **€ 3.750 (tax excluded) if the system includes data logging.**

**The ECU (with software and activations) and harness parts must be individually priced and available separately. The separate ECU and harness total must respect the above limits.**

- b. Central unit (ECU) may be relocated.
- c. **Corner by corner or distance/position based adjustments are not allowed.**
- d. Optional equipment sold by the motorcycle Manufacturer for the homologated model is considered not homologated with the motorcycle and must follow the requirements for approved electronics / data loggers.
- e. **At any time** during an event the Chief Technical Steward has the right **make a rider/team** substitute their ECU or external module(s) with the **FIM / AA** sample received from the Manufacturer. ~~The change has to be done before Sunday warm-up.~~
- f. No extra sensors may be added for control strategies except shift rod sensor, speed sensors and lambda sensors. Wheel speed sensors must be included in the Kit ECU and Harness package if required.

**Only for class SST 600:**

**Front wheel speed sensor is not allowed.**

- g. The FIM / AA approved external fuel injection modules / ignition modules may not alter any sensor signal relating to the ride by wire system / ECU or control / actuate any part of the motorcycle excepting the fuel injectors / ignition coils.
- h. Lambda closed loop /auto tuning is permitted. Only FIM / AA approved auto tuning units can be used.
- i. No external modules may add traction control strategies (such as traction control, launch control, anti-wheelie control) unless originally fitted to the homologated motorcycle.

**Only for class SST 600:**

Traction control, launch control and anti-wheelie control is not allowed. No external modules (fuel injection modules / ignition modules) may add traction control strategies.

- j. The characteristics of approved data logging systems must be the following:
  - i. Maximum retail price of the unit (hardware and software; excluding sensors and wiring harness) cannot exceed € 3.000 (tax excluded) if it is a standalone unit. The logger must be from the FIM / AA approved logger list.
  - ii. Maximum retail price of the unit if incorporated into the ECU (hardware + software; excluding sensors and wiring harness) is € 3.750 (tax excluded) see also article 5.7.1 / a. / iii. / 2.
  - iii. The Data Logger unit must be available for sale to the public.
  - iv. A maximum of 7 simultaneous working sensors (connected to the additional Data Logger) may be added to the original sensors on the motorcycle. The sensors must be from the following list:
    1. Lambda (must be supplied in the kit if used for strategy)
    2. Fork position
    3. Shock position
    4. Front brake pressure
    5. Rear brake pressure
    6. Fuel pressure (not temperature)
    7. Oil pressure
    8. Oil temperature
    9. Transponder / lap time signal
    10. GPS unit (lap timing and track position)
  - v. The sensors must be simple function. No inertial platforms are allowed to be added if an inertial platform is not installed originally on the homologated motorcycle.
  - vi. CAN (or other data protocol) communication from the ECU to an approved Data Logger is allowed without any limitation in CAN channel logger number. The Data Logger may not act to control any strategy or setting in the ECU – except to replicate the original dashboard signals if the original dashboard is replaced. The logger may not automate these setting changes.
- k. The maximum total price of other active/control/calculation units such as lambda driver modules, quick shifter and analogue to CAN converters is € 750 (tax excluded). These devices must be approved by FIM / AA.
- l. Telemetry is not allowed.
- m. No remote or wireless connection to the motorcycle for any data exchange or setting is allowed whilst the engine is running **or the bike is moving**.
- n. Harness:
  - i. The main wiring harness may be replaced by the kit wire harness as supplied for the Kit ECU model, produced and/or approved by the manufacturer of the motorcycle and by FIM/AA.
  - ii. **The kit wiring harness may incorporate the data logging harness.**
  - iii. **A kit harness that incorporates the data logging harness may only accommodate 7 additional sensors.**
  - iv. The key/ignition lock may be relocated, replaced or removed.
  - v. Cutting of the original main wiring harness is allowed.
- o. **Data Logger harness:**
  - i. **The Data Logger wire harness cannot include any other sensors than the 7 sensors that are allowed. The only function of the approved Data Logger wire harness is to connect the 7 sensors to the Data Logger, to transmit the data and supply the power.**
- p. The addition of an infrared (IR) or GPS based lap timing system is allowed.
- q. The original speedometer and tachometer may be altered or replaced.
- r. Spark plugs may be replaced.
- s. The battery is free.

### **5.7.2 Generator Alternator and Electric Starter**

- a. **The generator (ACG) 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 Ferme 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 motorcycle after the end of a race.**

### **5.8 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 and a valid frame number / chassis number. In case the frame will need to be replaced, the rider or team must request the use of a spare frame to the AA Technical Delegate.**
- b. **The pre-assembled spare frame must be presented to the AA Technical Delegate for the permission of rebuilding. The pre-assembly is 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 clamps (triple clamps, fork bridges)**
  - vi. **Wiring harness**
- c. **The spare frame will not be allowed in the pit box before the rider or the team has received authorization from the AA Technical Delegate.**
- d. **The rebuilt motorcycle must be inspected before its use by the Technical Stewards for safety checks and a new seal will be placed on the motorcycles frame.**
- e. **No other spare motorcycle may be on the track.**

### **5.9 Frame Body and Rear Sub Frame**

- a. **The frame must remain as originally produced by the manufacturer for the homologated motorcycle with no modification allowed.**
- b. **All motorcycles must display a valid vehicle identification number (frame number / chassis number) punched on the frame body.**
- c. **The side stand bracket may be cut or removed.**
- d. The sides of the frame body may be covered by a protective part made of plastic or composite material. These protectors must fit the form of the frame.
- e. Nothing may be added by welding or removed by grinding from the **main** frame body.
- f. Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
- g. Additional seat brackets may be added, but none may be removed.
- h. 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.
- i. Holes may be drilled in the frame and rear sub frame only for fixing of allowed components (i.e. fairing brackets, steering damper mount, **sensors**, etc.).
- j. The paint scheme is not restricted but polishing the frame body or sub frame is not allowed.
- k. Rear sub frame may be changed or altered, but the type of material must remain as the homologated one or of higher specific weight. Repairing and welding of the sub frame is allowed.
- l. **Front sub frame / fairing mount may be changed or altered.**

#### **5.9.1 Front Forks**

- a. Forks structure, stanchions, stems, wheel spindle, upper and lower crown must remain as the original one produced by the manufacturer for the homologated motorcycle.
- b. The upper and lower fork clamps (triple clamp, fork bridges and stem) 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 motorcycle). If the standard motorcycle has inserts then the orientation/position of the original inserts 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 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. Mechanical Forks: Original internal parts of the homologated forks may be modified or replaced. After market damper kits or valves may be installed.
- i. Electronic Suspensions: No aftermarket or prototype electronically controlled suspension may be used, unless such suspension is already present on the production model of the homologated motorcycle, and it must remain completely standard (all mechanical or electronic parts must remain as homologated, with the exception of shims and springs). The electronic front suspension may be replaced with a mechanical system from a similar homologated model from the same manufacturer.
- j. The original surface finish of the fork tubes (stanchions, fork pipes) may be changed. Additional surface treatments are allowed.
- k. Any quality and quantity of oil can be used in the front forks.
- l. The protrusion (height and position of the front fork in relation to the fork crowns) is free.
- m. Fixing and mounting points for front brake calliper must remain as homologated.

#### **5.9.2 Rear Fork (swing arm)**

- a. Every part of the rear fork must remain as originally produced by the manufacturer for the homologated motorcycle (including rear fork pivot bolt).
- b. Rear axle/chain adjuster can be changed to an aftermarket product.
- c. Rear swing arm pivot position must remain in the homologated position (as supplied on the production motorcycle). If the standard motorcycle has inserts then the orientation/position of the original inserts may be changed but the inserts cannot be replaced or modified.
- d. A chain guard must be fitted in such a way to reduce the possibility that any part of the rider's 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) viewed from all sides. Fastening screws must be recessed. An anchorage system or point(s) to keep the original rear brake calliper in place may be added to the rear swing arm.

#### **5.9.3 Rear Suspension Unit**

- a. Rear suspension unit (shock absorber and its spring) may be modified or replaced, but the original attachments to the frame and swing arm must be used and the rear suspension linkage must remain as originally produced by the manufacturer for the homologated motorcycle.
- b. All the rear suspension linkage parts must remain as originally produced by the manufacturer for the homologated motorcycle.
- c. Removable top shock mounts must remain as homologated. A nut may be made captive on the top shock mount and shim spacers may be fitted behind it to adjust the ride height.
- d. Mechanical Suspensions: Rear suspension unit may be changed.
- e. Electronic Suspensions: No aftermarket or prototype electronically-controlled suspension unit may be used, unless such suspension is already present on the production model of the homologated motorcycle and it must remain completely standard (any mechanical or electronic part must remain as homologated, with the exception of shims and spring). If the standard system has no facility for ride height adjustment the standard shock may be modified to allow shock length change if no hydraulic parts are modified. The original suspension system must work properly safe in the event of an electronic failure. The electronic shock absorber can be replaced with a mechanical one.

#### **5.9.4 Wheels**

- a. Wheels must remain as originally produced by the manufacturer for the homologated motorcycle **with no modification allowed. Wheels can be from different variants of the same base model and from different model years, but only if these variants and model years are homologated by the FIM.**
- b. A non-slip coating/treatment may be applied to the bead area of the rim.
- c. **The paint scheme is not restricted but polishing the wheels is not allowed.**
- d. If the original design includes a cushion drive for the rear wheel, it must remain as originally produced for the homologated motorcycle.
- e. No modifications of the wheel-axles are authorized. Spacers can be modified. Modifications to keep spacers in place are permitted.
- f. Wheel balance weights may be discarded, changed or added to.
- g. Metal valve stems with metal stem caps are highly recommended.

#### **5.9.5 Brakes**

- a. Brake discs may be replaced by aftermarket discs which comply with the following requirements:
  - i. Brake discs and carrier must retain the same material as the homologated disc and carrier.

- ii. The outside diameter of the brake disc may be increased but the disc must fit into the homologated brake calliper without any modification.
- iii. The thickness of the brake disc may be increased but the disc must fit into the homologated brake calliper without any modification. The number of floaters is free.
- iv. The fixing of the carrier on the wheel must remain the same as on the homologated disc.
- b. Front and rear brake calliper (mount, carrier, hanger) must remain as originally produced by the manufacturer for the homologated motorcycle.
- c. In order to reduce the transfer of heat to the hydraulic fluid it is permitted to add metallic shims to the callipers, between the pads and the callipers, and/or to replace light alloy pistons with steel pistons made by the same manufacturer of the calliper
- d. The rear brake calliper bracket may be mounted fixed on the swing arm, but the bracket must maintain the same mounting (fixing) points for the calliper as used on the homologated motorcycle.
- e. The swing arm may be modified for this reason to aid the location of the rear brake calliper bracket, by welding, drilling or by using a thread repair insert.
- f. Front and rear master cylinder must remain as originally produced by the manufacturer for the homologated motorcycle. Front and rear brake fluid reservoir may be changed with an aftermarket product.
- g. Front and rear hydraulic brake lines and fluid reservoir may be changed with aftermarket products, **but using a hose /flexible tube instead of a reservoir is not allowed.**
- h. The split of the front brake lines for both front brake callipers must be made above the lower fork bridge (lower triple clamp).
- i. "Quick" (or "dry-brake") connectors in the brake lines are allowed.
- j. Front and rear brake pads may be changed. Brake pad locking pins may be modified.
- k. Additional air scoops or ducts are not allowed.
- l. The Antilock Brake System (ABS) may be used only if installed in the homologated model for road use. However, it must be completely standard (any mechanical or electronic part must remain as homologated, brake discs and master cylinder levers excluded) and only the software of the ABS may be modified.
- m. The Antilock Brake System (ABS) may be disconnected and its ECU can be dismantled. The ABS rotor wheel can be removed, modified or replaced.
- n. Hand lever adjusters are permitted.

#### **5.9.6 Foot Rest/Foot Controls**

- a. Foot rest/foot controls may be relocated but brackets must be mounted to the frame at the original mounting points.
- b. Foot rests may be rigidly mounted or a folding type which must incorporate a device to return them to the normal position.
- c. The end of the foot rest must have at least an 8-mm solid spherical radius.
- d. Non-folding footrests must have an end (plug) which is permanently fixed, made of plastic, Teflon or an equivalent type material (Alloy) (minimum radius 8mm). The plug surface must be designed to reach the widest possible area in order to decrease the risk of injuries to the rider in the case of an accident. The Chief Technical Steward has the right to refuse any plug not satisfying this safety aim.
- e. Foot controls linkage may be modified. The original mounting points must remain. Their original points of fixture (for the footrest, foot controls and on the shifting shaft) must remain as original.

#### **5.9.7 Handle Bars and Control Levers**

- a. Handle bars may be replaced (does not include brake master cylinder).
- b. Handle bars and hand controls may be relocated.
- c. Throttle grip can be modified or substituted.
- d. Throttle controls must be self-closing when not held by the hand.
- e. Throttle assembly and associated cables can be modified or replaced but the connection to the throttle body and the throttle controls must remain as homologated. 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.
- f. Clutch and brake lever may be exchanged by an after-market model. An adjuster to the brake lever is allowed.
- g. Switches can be changed but electric starter switch and engine stop switch must be located on the handle bars.
- h. **Welding of handle bars is not allowed.**
- i. **The use of carbon fibre, Kevlar or carbon composite materials for handlebars is not allowed.**
- j. **Handlebar ends must be plugged with a solid material or rubber covered.**
- k. **The minimum angle of rotation of the steering stem on each side of the centre line or mid position must be of 15°.**

- l. In any position of the handlebars /steering stem, the front wheel, tyre and mudguard must maintain a minimum gap of 10 mm to the bodywork and radiator(s).
- m. Solid stops (other than steering dampers) must be fitted to ensure a minimum clearance of 30 mm between the handlebar with levers and the tank, frame or other bodywork when on full lock to prevent trapping the rider's fingers.
- n. All handlebar levers must be ball-ended (diameter of this ball at least 16 mm). This ball can also be flattened, the minimum thickness of the flattened part is 14 mm and the edges must be rounded. These ends must be permanently fixed and form an integral part of the lever.
- o. Each control lever must be mounted on an independent pivot.
- p. The rear brake lever, if pivoted on the footrest axis, must work under all circumstances, such as the footrest being bent or deformed.
- q. A thumb operated rear brake solution will be considered for the mobility challenged only subject by the Medical Director and the Technical Directors decision is final.

#### **5.9.8 Fuel Tank**

- a. Fuel tank must remain as originally produced by the manufacturer for the homologated motorcycle.
- 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 tank filler cap may be altered or replaced from those fitted to the homologated motorcycle, by a 'screw-on' type fuel cap. Fuel cap when closed must be leak proof.
- e. The sides of the fuel tank may be protected with a cover made of a composite material. These protectors must fit the shape of the fuel tank.

#### **5.9.9 Seat**

- a. Seat, seat base and associated bodywork may be replaced with parts of similar appearance as originally produced by the manufacturer for the homologated motorcycle. The appearance from front rear and profile must conform to the homologated shape.
- b. The top portion of the rear body work around the seat may be modified to a solo seat.
- c. The homologated seat locking system (with plates, pins, rubber pads, etc.) can be removed.
- ~~d. The seat/cowl replacement must allow for proper number display.~~
- e. **All exposed edges must be rounded.**

#### **5.9.10 Fairing / Body Work**

- a. Fairing, front mudguards and body work may be replaced with cosmetic duplicates of the original parts, which must appear to be as originally produced by the manufacturer for the homologated motorcycle, or with slight differences due to the racing use permitted (different pieces mix, attachment points, fairing bottom, etc.).
- b. The material may be changed. The use of carbon fibre or carbon composite materials is not allowed with the following exceptions: Local specific reinforcements made of Kevlar or Kevlar-carbon is allowed around the holes and other stressed points.
- c. Overall size and dimensions must be the same as the original parts, with a tolerance of +/- 10 mm, respecting the design and features of the homologated fairing as far as possible. The overall width of the frontal area may be +10 mm maximum. The decision of the Chief Technical Steward is final.
- d. Wind screen may be replaced with an aftermarket product. The height of the windscreen is free, with a tolerance of + 40 mm (FIM +/- 15 mm) measured on the vertical distance from to the upper fork bridge. The screen must conform to the same profile from the front as the original. From a top view the length of the windscreen may be shortened by 25 mm to allow clearance for the rider. The screen must have no sharp edges.
- e. Motorcycles that were 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 (g and h). This device cannot exceed above a line drawn horizontally from axle to axle and must follow the specifications described at point g).
- f. The original combination of instrument/fairing brackets may be replaced, regardless of the material. All other fairing brackets may be altered or replaced.
- g. The original air ducts running between the fairing and the air box may be altered or replaced. Particle grills or "wire-meshes" originally installed in the openings for the air ducts may be taken away.
- h. The lower fairing must be constructed to hold, in case of an engine breakdown minimum 6 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 lowest point 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 modifications 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. The lower fairing must incorporate at least a hole of 25 mm (minimum) diameter in the bottom front lower area. This hole must remain closed in dry conditions and must be opened only in wet race conditions as declared by the Clerk of the Course.
- l. Front mudguard 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 can be modified, changed or removed.
- n. Motorcycles can be equipped with inner ducts to improve the air stream towards the radiator but the appearance of front, rear and the profile must not be changed.

#### **5.9.11 Bolts and Fasteners**

- a. Standard bolts and fasteners may be replaced with fasteners of any material and design, but titanium bolts and fasteners cannot be used. The strength and design must be equal to or exceed the strength of the standard fastener it is replacing.
- b. Fasteners may be drilled only for mounting a safety wire, but intentional weight-reduction modifications are not allowed.
- c. Thread repair using inserts of different material such as Helicoil and Time-Sert are allowed.
- d. Fairing/body-work fasteners may be changed to a quick disconnect type.
- e. Aluminium fasteners may only be used in non-structural locations.

#### **5.9.12 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. Instruments, the instrument brackets and associated cables.
- d. Painted external surface finishes and decals.
- e. 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 (with exception of exhaust bracket **that may be in carbon**).
- f. Protective covers for engine, frame, chain, footrests, etc. can be made in other material like fibre composite material if these parts do not replace original parts mounted on the homologated model.
- g. Any type of spark plug.
- h. Any tyre inner tube (if fitted) or inflation valves may be used, but metal valve stems with metal stem caps are highly recommended.
- i. Wheel balance weights may be discarded, changed or added.

#### **5.9.13 The Following Items MAY BE removed**

- a. Emission control items (anti-pollution) in or around the air box and engine ( $O_2$  sensors, air injection devices)
- b. Tachometer
- c. Speedometer
- d. Light switch
- e. Signal (Horn) switch
- f. Turn signal switch
- g. Radiator fan and wiring
- h. Chain guard as long as it is not incorporated in the rear fender. If the original chain guard is removed, a device, taking over this function in order to secure the marshals while they are removing the motorcycle, must be mounted.
- i. Bolt on accessories on a rear sub frame.
- j. The isolating mat between the engine and the fuel tank.

#### **5.9.14 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 grabs rails.
- i. Safety bars, centre and side stands must be removed (fixed brackets must remain).
- j. **Catalytic convertors.**

#### **5.9.15 The Following Items MUST BE altered**

- a. Motorcycles must be equipped with a functional ignition kill switch or button mounted on a side of the handlebar (within reach of the hand while on the hand grips) that is capable of stopping a running engine (see AACR 0.2.4, page 3)
- b. Throttle controls must be self-closing when not held by the hand.
- c. 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, oil lines, oil coolers, etc.).
- d. All motorcycles must have a closed breather system. The oil breather line must be connected and discharge in the air box.
- e. 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.
- f. Motorcycles must be equipped with a red light on the instrument panel that will illuminate in the event of oil pressure drop.

### **AACR 4 - SUPERBIKE**

Look at the code F.I.M. Superbike World Championship Regulations 2013 (see Appendix H) and its annexations except the following:

#### **FIM 2.4.5 Number plate colours**

**See Art. AACR 0.4 and Appendix A.**

#### **FIM 2.4.7 Tyres**

**See Art. AACR 0.3**, the number of tyres is free.

#### **FIM 2.4.8 Engines**

The total number of engines that can be used by each rider is free.

#### **FIM 2.4.8.18 Exhaust system**

**Catalytic convertors must be removed.**

**For 2020: The noise limit will be 102 dB/A with a tolerance of + 3dB/A after the race only.**

#### **FIM 2.4.10 Main frame and pre-assembled 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 and a valid frame number / chassis number. In case the frame will need to be replaced, the rider or team must request the use of a spare frame to the AA Technical Delegate.**

#### **FIM 2.4.10.5 Wheels**

Metal valve stems with metal stem caps are highly recommended.

~~Wheel diameter and rim width must remain as originally homologated. It can also be used rim with dimensions 3.5 x 16.5" (17") or 3.75 x 16.5" (17") for the front wheel and 6.25 (6) x 16.5" (17") for the rear wheel.~~

#### **FIM 2.4.10.7 Handlebars and hand controls**

- a. Throttle grip can be modified or substituted.
- b. Throttle assembly and associated cables can be modified or replaced but the connection to the throttle body and the throttle controls must remain as homologated. 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.
- c. Clutch and brake lever may be exchanged by an after-market model. An adjuster to the brake lever is allowed.
- d. Switches can be changed but electric starter switch and engine stop switch must be located on the handle bars.
- e. Welding of handle bars is not allowed.
- f. The use of carbon fibre, Kevlar or carbon composite materials for handlebars is not allowed.
- g. Handlebar ends must be plugged with a solid material or rubber covered.

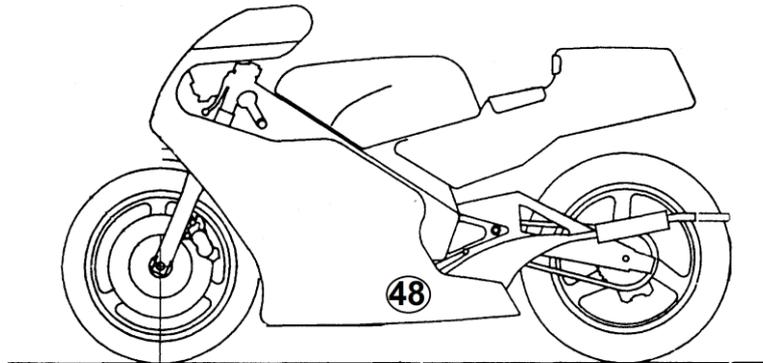
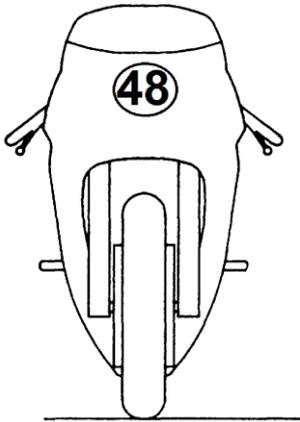
- h. The minimum angle of rotation of the steering stem on each side of the centre line or mid position must be of 15°.
- i. In any position of the handlebars /steering stem, the front wheel, tyre and mudguard must maintain a minimum gap of 10 mm to the bodywork and radiator(s).
- j. Solid stops (other than steering dampers) must be fitted to ensure a minimum clearance of 30 mm between the handlebar with levers and the tank, frame or other bodywork when on full lock to prevent trapping the rider's fingers.
- k. All handlebar levers must be ball-ended (diameter of this ball at least 16 mm). This ball can also be flattened, the minimum thickness of the flattened part is 14 mm and the edges must be rounded. These ends must be permanently fixed and form an integral part of the lever.
- l. Each control lever must be mounted on an independent pivot.
- m. The rear brake lever, if pivoted on the footrest axis, must work under all circumstances, such as the footrest being bent or deformed.
- n. A thumb operated rear brake solution will be considered for the mobility challenged only subject by the Medical Director and the Technical Directors decision is final.

**FIM 2.4.10.12 Rear safety light**

See Art. AACR 0.2.3



**APPENDIX A: STARTING NUMBERS**



The sizes for all the front numbers are:	Minimum height	120 mm
	Minimum width	60 mm
	Minimum stroke	20 mm
	Minimum space between numbers	10 mm
The sizes for all the side numbers are:	Minimum height	100 mm
	Minimum width	50 mm
	Minimum stroke	15 mm
	Minimum space between numbers	10 mm



**APPENDIX B: LIST OF HOMOLOGATED ECU AND WIRE HARNESS MODELS  
SUPERSTOCK 600**

	ECU	Wiring Harness	ECU	ECU	Wiring harness	Wiring Harness	Connection Cable	Connection Cable	Price (€)
	Std	Std	Kit	Price	Kit	Price	Kit	Price	Kit
HONDA CBR600RR (PC40) JAN 2013	38770-MJC-D01	32100-MJC-D00	38770-MJC-R11	€ 502,73	32100-MFJ-R10	€ 462,98	38880-nf9-c00	€ 444,71	€ 1.410,42
HONDA CBR600RR (PC40) JAN 2014	38770-MJC-B22 only BR area	32100-MJC-D00 only BR area	38770-N1A-D11	€ 377,69	32100-MFJ-R10	€ 462,98	38880-n1c-770	€ 527,35	€ 1.368,02
KAWASAKI ZX600R F (ZX6R) JAN. 2011			21175-0248	€ 405,65	26031-0790** 26031-0327 26031-0955	€ 283,20		€ 1,00	€ 689,85
MV Agusta F3 FEB 2013	8000B5431		RREM018078 KIT01	€ 500,00					€ 500,00
MV Agusta F3 FEB 2013	8000B5431		RDTL017114	€ 1.500,00	RDTL007114	€ 950,00	RRCK001	€ 500,00	€ 2.950,00
SUZUKI GSXR 600 L1 JAN. 2011	32920-14J00	36610-14J10 36620-14J00 36630-14J00	3290-14-JR0 490-571-0000	€ 1.404,00	36610-14JR0 406-571-0000	€ 617,00		€ 1,00	€ 2.022,00
SUZUKI GSXR 600 L2	32920-14J00	36610-14J60 36620-14J00 36630-14J00	3290-14-JR0 490-571-0000	€ 1.404,00	36610-14JR0 406-571-0000	€ 617,00		€ 1,00	€ 2.022,00
SUZUKI GSXR 600 L3	32920-14J70	36610-14JA0 36620-14J00 36630-14J00	3290-14-JR0 490-571-0000	€ 1.404,00	36610-14JR0 406-571-0000	€ 617,00		€ 1,00	€ 2.022,00
SUZUKI GSXR 600 L4-5	32920-14J71	36610-14JA0 36620-14J00 36630-14J00	3290-14-JR0 490-571-0000	€ 1.404,00	36610-14JR0 406-571-0000	€ 617,00		€ 1,00	€ 2.022,00
TRIUMPH 675R/675 Feb. 13	T1290281	T2508085 (ABS) T2508080 (no ABS)	A9828019	€ 374,50	A9828021 (ABS) A9828020 (no ABS)	€ 228,43		€ 1,00	€ 603,93
YAMAHA R6 JAN.2011	13S-8591A-B0	13S-82590-30	2C0-8591A-92	€ 450,12	13S-F2590-71	€ 232,12	2CR-8533A-70	€ 174,54	€ 856,78
YAMAHA R6 JAN.2012	13S-8591A-F0	13S-82590-40	2C0-8591A-93	€ 450,12	13S-F2590-71	€ 232,12	2CR-8533A-70	€ 174,54	€ 856,78
YAMAHA R6 JAN.2012	13S-8591A-F0	13S-82590-40	2C0-8591A-94	€ 490,10	13S-F2590-71	€ 230,78	2CR-8533A-70	€ 174,54	€ 895,42
YAMAHA R6 JAN.2016	13S-8591A-F0	13S-82590-40	2C0-8591A-94	€ 490,10	13S-F2590-71	€ 229,24	2CR-8533A-70	€ 174,54	€ 893,88
YAMAHA R6 JAN.2017	13S-8591A-F0	13S-82590-40	YMER6WSS	€ 998,00		€ 499,00	CANUSB-L	€ 165,00	€ 1.662,00

**SUPERSTOCK 1000**

	ECU	Wiring Harness		Notes	ECU	ECU	Wiring harness	Wiring Harness	Connection Cable	Connection Cable	Total Price (euro)
	Std	Std			Kit	Price	Kit	Price	Kit	Price	Kit
APRILIA RSV4 RR MY 2015	CM264501	2D000061 bike WH 2D000131 engine WH			COE11018 (with Data Recording and sw)	€ 1.980,00	COE14071 bike WH COE10070 engine WH COE13096 demand WH	€ 1.737,00	COE10015 PC H	€ 30,00	€ 3.747,00
BMW S 1000 RR - Jan 12	13 61 8 523 966	61 11 8 527 763			13 61 8 523 966 +13 61 8 522 450	€ 831,80	77 50 8 544 504	€ 831,93		€ 1,00	€ 1.664,73
BMW S1000 RR HP4 - Jan 13	13 61 8 523 966	61 11 8 525 436			13 61 8 523 966 +13 61 8 522 450	€ 831,80	in progress	€ 1.095,00		€ 1,00	€ 1.927,80
BMW S1000 RR 2015 - TBC											
BMW S1000 RR 2015 - 2016	1361 8 546 129	6111 8 556 087 (incl. DDC) 6111 8 556 086 (w/o DDC)		Option 1: RPK & RCK Replace ECU order nr. (coded +)	1361 8 546 129 + 1361 8522 450 + 1361 8 542 056	€ 1.367,07	in progress		7753 8 546 642	€ 478,99	€ 1.846,06
BMW S1000 RR 2017	1361 8354 916	6111 8 355 084 (incl. DDC) 6111 8 355 083 (w/o DDC)		Option 1: RPK & RCK	1361 8 354 916 + 1361 8522 450 + 1361 8 542 056	€ 1.379,58	in progress		7753 8 546 642 + 7753 8 388 672	€ 563,02	€ 1.942,60
BMW S1000 RR 2015 - 2016	1361 8 546 129	6111 8 556 087 (incl. DDC) 6111 8 556 086 (w/o DDC)		Option 2: RCK Pro STK according to 2017 revised FIM Superstock regulations	8 556 440	Included in kit, spare price: € 1.381,00	8 388 313 (Engine) 8 388 314 (Chassis)	Included in kit, spare price: € 1.594,00	77 53 8 546 642	Included in kit, spare price: € 479,00	Complete kit without logger, including lambda driver module € 3.750,00 Complete kit including logger € 5.138,00
BMW S1000 RR 2017 - TBC	1361 8354 916	6111 8 355 084 (incl. DDC) 6111 8 355 083 (w/o DDC)									€ 5.138,-
DUCATI 1199 R - Mar 13	28642071B 38512081A 28642211A 59821041A	51017721B 51017921C 51017731B 51018901A			28642071B 38510211A 28611291C 16310951B(a and C)	€ 844,46	51017931G 51018032A 51018111B 54140112A 51019001A	€ 2.593,98		€ 1,00	€ 3.439,44
DUCATI Panigale R (2015)					28642541C Marelli MLE	€ 3.567,00	5101B021B (Main) 5101B031A (Switch) 51040131A (Switch RH) 5101B041A (Switch LH) Sub Total	€ 552,00 € 154,10 € 5,75 € 102,35 € 814,20	5101A001B	€ 172,50	Complete Kit 69927411A Includes Lambda Driver modules € 4.499,00
HONDA CBR 1000 RR (SC59) - Jan 11	38770-MGP-D01	32100-MGP-D00			38770-NLR-B31	€ 429,48	32100-MFL-R20	€ 551,60	38880-nl9-c00	€ 444,71	€ 1.425,79
KAWASAKI ZX-10R - Jan 11					21175-0756 26031-0999	€ 915,13	26031-1219 27002-1062 11056-1243	€ 468,55		€ 1,00	€ 1.384,68
KAWASAKI ZX-10R - Jan 14				EVO ECU Higher rev limit plus300 from above	21175-0858 26031-0999	€ 915,13	26031-1219 27002-1062 11056-1243	€ 468,55		€ 1,00	€ 1.384,68
KAWASAKI ZX-10R - Jan 16	21175-1118	26031-2115/6/7 Regional variations			21175-1204 21175-1205	€ 960,00	26031-2113	€ 640,00	57001-0011	€ 480,00	€ 2.080,00
SUZUKI GSX R 1000 L2 - Jan 12	32920-47HA0	36610-47H50 36620-47H10			3290-47HS0 490-519-0000	€ 1.566,00	36610-47HS0 406-519-0000	€ 606,00		€ 1,00	€ 2.173,00
SUZUKI GSX R 1000 L3-4	32920-47HG0	36610-47H90 36620-47H10			490-519-0000 490-519-0000	€ 1.566,00	36610-47HS0 406-519-0000	€ 606,00		€ 1,00	€ 2.173,00
SUZUKI GSX R 1000 L5	32920-47HG1	36610-47H90 36620-47H10			490-519-0000 490-519-0000	€ 1.566,00	36610-47HS0 406-519-0000	€ 606,00		€ 1,00	€ 2.173,00
YAMAHA R1M - Jan 15 2015 kit	2CR-8591A-00 TBC	2KS-82590-00			2CR-8591A-70	€ 481,49	2CR-F2590-70 2KS-82509-70	€ 569,35	2CR-8533A-70	€ 174,54	€ 1.225,38
YAMAHA R1M - Jan 15 2016 kit	2CR-8591A-00 TBC	2KS-82590-00			2CR-8591A-71	€ 481,49	2CR-F2590-70 2KS-82509-70	€ 541,66	2CR-8533A-70	€ 174,54	€ 1.197,69
YAMAHA R1M - Jan 15 2017 Kit	2CR-8591A-00 TBC	2KS-82590-00			2CR-8591A-72	€ 540,78	2CR-F2590-70 2KS-82509-70	€ 608,37	2CR-8533A-70	€ 196,03	€ 1.345,18

**APPENDIX C: MINIMUM WEIGHTS (update: January-07-2018)**

<b>Motorcycle / Make</b>	<b>Model Year</b>	<b>Minimum weight</b>	<b>Throttle body dia.</b>
<b>Superstock 600</b>			
Honda CBR 600RR	2009 on	160 kg	40 mm
Honda CBR 600RR (ABS)	2013 on	169 kg	40 mm
Kawasaki ZX 6 R	2009 on	164 kg	38 mm
MV Agusta F3 675	2013 on	166 kg	50 mm
Suzuki GSXR 600	2008 - 2010	170 kg	40 mm
Suzuki GSXR 600	2011 on	160 kg	40 mm
Triumph Daytona 675	2009 - 2012	165 kg	44 mm
Triumph Daytona 675	2013 on	161 kg	44 mm
Triumph Daytona 675 (ABS)	2013 on	163 kg	44 mm
Triumph Daytona 675R	2011 - 2012	161 kg	44 mm
Triumph Daytona 675R (ABS)	2013 - 2015	163 kg	44 mm
Yamaha YFZ-R6	2008 - 2011	165 kg	41 mm
Yamaha YFZ-R6	2012 - 2016	166 kg	41 mm
Yamaha YFZ-R6	2017 on	164 kg	41 mm
<b>Supersport</b>			
Honda CBR600RR	2009 on	161 kg	see <b>Superstock 600</b> for specific Model and Model Year
Kawasaki ZX600 R F	2009 on		
MV Agusta F3 675	2013 on		
Suzuki GSXR600	2008 on		
Triumph 675	2009 on		
Yamaha YFZ-R6	2008 on		
<b>Superstock 1000</b>			
Aprilia RSV 4 Factory (all)	2009 on	170 kg	48 mm
BMW S1000 RR (ABS)	all	176 kg	48 mm
BMW S1000 RR	all	170 kg	48 mm
BMW S1000 RR HP4	all	170 kg	48 mm
Ducati 1199 R	2013 on	170 kg	75.6 x 48 mm
Ducati Panigale R	2015 on	170 kg	75.6 x 48 mm
Honda CBR1000 RR	2009 - 2013	<b>170</b> kg	44 mm
Honda CBR1000 RR (ABS)	2009 - 2011	174 kg	44 mm
Honda CBR1000 RR SP	2014 - 2015	171 kg	44 mm
Honda CBR1000 RR SP2	2017 on	170 kg	48 mm
MV Augusta F4 RR	2013 - 2014	178 kg	50 mm
MV Augusta F4 RR	2015 on	172 kg	50 mm
Kawasaki ZX10R	2008 - 2010	174 kg	47 mm
Kawasaki ZX10R	2011 - 2015	170 kg	47 mm
Kawasaki ZX10R	2016 on	171 kg	47 mm
KTM RC8R	2009 on	<b>170</b> kg	52 mm
Suzuki GSXR1000 K9	2009 - 2011	173 kg	44 mm
Suzuki GSXR1000 L2	2012 on	170 kg	44 mm
Yamaha YFZ-R1	2012 - 2014	182 kg	45 mm
Yamaha YFZ-R1	2015 on	172 kg	45 mm
<b>Superbike</b>			
Aprilia RSV 4 Factory	all	165 kg	see <b>Superstock 1000</b> for specific Model and Model Year
BMW S1000 RR			
Ducati 1199 R / Panigale R			
Honda CBR1000 RR			
Kawasaki ZX10R			
KTM RC8R			
MV Augusta F4			
Suzuki GSXR1000			
Yamaha YFZ-R1			

## APPENDIX D: FUEL, OIL AND COOLANTS - 2016 FIM-Regulations

### 2.7 FUEL; OIL AND COOLANTS

- All motorcycles must be fuelled with unleaded petrol, as this term is generally understood.
- All riders/teams must declare to the Superbike Technical Director the make and type of fuel to be used during practices and race(s), by Thursday before technical control begins.

#### 2.7.1 Physical properties for unleaded fuel

2.7.1.1 Unleaded petrol must comply with the FIM specification.

2.7.1.2 Unleaded petrol will comply with the FIM specification if:

- It has the following characteristics:

Property	Units	Min.	Max.	Test Method
RON		95.0	102.0	EN ISO 5164
MON		85.0	90.0	EN ISO 5163
Oxygen	% m/m		2.7	EN ISO 22584* or EN 13132
Nitrogen	% m/m		0.20	ASTM D4629
Benzene	% (V/V)		1.00	EN ISO 22854* or EN 238
Vapour pressure (DVPE)	kPa		95.0	EN 13016-1
Lead	mg/L		5.0	ICP-OES or AAS
Manganese	mg/L		2.0	ICP-OES or AAS
Density at 15 °C	kg/m <sup>3</sup>	720.0	775.0	EN ISO 12185
Oxidation stability	minutes	360		EN ISO 7536
Existent gum	mg/100mL		5	EN ISO 6246
Sulphur	mg/kg		10.0	EN ISO 20846* or 20884
Copper corrosion	Rating		Class 1	EN ISO 2160
Distillation				EN ISO 3405
at 70 °C	% (V/V)	20.0	52.0	
at 100 °C	% (V/V)	46.0	72.0	
at 150 °C	% (V/V)	75.0		
Final boiling point	°C		210	
Residue	% (V/V)		2.0	
Appearance	Clear and bright			Visual inspection
Olefins	% (V/V)		18.0	EN ISO 22854
Aromatics	% (V/V)		35.0	EN ISO 22854
Total diolefins	% (V/V)		1.0	GC-MS or HPLC
Oxygenates				

Road Racing FIM SBK and SS World Championships and FIM SST Cup Regulations 144 update 22 January 2015:

Property	Units	Min.	Max.	Test Method
Oxygenates:				EN ISO 22854* or EN 13132
Methanol	% (V/V)		3.0	
Ethanol (1)	% (V/V)		5.0	
Isopropanol	% (V/V)		12.0	
Isobutanol	% (V/V)		15.0	
tert-Butanol	% (V/V)		15.0	
Ethers (C5 or higher)	% (V/V)		22.0	
Others (2)	% (V/V)		15.0	

Notes:

\* Preferred method.

(1) Ethanol must be blended according to EN 15376.

(2) GC-MS methods may also be applied to fully deconvolute GC traces.

- b) The total of individual hydrocarbon components present at concentrations of less than 5% (m/m) must constitute at least 30% (m/m) of the fuel. The test method will be gas chromatography and/or GC-MS.
- c) The total concentration of naphthenes, olefins and aromatics classified by carbon number must not exceed the values given in the following table:

% (m/m)	C4	C5	C6	C7	C8	C9+
Naphthenes		5.0	10.0	10.0	10.0	10.0
Olefins	5.0	20.0	20.0	15.0	10.0	10.0
aromatics			1.2	35.0	35.0	30.0

The total concentration of bicyclic naphthenes and bicyclic olefins may not be higher than 1% (m/m). The test method used will be gas chromatography.

- d) Only the following oxygenates are permitted:  
Methanol, Ethanol, n-Propyl alcohol, Isopropyl alcohol, n-Butyl alcohol, sec-Butyl alcohol, Isobutyl alcohol, tert-Butyl alcohol; Methyl tertiary butyl ether, Ethyl tertiary butyl ether, Tertiary amyl methyl ether Diisopropyl ether.

Road Racing FIM SBK and SS World Championships and FIM SST Cup Regulations 145 update 22 January 2015:

- e) Manganese is not permitted in concentrations above 2.0 mg/L. For the present this is solely to cover possible minor contamination by other fuels.  
Lead replacement petrols, although basically free of lead, are not an alternative to the use of unleaded petrol. Such petrols may contain unacceptable additives not consistent with the FIM Fuel Regulations.

### 2.7.3 Air

Only ambient air may be mixed with the fuel as an oxidant.

### 2.7.4 Primary tests

2.7.4.1 The FIM may require tests of fuels to be administered before, or at the time of delivery to, an event at which such fuels are to be used.

2.7.4.2 Fuel companies supplying "race" fuels (fuels other than those obtained at public fuel stations) to participating teams must submit ten litres (2 x 5 L) to the laboratory appointed by the FIM/DWO for analysis in accordance with the specification. Providing the fuel is within the specification, a certificate containing a test report number will be issued to the fuel company. The fuel company must provide a copy of the test report number to the appropriate rider/teams before they take part in a race. Contact for fuel analysis: [fimfuels@intertek.com](mailto:fimfuels@intertek.com)

### 2.7.5 Fuel sampling and testing

1. The FIM Superbike Technical Director has the sole responsibility for the administration and supervision during the taking of fuel samples.
2. The preferred fuel test method is gas chromatography or GC Fingerprint method.  
Gas chromatography (GC) is an analytical technique for separating compounds based primarily on their volatility and polarity. Gas chromatography provides both qualitative and quantitative information for individual compounds present in a sample. Gas chromatography is widely used for the analysis of fuels.  
The GC Fingerprint is a comparison between the given reference and the fuel drawn from the competitor. With the fingerprint method any changes in composition and concentration of the fuel against the reference is detected. The separation is done with a non-polar column suitable for fuels analysis. The detection of the components is done with a flame ionisation detector.

Road Racing FIM SBK and SS World Championships and FIM SST Cup Regulations 146 update 22 January 2015:

3. If other test methods are required, fuel samples will be transported to the appointed laboratory by an official courier, using the appropriate containers.
4. Riders selected for fuel controls will be directed with their motorcycles to the inspection area.
5. Only new sample bottles will be used for the fuel samples.

6. The fuel to be tested will be transferred into three bottles (3 small sample containers), marked A, B and C, and identified by reference to the motorcycle from which the sample was taken. The bottles will be closed, sealed and labelled by the FIM Superbike Technical Director and/or the Fuel Analysts.
7. The Fuel Sample Declaration form will be filled out immediately, containing all information as shown on the sample sheet, including the riders' name and race number, date and place of fuel sampling. A responsible team member will sign this declaration, after verifying that all the information is correct.
8. Sample A and B will be given to the appointed laboratory staff, present at the event for analysis or be sent to the respective laboratory by the organiser if no trackside laboratory is available. Sample B will be kept by the laboratory staff as a retained sample in case of a dispute. All samples will be accompanied by a copy of the Fuel Sample Declaration form. Costs for the analyses of sample A and B will be paid by the FIM.
9. Sample C will be handed over to the FIM for safeguarding in case of protests and/or requirement of a counter-expertise by the FIM appointed laboratory, accompanied by a copy of the Fuel Sample Declaration form. Costs for the analyses of sample C will be paid by the team concerned.
10. As soon as possible after receipt of the samples and completing the testing, the Fuel Analyst/FIM appointed laboratory will inform report the results of the fuel sample analyses directly to the FIM Superbike Technical Director, with a copy to the FIM CCR and CTI Secretariat ([sbk.technical.director@fim.ch](mailto:sbk.technical.director@fim.ch), [ccr@fim.ch](mailto:ccr@fim.ch), [cti@fim.ch](mailto:cti@fim.ch)).

Road Racing FIM SBK and SS World Championships and FIM SST Cup Regulations 147 update 22 January 2015:

11. In the case of non-conformity, the FIM Superbike Technical Director must notify the results to- the FIM, the Race Direction and the rider/ team representative concerned. Failure of the sample to correspond to the FIM fuel specifications will result in the disqualification of the competitor. The result of the competitor's fuel sample analysis ("A" or "B" sample) more favourable to the competitor will be taken into account.
12. Within 48 hours of the receipt of the notification of the results of the test of sample A and/or B, the team must notify the FIM and the FIM Superbike Technical Director if a counter-expertise is required (or not required) for sample C.
13. The Race Direction will take a decision at the Superbike, Supersport and Superstock Cup event immediately following the notification of the results of the final expertise. Any appeal against the decision of the Race Direction will be heard by the FIM Stewards appointed for the Superbike, Supersport and Superstock Cup event at which the Race Direction decision is taken. This will take place after the C sample has been analysed.

#### **2.7.6 Fuel Storage**

Fuel must only be stored in metal, sealable containers in the competitor's pit.

Firefighting equipment, protective devices and staff must conform to the requirements imposed by the local authorities and by-laws. The organiser must have fire extinguishers of a size and type approved by the local by-laws, available to each competitor in the pit area.

#### **2.7.7 Coolants**

The only liquid engine coolants permitted other than lubricating oil shall be water or water mixed with ethyl alcohol.

## APPENDIX E: SOUND LEVEL CONTROL - 2016 FIM Superbike & Supersport World Championships & FIM Superstock Cup Regulations

### 2.11 SOUND LEVEL CONTROL

#### Sound limits in force

The maximum sound level shall be measured at a mean piston speed of 11 m/sec. The fixed RPM specified in Art. 2.11.6 may be used.

- 2.11.1 With the microphone placed at 50 cm from the exhaust pipe at an angle of 45° measured from the centre-line of the exhaust end and at the height of the exhaust pipe, but at least 20 cm above the ground. If this is not possible, the measurement can be taken 45° upwards.
- 2.11.2 During a sound test, motorcycles not equipped with a gear-box neutral must be placed on a stand.
- 2.11.3 The silencers will be marked when they are checked and it is not allowed to change them after the verification, except for any spare silencer which has also been checked and marked.
- 2.11.4 The rider shall keep his engine running out of gear and shall increase the engine speed until it reaches the specified Revolutions per Minute (RPM). Measurements must be taken when the specified RPM is reached.
- 2.11.5 The RPM depends upon the mean piston speed corresponding to the stroke of the engine. The RPM will be given by the relationship:

$$N = \frac{30,000 \times cm}{l}$$

in which: N = prescribed RPM of engine  
 cm = fixed mean piston speed in m/s  
 l = stroke in mm

#### 2.11.6 Noise control

Due to the similarity of the piston stroke in different engine configurations within the capacity classes, the noise test will be conducted at a fixed RPM. For reference only, the mean piston speed at which the noise test is conducted is calculated at 11 m/sec.

Displacement	2 Cylinders	3 Cylinders	4 Cylinders
up to 600 cc	5.500 RPM	6.500 RPM	7.000 RPM
over 600 cc up to 750 cc	5.500 RPM	6.000 RPM	7.000 RPM
over 750 cc	5.000 RPM	5.000 RPM	5.500 RPM

- 2.11.7 The maximum sound level for engines with more than one silencer will be measured on each exhaust end.
- 2.11.8 A motorcycle which does not comply with the maximum sound limits may be presented several times at pre-race control.
- 2.11.9 The surrounding sound must not exceed 90 dB/A within a 5 metres radius from the power source during tests.
- 2.11.10 Apparatus for noise control must be to international standard IEC 651, Type 1. The sound level meter must be equipped with a calibrator for control and adjustment of the meter during periods of use.
- 2.11.11 The "slow response" setting must always be used.
- 2.11.12 **Sound control after the competition**  
 In a competition which requires a final examination of motorcycles before the results are announced, this examination must include a sound control measurement of at least the first three motorcycles listed in the final classification. At this final test, there will be a 3dB/A tolerance.
- 2.11.13 **Sound control during a competition**  
 In a competition which requires noise control tests during the event, motorcycles must comply with the noise limits without the tolerance in Art. 2.11.

APPENDIX F: TECHNICAL REGULATIONS CLASS SUPERSPORT 300 (SSP 300)

TBA



## APPENDIX G: TECHNICAL REGULATIONS CLASS SUPERSPORT (SSP) 2013 FIM Supersport World Championships Regulations

### 2.5 SUPERSPORT TECHNICAL SPECIFICATIONS

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

**EVERYTHING THAT IS NOT AUTHORISED 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.**

Supersport 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** equipped as such on the homologated model.

The appearance from the front, rear and the profile of 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.

#### 2.5.1 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.

#### 2.5.2 Balancing various motorcycle concepts

In order to equalize the performance of motorcycles with different engine configurations, changes in the minimum weight may be applied according to their respective racing performances. The decision to apply the handicap will be taken by the Superbike Commission at any time deemed necessary to ensure fair competition. The application of the handicap will follow the system described in 2.4.4.2 of the Superbike regulations, but will be adapted to the Supersport class.

#### 2.5.3 Engine configurations and displacement capacities

The following engine configurations comprise the Supersport class.

Over 400cc up to 600cc	4 stroke	4 cylinders
Over 500cc up to 675cc	4 stroke	3 cylinders
Over 600cc up to 750cc	4 stroke	2 cylinders

The displacement capacity, bore and stroke must remain at the homologated size. Modifying the bore and stroke to reach class limits is not allowed.

##### 2.5.4.1. Minimum weight

The minimum weight will be:	600cc	4 cylinders	161 kg
	675cc	3 cylinders	161 kg
	750cc	2 cylinders	161 kg

At any time during the event, the weight of the whole motorcycle (including the tank and its contents) must not be less 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 FIM Superbike Technical Director at the preliminary checks.

#### 2.5.5 Number plate colours

The background colours and figures (numbers) for Supersport are a white background with blue numbers:

The sizes for all the front numbers are:	Minimum height:	160 mm
	Minimum width:	80 mm
	Minimum stroke:	25 mm
	<b>Minimum space between numbers</b>	<b>10 mm</b>

The sizes for all the side numbers are:	Minimum height:	120 mm
	Minimum width:	60 mm
	Minimum stroke:	25 mm
	<b>Minimum space between numbers</b>	<b>10 mm</b>

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

□ once on the front, either in the centre of the fairing or slightly off to one side. **The number must be centered on the white background with no advertising within 25mm in all directions.**

□ 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 background.**

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

#### 2.5.6 Fuel

All engines must function on normal unleaded fuel with a maximum lead content of 0.005 g/l (unleaded) and a maximum MON of 90 (see also Art. 2.7 for full fuel specifications).

#### 2.5.7 Tyres

Tyres must be a fully moulded type carrying all size and sidewall marking of the tyres for commercial sale to the public. The depth of the tyre treads must be at least 2.5 mm over the entire tyre pattern width at a pre-race control. The tyres must have a positive and negative tread of 96% positive and minimum 4% negative (land and sea ratio). The maximum distance from the external edge of the tyre to 50% of the tread elements is 35 mm. One (1) size for the front and two (2) sizes for the rear are allowed. Each tyre, front and rear, must be available with the same size and tread pattern for all riders. The manufacturers may only submit one front and rear pattern for approval. The previously approved tyre pattern will remain valid until one year after the introduction of a new approved tyre pattern.

All tyres to be used must be easily identifiable with a colour marking or a numerical system to be applied by the Official Supplier at the time of manufacture.

At the discretion of the rider, intermediate or wet weather tyre may be used. Wet-weather tyres must be a fully moulded tyre. The use of hand cut tyres is not allowed. Wet-weather tyres must be marked "Not for Highway Use" or "NHS".

At each event, during free practices, qualifying practices and warm up, a maximum of ten (10) rear and eight (8) front tyres may be used. There is no limitation on the number of tyres for the race.

All tyres (fully moulded, intermediate and wet) will be included in the total quantity count.

At the beginning of the event, the Official Supplier may be requested by the FIM Superbike Technical Director to deliver to him four (4) samples of each type of tyre which will be used at the event.

The tyres used in the free practices, qualifying practices and warm-up must be marked with an adhesive sticker. The sticker will show an identification number for each rider and it will have a different colour depending on whether it is applied to the front or rear tyre. At each race, the FIM Superbike Technical Director will assign a number of his choice to the competitor, while the colours will change for each race.

The stickers will be handed to the teams in a sealed envelope, 10 for the rear tyres and 8 for the front tyres, on the day before the first practice session in accordance with a timetable decided by IMS and the FIM Superbike Technical Director. The timetable will be mailed to the teams by IMS at least a week before the event. In extraordinary situations, the FIM Superbike Technical Director can/ may alter this program.

After delivery of the stickers, the teams will be responsible for their safekeeping and use.

The stickers must be applied to the left sidewall of the tyre. Personnel nominated by the FIM Superbike Technical Director will check that all the motorcycles in the pit line are fitted with tyres carrying the sticker. The use of motorcycles with unmarked tyres (e.g. without the official stickers) will be immediately reported to the Race Direction which will take appropriate action.

The allocation of individual tyres will be made on a random basis, with no involvement of any representative from the tyre supplier, teams or riders. Those tyres will be individually identified and may not be exchanged between riders, including between team mates and may not be exchanged by the tyre supplier after the allocation, except with the permission of the Race Direction.

On the race day, after the warm-up and after the check by the Official Supplier regarding the effective tyre wear, the unused stickers will be returned.

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 FIM Superbike Technical Director. However, the damaged sticker must be returned to the FIM Superbike Technical Director and/or the tyre it was applied to must be absolutely intact. Any modification or treatment (cutting, grooving) is forbidden.

#### 2.5.8 Engine

The total number of engines that can be used by a **team** during the entire Championship is limited to eight (8) **per permanent rider. If a permanent rider is replaced or substituted during the Championship, the total engine allocation for the team will not change. The number of engines that can be used during each event is not limited.**

Each engine will be officially sealed by the FIM Superbike Technical Director or by his appointed staff before it

can be used during an event. The seal will bear a serial number, which will be recorded. Any attempt made to remove the seal will damage it irreparably.

A broken or damaged seal will be considered as if the engine has been used and it will be counted as a part of the rider's allocation for the Championship.

The crankcase, cylinder and cylinder heads will be sealed to control the engine use.

A **team** who needs to use more than the allocated number of eight (8) engines during the Championship, will receive a penalty. The penalty for the **team's rider using an additional engine will be to start from the last grid position for the race when the additional engine is used** and for the following race (two races in the same racing season).

Wild card riders will be allowed to use two sealed engines during the event in which they take part.

#### **2.5.8.1 Fuel injection system**

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

- The original homologated fuel injection system must be used without any modification.
- The fuel injectors must be stock and unaltered from the original specification and manufacture.
- The throttle body intake insulators may be modified.
- Bell mouths (including their fixing points) may be altered or replaced.
- Butterflies cannot be changed or modified.
- 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.
- Vacuum slides may be fixed in the open position.
- Secondary throttle valves and shafts may be removed or fixed in the open position and the electronics may be disconnected or removed
- Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.
- Electronically controlled throttle valves, known as 'ride-by-wire', may be only used if the homologated model is equipped with the same system. Software may be modified but all the safety systems and procedures designed by the original manufacturer must be maintained.

#### **2.5.8.2 Cylinder head**

Cylinder head must be as homologated. The following modifications are allowed:

- Grinding of the cylinder head surface on the side of the gasket;
- Modifications of the inlet and exhaust ports by taking off or adding material (welding is forbidden); **epoxy may be used to shape the ports.**
- Original homologated valves guides may be cut or modified, but only on the intake or exhaust port side;
- Polishing of the combustion chamber;
- Original valve seats must be used, but modifications are allowed to the shape;
- Compression ratio is free, but the combustion chamber may be modified only by taking material off.

It is forbidden to add any material to the cylinder head unless as described above.

Rocker arms (if any) must remain as homologated (material and dimensions).

Valves may be altered or replaced and the material may be changed, but maximum diameters and minimum weights must remain as homologated. The use of titanium valves is permitted only if the homologated motorcycle is equipped with such kind of valves.

Valve springs may be changed.

Valve spring retainers may be replaced or modified, but their weight must be the same as, or higher than, the original ones.

#### **2.5.8.3 Camshaft**

The method of drive must remain as homologated.

The duration is free but the **maximum** lift must remain as homologated. The cam chain or cam belt tensioning device(s) are free.

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.

#### **2.5.8.4 Cam sprockets or cam gears**

Cam sprockets or cam gears may be modified or replaced to allow the degreeding of camshafts.

#### **2.5.8.5 Cylinders**

Cylinders must remain as homologated.

Only the following modifications to the cylinders are allowed. Cylinder head gasket surface may be machined to allow the adjustment of compression ratio or resurfacing to repair a warped cylinder surface deck.

Homologated materials and castings for cylinders must be used. The surface finish of the cylinder bore must remain as homologated.

#### **2.5.8.6 Pistons**

Pistons must remain as homologated. Polishing and lightening is not allowed.

#### **2.5.8.7 Piston rings**

Piston rings must remain as homologated. No modifications are allowed.

#### **2.5.8.8 Piston pins and clips**

Piston pins and clips must remain as homologated. No modifications are allowed.

#### **2.5.8.9 Connecting rods**

Connecting rods must remain as homologated.  
Polishing and lightening is not allowed.

#### **2.5.8.10 Crankshaft**

Crankshaft must remain as homologated without **any** modification. Polishing and lightening is not allowed. Modifications of the flywheels are not allowed.

#### **2.5.8.11 Crankcase / Gearbox housing**

Crankcases must remain as homologated. No modifications are allowed (including painting, polishing and lightening).

It is not allowed to add a pump used to create a vacuum in the crankcase. If a vacuum pump is installed on the homologated motorcycle then it may be used only as homologated.

Other engine cases must be made of the homologated material with exclusion of lateral side covers.

##### **2.5.8.11.1 Lateral covers and protection**

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.

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 or steel or titanium**.

Plates **or** crash bars from aluminium or steel **also are** permitted in addition to these covers. All these devices must be designed to be resistant against sudden shocks, **abrasions** and **crash damage**.

**FIM approved covers will be permitted without regard of the material.**

**These covers** must be fixed properly and securely **with case cover screws that also mount the original covers/engine cases to the crankcases**.

**The Technical Director has the right to forbid any cover, if the evidence shows the cover is not effective.**

#### **2.5.8.12 Transmission / Gearbox**

All transmission/gearbox ratios are free.

The number of gears must remain as homologated.

Primary gears must remain as homologated.

Quick-shift systems are allowed.

The layout of the transmission shafts must be the same as on the homologated motorcycle and only the material and the ratios can be changed.

The layout and function of the shift drum must be the same as on the homologated motorcycle.

The selector forks may be changed. However, the forks must engage with the same gears and function in the same way as on the homologated motorcycle.

Countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.

Chain guard as long as it is not incorporated in the rear fender may be removed.

#### **2.5.8.13 Clutch**

Clutch system (wet or dry type) and the method of operation (by cable or hydraulic) must remain as homologated.

Friction and drive discs may be changed.

Clutch springs may be changed.

The clutch basket (outer) may be reinforced.

The original clutch assembly may be modified or replaced by an aftermarket clutch, also including back torque limiting capabilities (slipper type).

No power source (i.e. hydraulic or electric) can be used for gear selection, if not installed in the homologated model for road use. Human power is excluded from the ban.

#### **2.5.8.14 Oil pumps, water pumps and oil lines**

Modifications are allowed but pump housing, mounting points and oil feed points must remain as original. Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or treaded connectors.

The internal parts of the water pump may be changed or modified. The drive ratio may be changed. The external appearance must remain as homologated.

#### **2.5.8.15 Radiator / Oil cooler**

The radiator may be changed with an aftermarket radiator that fits in the standard location and does not require any modifications to the main frame or to the fairings' outer appearance.

Modifications to the homologated oil-cooler are allowed only they do not require any modifications to the main frame or to the fairings' outer appearance. A heat exchanger (oil/water) may be replaced with an oil-cooler.

Radiator fan and wiring may be changed, modified or removed. Additional oil coolers are not allowed.

The oil cooler must not be mounted on or above the rear mudguard.

#### **2.5.8.16 Air box**

The air box must remain as originally produced by the manufacturer on the homologated motorcycle.

The air filter element may be removed or replaced. The air box drains must be sealed.

All motorcycles must have a closed breather system. All oil breather lines must be connected and discharge in the air box.

Ram air tubes or ducts running from the fairing to the air box may be modified, replaced or removed. If tubes/ducts are utilized, they must be attached to the original, unmodified air box inlets.

#### **2.5.8.17 Fuel supply**

Fuel pump and fuel pressure regulator must remain the same as on the homologated motorcycle.

The fuel pressure must be as homologated.

Fuel lines from the fuel tank up to the injectors (fuel hoses, delivery pipe assembly, joints, clamps, fuel canister) may be replaced.

The fuel line(s) going from the fuel tank to the fuel injection system must be located in such a way that they are protected from possible crash damage.

Quick connectors or dry brake quick connectors may be used. Fuel vent lines may be replaced.

Fuel filters may be added.

#### **2.5.8.18 Exhaust system**

Exhaust pipes and silencers may be altered or replaced from those fitted on the homologated motorcycle.

Catalytic converters may be removed.

The number of final exhaust silencer(s) must remain as homologated. The silencer(s) must be on the same side(s) as on the homologated model.

For safety reasons, the exposed edge(s) of the exhaust pipe(s) outlet(s) must be rounded to avoid any sharp edges.

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.

The noise limit for Supersport will be 107 dB/A (with a 3 dB/A tolerance after the race).

#### **2.5.9 Electrics and electronics**

Electric cables, connectors, battery and switches are free.

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

Ignition/engine control system (ECU) may be modified or changed. Spark plugs, plug caps and wires may be replaced.

##### **2.5.9.2 Generator, alternator, electric starter**

Generator may be modified, removed or replaced.

The electric starter must operate normally and always be able to start the engine during the event.

##### **2.5.9.3 Additional equipment**

Additional electronic hardware equipment not on the original homologated motorcycle may be added (this permission refers to: data acquisition and sensors, computers, recording equipment, traction control).

The addition of a device for infrared (IR) transmission of a signal between the racing rider and his team, used exclusively for lap timing, is allowed.

The addition of a GPS unit for lap timing/scoring purposes is allowed. Telemetry is not allowed.

#### **2.5.10 Main frame and pre-assembled 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 needs to be replaced, the rider or the team can request the use of a spare frame to the FIM Superbike Technical Director.

The pre-assembled spare frame must be presented to the FIM Superbike Technical Director to receive the

permission to rebuild the motorcycle. The pre- assembly of the frame shall be strictly limited to:

- Main frame
- Bearings (steering pipe, swing arm, etc.)
- Swing arm
- Rear suspension linkage and shock absorber
- Upper and lower triple clamps
- Wiring harness

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

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.

#### **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 FIM Superbike 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 FIM Superbike 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 in writing the FIM Superbike Technical Director, using a specific form. Only at this point may the pre-assembled 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 FIM Superbike 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 pre-assembled 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 FIM Superbike 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 Technical Regulations. Contact information for the FIM Superbike Technical Director and his appointed staff will be given to the Supersport teams at the preliminary technical checks.

##### **2.5.10.1 Frame body and rear sub-frame**

The frame must remain as originally produced by the manufacturer for the homologated motorcycle.

Holes may be drilled on the frame only to fix approved components (i.e. fairing brackets, steering damper mount, sensors).

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.

Nothing else may be added or removed from the frame body.

All motorcycles must display a vehicle identification number punched on the frame body.

Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.

Rear sub frame may be changed or altered, but the type of material must remain as homologated, or of higher specific weight.

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.

The paint scheme is not restricted but polishing the frame body or sub-frame is not allowed.

##### **2.5.10.2 Front forks**

Forks must remain as originally produced by the manufacturer for the homologated motorcycle.

Original internal parts of the homologated forks may be modified or changed.

No aftermarket or prototype electronically-controlled suspension parts may be used, unless such suspension is already present on the production model of the homologated motorcycle, and it must remain completely standard (all mechanical or electronic parts must remain as homologated). The original suspension system must work safely in the event of an electronic failure.

After market damper kits or valves may be installed.

Fork springs may be modified or replaced.

Fork caps may be modified or replaced to allow external adjustment.

Dust seals may be modified, changed or removed if the fork is totally oil-sealed.

The original surface finish of the fork tubes (stanchions, fork pipes) may be changed. Additional surface treatments are allowed.

The upper and lower fork clamps (triple clamp, fork bridges) must remain as originally produced by the manufacturer on the homologated motorcycle.

A steering damper may be added or replaced with an aftermarket damper. The steering damper cannot act as a steering lock limiting device.

#### **2.5.10.3 Rear fork (swing arm)**

The rear fork must remain as originally produced by the manufacturer for the homologated motorcycle. A 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.

Rear fork pivot bolt must remain as originally produced by the manufacturer for the homologated motorcycle.

Rear axle chain adjuster may be modified or changed.

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 calliper in place may be added to the rear swing-arm.

#### **2.5.10.4 Rear suspension unit**

Rear suspension unit (shock absorber) may be changed or modified. The original attachments of the frame and rear fork must be as homologated.

Rear suspension unit spring(s) may be changed.

No aftermarket or prototype electronically-controlled suspension unit maybe used, unless such suspension is already present on the production model of the homologated motorcycle, and it must remain completely standard (all mechanical or electronic parts must remain as homologated). The original suspension system must work safely in the event of an electronic failure.

Rear suspension linkage must remain as originally produced by the manufacturer for the homologated motorcycle.

#### **2.5.10.5 Wheels**

Wheels must remain as originally produced by the manufacturer for the homologated motorcycle.

Any inner tube (if fitted) or inflation valves may be used.

Wheel balance weights may be discarded, changed or added to.

The speedometer drive may be removed and replaced with a spacer.

If the original design included a cushion drive for the rear wheel, it must remain as originally produced for the homologated motorcycle.

Front and rear wheel axles must remain as originally produced by the manufacturer for the homologated motorcycle.

Wheel diameter and rim width must remain as originally homologated.

#### **2.5.10.6 Brakes**

Front and rear brake discs may be replaced with aftermarket brake discs that must fit the original calliper and mounting. However, the outside diameter and the ventilation system must remain the same as on the homologated motorcycle. Internally ventilated discs are not allowed if not present on the homologated motorcycle.

The brake disc carriers may be changed, but they must retain the same off set and same type of mounting to the wheels of the homologated motorcycle.

Replacement brake discs must be of ferrous material.

Front and rear brake callipers as well as all the mounting points and mounting hardware (mount, carrier, hanger) must remain as originally produced by the manufacturer for the homologated motorcycle (see Art. 2.5.10.3)

In order to reduce the transfer of heat to the hydraulic fluid it is permitted to add metallic-shims to the callipers, between the pads and the callipers, and/or to replace light alloy pistons with steel pistons made by the same manufacturer of the calliper.

The front brake master cylinder must remain as originally produced by the manufacturer for the homologated motorcycle, excluding the hand lever.

The rear brake master cylinder must remain as originally produced by the manufacturer for the homologated motorcycle.

Front and rear hydraulic brake lines may be changed. The brake fluid reservoir may be replaced and/or repositioned. Quick connectors may be used. The split of the front brake lines for both front brake callipers must be made above the lower edge of the fork bridge (lower triple clamp).

Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type. Additional air ducts are not allowed.

The Antilock Brake System (ABS) may be used only if installed in the homologated model for road use. However, it must be completely standard (any mechanical or electronic part must remain as homologated, brake discs and master cylinder levers excluded), and only the software of the ABS may be modified.

The Anti-Lock Brake System (ABS) can be disconnected and its ECU can be dismantled. The ABS rotor wheel can be deleted, modified or replaced.

**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.**

#### **2.5.10.7 Handlebars and hand controls**

Handlebars, throttle assembly and associated cables, hand controls and levers may be altered or replaced from those fitted to the homologated motorcycle (except for the brake master cylinder).

Handle bars and hand controls may be relocated.

Throttle controls must be self-closing when not held by the hand.

Electric starter switch and engine stop switch must be located on the handle bars.

#### **2.5.10.8 Foot rest and foot controls**

Foot rest/foot controls may be relocated but brackets must be mounted to the frame at the original mounting points.

Foot rests may be rigidly mounted or a folding type which must incorporate a device to return them to the normal position.

The end of the foot rest must have at least an 8-mm solid spherical radius. (see diagram A & C).

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. The FIM Superbike Technical Director has the right to refuse any plug not satisfying this safety purpose.

#### **2.5.10.9 Fuel tank**

Fuel tank must remain as originally produced by the manufacturer for the homologated motorcycle.

All fuel tanks must be completely filled with fire retardant material (open-celled mesh, i.e. "Explosafe→").

Fuel tanks with tank breather pipes must be fitted with non-return valves that discharge into a catch tank with a minimum volume of 250 cc made of a suitable material.

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.

#### **2.5.10.10 Fairing / Bodywork**

a) Fairing, front mudguards and body work must appear to be as originally produced by the manufacturer for the homologated motorcycle.

b) Fairing and body work may be replaced with cosmetic duplicates of the original parts. The material may be changed. The use of carbon fibre or Kevlar® materials is not allowed in fairing, fuel tank cover, seat, seat base and associated bodywork construction.

c) Size and dimensions must be the same as the original parts without any addition or removal of design elements.

d) Wind screen may be replaced with transparent material only.

e) The original combination instrument/fairing brackets may be replaced. All other fairing brackets may be altered or replaced.

f) The original air ducts running between the fairing and the air box may be altered or replaced.

g) The original air ducts into the air box may be altered or replaced. 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%.

h) The lower fairing has to be constructed to hold, in case of an engine breakdown, at least half of the total oil and engine coolant capacity used in the engine (minimum 5 litres). The lower edge of openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.

i) The lower fairing must incorporate a hole of 25 mm in the bottom of the front lower area. This hole must remain closed in dry conditions and must be only opened in wet race conditions as declared by the Race Director.

j) Minimal changes are allowed to permit the use of an elevator (stand) for wheel changes and to add a small

plastic protective cone to the frame or engine.

k) Front mudguard must appear as originally supplied by the manufacturer for the homologated motorcycle.

l) Front mudguard may be replaced with cosmetic duplicates of the original parts. The use of carbon fibre or Kevlar® composites is allowed.

m) Front mudguard may be spaced upward for increased tyre clearance.

n) Rear mudguard fixed on the swing-arm may be replaced with cosmetic duplicates of the original parts. The use of carbon fibre or Kevlar® composites is allowed.

o) Rear mudguards fixed on the swing-arm which incorporate the chain guard may be modified to accommodate larger diameter rear sprockets.

p) The existing rear mudguard under the seat may be removed. A mudguard may be fitted directly onto the swing-arm (it may not cover more than 120 degrees of the wheel).

#### **2.5.10.11 Seat**

Seat, seat base and associated bodywork may be replaced with parts of similar appearance as originally produced by the manufacturer for the homologated motorcycles.

The top portion of the rear body work around the seat may be modified to a solo seat.

Holes may be drilled in the seat or rear cowl to allow additional cooling. Holes which are bigger than 10 mm must be covered with metal gauze or fine mesh. Mesh must be painted to match the surrounding material.

The appearance from both front, rear and profile must conform in principle to the homologated shape.

The seat/rear cowl replacement must allow for proper number display.

All exposed edges must be rounded.

#### **2.5.10.12 Fasteners**

Standard fasteners may be replaced with fasteners of any material and design. Aluminium fasteners may only be used in non-structural locations.

Titanium fasteners may be used in structural locations, but the strength and design must be equal to or exceed the strength of the standard fastener it is replacing.

Special steel fasteners may be used in structural locations, but the strength and design must be equal to or exceed the strength of the standard fastener it is replacing.

Fasteners may be drilled for safety wire, but intentional weight-saving modifications are not allowed.

Fairing/bodywork fasteners may be changed to the quick disconnect type.

#### **2.5.10.13 Rear Safety Light**

**All motorcycles must have a functioning red light mounted at the rear of the seat, to be used during Wet Races or in low visibility conditions, as declared by the Race Direction.**

**The rear safety light must comply with the following:**

**a) the lighting direction must be parallel to the centre line of the motorcycle (running direction) and it must be clearly visible from the rear, at least 15 degrees to both the left and right sides of the centre line of the motorcycle.**

**b) it must be safely mounted on the very end of seat/rear bodywork and approximately on the centre line of the motorcycle. In case of dispute over the mounting position or visibility of the Rear Safety Light, the decision of the FIM Superbike Technical Director will be final.**

**c) the power output/luminosity must be equivalent to approximately 10- 15W (incandescent) or 3-5W (led).**

**d) the light must be able to be switched on and off.**

#### **2.5.11 The following items MAY BE altered or replaced from those fitted to the homologated motorcycle**

- Any type of lubrication, brake or suspension fluid.
- Instruments, their supports(s) and associated cables.
- Bearings (ball, roller, taper, plain, etc.) of any type or brand may be used.
- Gaskets and gasket materials.
- Painted external surface finishes and decals.
- It is recommended that motorcycles are equipped with a red light on the instrument panel that will flash in the event of oil pressure drop.

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

Emission control items (anti-pollution) in or around the air box and engine (O2 sensors, air injection devices).

- Tachometer.
- Speedometer and related wheel spacers.
- Bolt on accessories on a rear sub frame.

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

Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing). Openings must be covered by suitable materials.

- Rear-view mirrors.
- Horn.
- License plate bracket.
- Tool box.
- Helmet hooks and luggage carrier hooks
- Passenger foot rests.
- Passenger grab rails.
- Safety bars, centre and side stands must be removed (fixed brackets must remain).

**2.5.14 The following items MUST BE altered**

Motorcycles must be equipped with a functional ignition kill switch or button mounted at least on one side of the handlebar (within reach of the hand while on the hand grips) that is capable of stopping a running engine.

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).

All motorcycles must have a closed breather system. The oil breather line must be connected and discharge in the air box.

Where breather or over flow pipes are fitted they must discharge via existing outlets. The original closed system must be retained; no direct atmospheric emission is permitted.



## APPENDIX H: TECHNICAL REGULATIONS CLASS SUPERBIKE (SBK) 2013 FIM Superbike World Championships Regulations

### 2.4 SUPERBIKE TECHNICAL SPECIFICATIONS

The following rules are intended to give freedom to modify or replace some parts in the interest of safety, research and development and improved competition between various motorcycle concepts.

**EVERYTHING THAT IS NOT AUTHORISED 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.**

Superbike 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.

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

#### 2.4.1 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.

#### 2.4.2 Balancing various motorcycle concepts

In order to equalize the performance of motorcycles with different engine configurations, changes in the minimum weight and air restrictor sizes are applied according to their respective racing performances.

These handicaps are applied only to the '1200cc 2 cylinder' motorcycles.

As a first step, the weight handicap will be applied according to the relevant provisions described in Art. 2.4.4.2. The minimum weight is fixed at 165 kg and may be not reduced. **The minimum weight may be increased twice by 3 kg reaching a weight of 168 kg and 171 kg respectively.**

**If this measure proves to be insufficient, then** the air restrictor handicap will be applied according to the relevant provisions described in Art 2.4.8.1.3: the size of the intake ports will be changed by means of air restrictors. These changes to the size of the air restrictor diameter will be applied in 2 mm steps.

The Superbike Commission can at any time modify the handicap system to ensure fair competition.

#### 2.4.3 Engine configurations and displacement capacities

The following engine configurations **comprise** the Superbike class.

Over 750cc up to 1000cc	4 stroke	3 and 4 cylinders
Over 850cc up to 1200cc	4 stroke	2 cylinders

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

#### 2.4.4 Minimum weight

##### 2.4.4.1 The minimum weight will be:

1000cc 3 & 4 cylinders	165 kg
1200cc 2 cylinders	<b>165 kg (**)</b>

(\*\*) See handicap rule for further information.

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

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

During the final technical inspection at the end of each 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 FIM Superbike Technical Director at the preliminary checks.

##### 2.4.4.2 Minimum weight adjustments

**The minimum weight** will be increased or decreased in steps of 3 kg according to the following procedure:

1. After three events, the best manufacturers of the 1000cc 4 cylinders and 1200cc 2 cylinders will be selected according to the sum of the points of the best two riders for each manufacturer.
2. By taking the race points of the riders of the selected 1000cc 4 cylinder manufacturer and of the selected 1200cc 2 cylinder manufacturer in each race, an average will be calculated after every event, the 'event average'.

If in any of the races there is only one finisher from one of the selected manufacturers, the 'event average' will

be calculated from the first rider of each selected manufacturer in each race.

No 'event average' points will be calculated if one of the selected manufacturers has no finishers. The 'event average' will then be calculated based on the results of the other race from the same event.

If neither race has any finishers from one of the selected manufacturers, the event will not be considered.

3. 'Wet' races (as declared by the Race Director) are not taken in account for the calculation of an 'event average'.

4. After 3 events, the average value of the 'event averages' of each selected manufacturer will be calculated. The score of the 1000cc 4 cylinder manufacturer and the score of the 1200cc 2 cylinder manufacturer will be compared as follows:

Should the average value of the 'event averages' over 3 events favour the 1200cc 2 cylinder manufacturer by more than 5 points, and if a rider of a motorcycle of this manufacturer is leading the riders' FIM Superbike World Championship standings at that time, then the minimum weight of all 1200cc 2 cylinders will be increased by 3 kg **reaching a weight of 168 kg and 171 kg respectively**. The upper limit is 171 kg.

**Should the average value of 'event averages' over 3 events favour the 1000cc 4 cylinder manufacturer by more than 5 points, and if a rider of a motorcycle of this manufacturer is leading the riders' FIM Superbike World Championship standings at that time, then the minimum weight of all 1200cc 2 cylinders will remain at 165 kg and the air restrictor handicap will be applied according to the relevant provisions described in article 2.4.8.1.3.**

If the minimum weight is not updated, then the results of three more events will be considered and the best manufacturers for each engine con guration will be updated considering the sum of points of the best two riders from each selected manufacturer over six events and so on, over multiples of three events.

A new average value of the 'event averages' will be calculated over six events and so on, over multiples of three events, until the points gap of the average value of the 'event averages' from the last minimum weight update is higher than 5.

The FIM Superbike Technical Director will inform all the teams about the possible minimum weight adjustments, within 24 hours from the end of the last event (the last meeting of the International Jury) where the average value of the 'event averages' was calculated. The new minimum weight adjustments must be applied from the first following event.

#### 2.4.5 Number plate colours

The background colours and figures (numbers) for Superbike are white background with black numbers

The sizes for all the front numbers are:	Minimum height:	160 mm
	Minimum width:	80 mm
	Minimum stroke:	25 mm
	<b>Minimum space between numbers</b>	<b>10 mm</b>

The sizes for all the side numbers are:	Minimum height:	120 mm
	Minimum width:	60 mm
	Minimum stroke:	25 mm
	<b>Minimum space between numbers</b>	<b>10 mm</b>

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

once on the front, either in the centre of the fairing or slightly off to one side; **The number must be centred on the white background with no advertising within 25mm in all directions.**

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 centred on the white background.**

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

#### 2.4.6 Fuel

All engines must function on normal unleaded fuel with a maximum lead content of 0.005 g/l (unleaded) and a maximum MON of 90 (see also Art. 2.7 for full fuel specifications).

#### 2.4.7 Tyres

At each event, during free practices, qualifying practices, Superpole and warm up session, a maximum of thirteen (13) rear and nine (9) front tyres may be used. Only the riders taking part in the Superpole will be allowed to use an additional front tyre. There is no limitation on the number of tyres for the race.

All tyres (slick, intermediate and wet) will be included in the total quantity count.

If the riders are given a red flag during the Superpole session, the FIM Superbike Technical Director may allow

an additional set of tyres to be used.

At the beginning of the event, the Official Supplier may be requested by the FIM Superbike Technical Director to deliver to him four (4) samples of each type of tyre which will be used at the event.

The tyres used in the free practices, qualifying practices, Superpole and warm-up must be marked with an adhesive sticker. The sticker will show an identification number for each rider and it will have a different colour depending on whether it is applied to the front or rear tyre. At each race, the FIM Superbike Technical Director will assign a number of his choice to the competitor, while the colours will change for each race.

The stickers will be handed to the teams in a sealed envelope, 13 for the rear tyres and 9 for the front tyres, on the day before the first practice session, in accordance with a timetable decided by IMS and the FIM Superbike Technical Director. The timetable will be mailed to the teams by IMS at least a week before the event. In extraordinary situations the FIM Superbike Technical Director can/ may alter this program.

After delivery of the stickers, the teams will be responsible for their safekeeping and use.

The stickers must be applied to the left sidewall of the tyre. Personnel nominated by the FIM Superbike Technical Director will check that all the motorcycles in the pit lane are fitted with tyres carrying the sticker.

The use of motorcycles with unmarked tyres (e.g. without the official stickers) will be immediately reported to the Race Direction which will take appropriate action.

After the second qualifying practice session, the FIM Superbike Technical Director and staff will hand one additional sticker for the front tyre and two rear 'Superpole tyres' to the riders taking part in the Superpole. Each Superpole tyre must be marked with an official personal identification.

The allocation of individual tyres will be made on a random basis, with no involvement of any representative from the tyre supplier, teams or riders. Those tyres will be individually identified and may not be exchanged between riders, including between team mates, and may not be exchanged by the tyre supplier after the allocation, except with the permission of the Race Direction.

On the race day, after the warm-up and after the check by the Official Supplier regarding the effective tyre wear, the unused stickers will be returned.

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 FIM Superbike Technical Director. However, the damaged sticker must be returned to the FIM Superbike Technical Director and/or the tyre it was applied to, must be absolutely intact.

#### **2.4.8 Engine**

The following engine specifications and components may not be altered from the homologated motorcycle except as noted:

The homologated engine design model cannot be changed.

Homologated materials and castings for the crankcase, cylinder, cylinder head and gear-box housing must be used.

Material for the crankcase, cylinder, cylinder head and gear-box housing may only be added by welding or removed by machining.

The method of cam drive must remain as homologated.

Aftermarket or modified cam drive components are allowed, however the cam drive must be in the homologated location and the system must be as homologated.

The method of valve retention must remain as the homologated model. No pneumatic valve retention devices are allowed unless fitted to the homologated model.

All moving internal engine, gear-box and clutch parts may be altered or replaced including materials from those fitted on the homologated motorcycle (unless not allowed by the individual section covering the parts in question).

Polishing and lightening of engine parts is permitted, except for carburation instruments (unless not allowed by the individual section covering the parts in question).

The sequence in which the cylinders are ignited (i.e. 1-2-4-3), must remain as originally designed on the homologated model. Simultaneous (\*) firing of 2 cylinders is also forbidden if not adopted on the homologated motorcycle.

\*up to 5 degrees firing difference in 2 cylinders is regarded as 'simultaneous' firing.

##### **2.4.8.1 Fuel injection system**

**2.4.8.1.1 Fuel injection system** refers to throttle bodies and variable length intake tract devices.

- The original homologated throttle body must be used
- The use of an optional homologated throttle body is not allowed.
- Fuel Injectors must be stock and unaltered from the original specification and manufacture.
- Electronically controlled throttle valves, known as 'ride-by-wire', may be added or changed. However, the safety systems and procedures must always be present and fully functional
- Variable intake tract devices cannot be added if they are not present on the homologated motorcycle.

- The throttle body intake insulators may be modified.
- Bell mouths (including their fixing points) may be altered or replaced.
- Vacuum slides may be fixed in the open position
- Secondary throttle valves and shafts may be removed or fixed in the open position and the electronics may be disconnected or removed
- Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.

#### 2.4.8.1.2 Air restrictors for 1200cc 2 cylinders

Application: Only the 1200cc 2 cylinders will be fitted with air restrictors. The initial air restrictor size to be installed is equivalent to a  $\varnothing$  50 mm circular area (1963,5 mm<sup>2</sup>). Air restrictor size will be adjusted (in steps equivalent to a change of 2 mm in diameter or equivalent circular area, upwards to  $\varnothing$  52 mm and then to no restrictor at all, downwards to a minimum of  $\varnothing$  46 mm), if needed during the Championship, as described below in Art. 2.4.8.1.4

Definition: An air restrictor is a metallic device with a tract of constant controlled section and which is placed in the induction tract between the throttle body and the cylinder head. The length of the controlled tract must be at least 3 mm. No air and/or air-fuel mixture to the engine must by-pass the restrictor. No part of the fuel injection system (injector, needle, slide, etc.) shall extend through the restrictor.

The Manufacturer must supply the FIM with **10** sets of plug-calibres (-gauges) to check the diameter of the air restrictor when using one of the prescribed sizes ( $\varnothing$  52,  $\varnothing$  50,  $\varnothing$  48,  $\varnothing$  46 mm).

A Manufacturer may have a non-circular air restrictor, provided that the area of this restrictor is equivalent to the area of a nominal circular restrictor. In this case, the Manufacturer must supply the FIM with **10** sets of plug-calibres (-gauges) for measuring the restrictor during the technical verifications.

The FIM may also request the Manufacturer to supply a cut section of the air restrictor(s) in each of the prescribed sizes.

#### 2.4.8.1.3 Air restrictor adjustment

The minimum air restrictor size is increased or decreased in 2 mm steps in diameter of equivalent circular area, according to following procedure:

**1. If the gap in the average value of 'event averages', calculated as described in Art. 2.4.4.2 is more than 5 points in favour of the 1000cc 4 cylinder manufacturer, and If a rider of a 1000cc 4 cylinder motorcycle is leading the riders' FIM Superbike World Championship standings at that time:**

**Then the initial air restrictor size of all the 1200cc 2 cylinder motorcycles will be increased by one size, to a  $\varnothing$  52 mm (or the equivalent area 2123.7 mm<sup>2</sup>), or as a last step, the air restrictor will be withdrawn.**

**2. If the minimum weight for 1200cc 2 cylinder manufacturers has reached the upper limit of 171 kg, and if the resulting gap of the average value of 'event averages', calculated as described in Art. 2.4.4.2, is more than 5 points in favour of the 1200cc 2 cylinder manufacturer, and if a rider of a 1200cc 2 cylinder motorcycle is leading the riders' FIM Superbike World Championship standings at that time:**

**Then, the initial air restrictor size of the 1200cc 2 cylinder manufacturers will be reduced by one size, to a  $\varnothing$  48 mm (or the equivalent area 1809.6 mm<sup>2</sup>) or, as last step, to a minimum of  $\varnothing$  46 mm (or the equivalent area 1661.9 mm<sup>2</sup>).**

If the air restrictor size is not updated, then the results of three more events will be considered and the best manufacturers for each engine configuration will be updated considering the sum of points of the best two riders from each selected manufacturer over six events and so on, over multiples of three events. A new average value of the 'event averages' will be calculated over six events and so on, over multiples of three events, until the points gap of the average value of the 'event averages' from the last minimum weight update is higher than 5.

The FIM Superbike Technical Director will inform all the teams about the possible air restrictor size adjustments, within 24 hours from the end of the last event (the last meeting of the International Jury), where the average value of the 'event averages' was calculated. The new air restrictor size adjustments must be applied from the first following event.

#### 2.4.8.2 Cylinder head

The homologated cylinder head may be modified as follows:

Homologated materials and castings for the cylinder heads must be used. Material for these parts may only be added by welding or removed by machining.

The homologated cylinder head cover may be modified.

The induction and exhaust system including the number of valves and or ports (intake and exhaust) must be as homologated.

Porting and polishing of the cylinder head normally associated with individual tuning such as gas flowing of the cylinder head, including the combustion chamber is allowed. **Epoxy may be used to shape the ports.**

The compression ratio is free.

The combustion chamber may be modified.

Aftermarket or modified valves, springs, tappets, retainers, valve seats, valve guides, and other valve train components are permitted. The original number of valves must be maintained.

- a. Valve diameters, including stem, must remain as homologated.
- b. Valves must be made of the same basic material as the homologated valves.
- c. Valves must remain in the homologated location and at the same angle as the homologated valves, except for normal valve maintenance.
- d. Rocker arms (if any) must remain as homologated (material, location and dimensions).

#### **2.4.8.3 Camshaft**

Camshafts may be altered or replaced from those fitted to the homologated motorcycle (see also Art. 2.4.8). Offsetting the camshaft is not allowed. The camshaft must remain in the homologated location.

#### **2.4.8.4 Cam sprockets or cam gears**

Camshaft sprockets or camshaft gears may be altered or replaced to allow the degreeing of the camshafts (see also Art. 2.4.8).

#### **2.4.8.5 Cylinders**

Homologated materials and casting for the cylinder block must be used. The material for the cylinder block may only be added by welding and/or removed by machining. The sleeves or liner material may be changed and the surface finish is free. The original bore size must be retained.

#### **2.4.8.6 Pistons**

##### **For 1000cc 3 and 4 cylinders**

Pistons may be altered or replaced from those fitted to the homologated motorcycle.

##### **For 1200cc 2 cylinders**

Standard piston or the piston kit (\*) must be used.

(\*) The piston kit must have the same price as the standard one and must be listed in the current racing parts list of the Manufacturer and be on sale for customers. Within 90 days from the order, the customer must receive the piston kit set.

#### **2.4.8.7 Piston rings**

Piston rings may be altered or replaced from those fitted to the homologated motorcycle.

#### **2.4.8.8 Piston pins and clips**

Piston pins and clips may be altered or replaced from those fitted to the homologated motorcycle.

#### **2.4.8.9 Connecting rods**

##### **For 1000cc 3 & 4 cylinders**

Connecting rods may be altered or replaced from those fitted to the homologated motorcycle. Carbon composite or carbon fibre materials are not allowed if not used in the homologated motorcycle.

##### **For 1200cc 2 cylinders**

Connecting rods must remain as homologated. Polishing and lightening is not allowed.

#### **2.4.8.10 Crankshaft**

Only the following modifications are allowed to the homologated crankshaft:

- a. Bearing surfaces may be polished or a surface treatment may be applied.
- b. Balancing is allowed. The addition or reduction in weight of the crankshaft in order to reach a racing balance can be no higher than 15% of the homologated weight without the tolerance as shown on the homologation drawing of the crankshaft.
- c. The weight reduction may be done by drilling or machining of the crankshaft counterweights.
- d. Polishing of the crankshaft is not allowed.
- e. Attachment of aftermarket ignition components or sensors is permitted.
- f. Balance shaft may be altered, removed or modified.

#### **2.4.8.11 Crankcase / Gearbox housing**

Homologated materials and castings for crankcase and gearbox housing must be used. Material for crankcase and gearbox housing may only be added by welding or removed by machining.

Oil-pan (sump) may be altered or replaced.

**Vacuum pumps are not allowed if not installed on the homologated motorcycle.**

##### **2.4.8.11.1 Lateral covers and protection**

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.

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.

Plates or crash bars 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**.

**FIM approved covers will be permitted without regard of the material.**

**These covers must be fixed properly and securely with case cover screws that also mount the original covers/engine cases to the crankcases.**

**The Technical Director has the right to forbid any cover, if the evidence shows the cover is not effective.**

#### **2.4.8.12 Transmission / Gearbox**

All transmission/gearbox ratios, shafts, drums, selector forks are free. Primary gear ratios are free.

The layout of the transmission shafts must be the same as on the homologated motorcycle and only the material and the ratios can be changed.

The layout and function of the shift drum must be the same as on the homologated motorcycle.

The selector forks may be changed; however, the forks must engage with the same gears and function in the same way as on the homologated motorcycle.

The number of gears must remain as homologated.

Additions to gearbox or selector mechanism, such as quick shift systems, are allowed.

Countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.

No power source (i.e. hydraulic or electric) can be used for gear selection, if not installed in the homologated model for road use.

Human power and so called quick shift systems are excluded from the ban.

#### **2.4.8.13 Clutch**

Aftermarket or modified clutches are permitted.

Back torque limiter is permitted.

Any power source (i.e. hydraulic or electric) cannot be used for clutch operation, if not installed in the homologated model for road use. Human power is excluded from the ban.

Clutch system (wet or dry type) and method of operation (cable/hydraulic) must remain as homologated.

#### **2.4.8.14 Oil pumps and oil lines**

Oil pumps may be altered or replaced from those fitted to the homologated motorcycle.

Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or treaded connectors.

#### **2.4.8.15 Radiator / Oil cooler**

The original radiator or oil cooler may be altered or replaced from those fitted to the homologated motorcycle.

Additional radiators or oil coolers may be added.

Radiator fan and wiring may be changed, modified or removed.

The oil cooler must not be mounted on or above the rear mudguard.

The appearance from the front, rear and profile of the motorcycle must in principle conform to the homologated shape after the addition of additional radiators or oil coolers.

#### **2.4.8.16 Air box**

**The following air box rule only applies to motorcycles homologated before the 31<sup>st</sup> of December 2009:**

- The air box may be altered or replaced from those fitted to the homologated motorcycle (a special design for racing is allowed). If fuel injectors are attached to the cover of the air box, their position with reference to the throttle body must remain as original.
- The air filter element may be removed.
- The air box must be completely closed around the induction bell mouth and all engine breather tubes. The fuel injection system may be entirely within the air box.
- The air box drains must be sealed.
- All motorcycles must have a closed breather system. All the oil breather lines must be connected and discharge in the air box.
- The breather system (air box plus any breather oil collector box) must be capable in the event of drain pipe blockage, of retaining a minimum of 1000 cc of discharged fluid.

**For motorcycles homologated after the 1<sup>st</sup> of January 2010:**

- The air box must remain as originally produced by the manufacturer on the homologated motorcycle.
- If the homologated air box is used to mount top type fuel injectors or variable intake tract devices, then the air box and the attached systems must remain as homologated and function in the same way.
- Air filters, internal flap type valve, sensors and vacuum fittings may be removed, modified, or replaced with aftermarket parts.
- Any holes in the air box to the outside atmosphere resulting from the removal of components must be completely sealed from incoming air.

- Ram air tubes or ducts running from the fairing to the air box may be modified, replaced or removed. If tubes/ducts are utilized, they must be attached to the original, unmodified air box inlets.
- All motorcycles must have a closed breather system. All the oil breather lines must be connected and discharge in the air box.

#### 2.4.8.17 Fuel supply

The engine control unit (ECU) may be modified or changed.

Fuel pump and fuel pressure regulator must remain the same as on the homologated model.

The fuel pressure must be as homologated.

The pressure tolerance at the technical control is +0.5 bar in respect to the maximum pressure of the homologated motorcycle.

All motorcycles must have a special device on the fuel line in accordance with FIM specifications for fuel pressure checks.

Fuel lines from the fuel tank up to the injectors (fuel hoses, delivery pipe assembly, joints, clamps, fuel canister) may be replaced.

The fuel line(s) going from the fuel tank to the fuel injection system must be located in such a way that they are protected from possible crash damage.

Fuel vent lines may be replaced. Fuel filters may be added.

Fuel petcock may be altered, replaced or removed from those fitted to the homologated motorcycle.

#### 2.4.8.18 Exhaust system

Exhaust pipes, catalytic converters and silencers may be altered or replaced from those fitted to the homologated motorcycle. Catalytic converters may be removed.

The number of the final exhaust silencer(s) must remain as homologated. The silencer(s) must be on the same side(s) as on the homologated model.

For safety reasons, the exposed edge(s) of the exhaust pipe(s) outlet(s) must be rounded to avoid any sharp edges.

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.

The noise limit for Superbikes will be 107 dB/A (with a 3 dB/A tolerance after the race).

#### 2.4.9 Electric and electronic devices

Electric cables, connectors, battery and switches are free.

##### 2.4.9.1 Ignition / Engine Control System

Ignition/engine control system (ECU) may be modified or changed.

Spark plugs, spark plug caps and wires may be replaced.

##### 2.4.9.2 Generator, alternator, electric starter

The generator or alternator may be modified, removed or replaced.

The electric starter may be modified, removed or replaced.

**Motorcycles must start on the starting grid in neutral. Push-starting on the starting grid is not allowed, the use of a 'booster' battery is permitted.**

##### 2.4.9.3 Additional equipment

Additional electronic hardware equipment not on the original homologated motorcycle may be added (this permission refers to: data acquisition and sensors, computers, recording equipment, traction control).

The addition of a device for infra-red (IR) transmission of a signal between the racing rider and his team, used exclusively for lap timing, is allowed.

The addition of a GPS unit for lap timing/scoring purposes is allowed. Telemetry is not allowed.

#### 2.4.10 Main frame and pre-assembled 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 needs to be replaced, the rider or the team **can** request the use of a spare frame to the FIM Superbike Technical Director.

The pre-assembled spare frame must be presented to the FIM Superbike Technical Director to receive permission to rebuild the motorcycle. **The pre-assembly of the frame shall be strictly limited to:**

- **Main frame**
- **Bearings (steering pipe, swing arm, etc.)**
- **Swing arm**
- **Rear suspension linkage and shock absorber**
- **Upper and lower triple clamps**
- **Wiring harness**

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

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.

#### **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, **Superpole** and races.

The frame of this motorcycle will be officially sealed by the FIM Superbike 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 FIM Superbike 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 spare rolling chassis to rebuild the motorcycle.

The spare rolling chassis may be pre-assembled with the following items: 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 FIM Superbike Technical Director. Only at this point may the pre-assembled spare frame be brought into the pit box.**

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 FIM Superbike 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 pre-assembled 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 FIM Superbike 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 Technical Regulations. Contact information for the FIM Superbike Technical Director and his appointed staff will be given to the Superbike teams at the preliminary technical checks.

#### **2.4.10.1 Frame body and rear sub-frame**

The main frame must be as originally produced by the manufacturer for use on the homologated motorcycle.

The main frame may only be altered by the addition of gussets or tubes. No gussets or tubes may be removed, **other modifications are allowed within the following section of these rules.**

Holes may be drilled on the frame only to fit approved components (i.e. fairing brackets, steering damper mount).

The dimensions and position of:

- **Engine**
  - **Swing arm**
  - **Rear shock**
  - **Suspension linkage mounting points on the frame**
- must remain as homologated.**

Steering angle changes are permitted by fitting inserts onto the bearing seats of the original steering head. **The original bearing seat diameters on steering head pipe may be increased to insert special bushings. The new fore and aft position of each bearing can be a maximum +/- 6 mm in respect to the original bearing location. No part of these special bushings may protrude axially more than 3 mm from the original steering head pipe location. The steering head pipe can be reinforced in the area of the bearing seats. Welding and machining is allowed for the purpose of making these modifications.**

**Modifications to the frame at the swing arm pivot area are allowed to give a maximum of +/-5 mm of adjustment vertically and horizontally. Welding and machining is allowed for the purpose of making this modification of the original swing arm pivot, regardless of the technology used and the dimensions of the component or section of the frame (i.e.: cast, fabricated, etc.).**

All motorcycles must display a vehicle identification number punched on the frame body.

Rear sub frame may be changed or altered, but the type of material must remain as homologated or of higher specific weight.

The paint scheme is not restricted.

#### 2.4.10.2 Front forks

The front fork in whole or part may be changed but must be the same type homologated (leading link, telescopic, etc.).

No aftermarket or prototype electronically-controlled suspensions may be used.

An electronically-controlled suspension may only be used if already present on the production model of the homologated motorcycle.

The electronically-controlled valves must remain as homologated. The shims, spacers and fork springs not connected with these valves can be changed.

The ECU for the electronic suspension must remain as homologated and cannot have GPS capabilities.

The electronic interface between the rider and the suspension must remain as on the homologated motorcycle. It is allowed to remove or disable this rider interface.

The original suspension system must work safely in the event of an electronic failure.

Electro-magnetic fluid systems which change the viscosity of the suspension fluid(s) during operation are not permitted.

The upper and lower fork clamps (triple clamp, fork bridges) may be changed or modified.

A steering damper may be added or replaced with an 'after-market' damper.

The steering damper cannot act as a steering lock limiting device.

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).

#### 2.4.10.3 Rear fork (Swing-arm)

The rear fork may be altered or replaced from those fitted to the homologated motorcycle. **However, the type single or double sided must remain as homologated.** The use of carbon fibre or Kevlar materials is not allowed if not homologated on the original motorcycle. A chain guard must be fitted in such a way to reduce the possibility that any part of the riders' body must become trapped between the lower chain run and the rear wheel sprocket.

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.

#### 2.4.10.4 Rear suspension unit

Rear suspension unit may be changed but a similar system must be used (i.e. dual or mono).

No aftermarket or prototype electronically-controlled suspension unit may be used.

An electronically-controlled suspension may only be used if already present on the production model of the homologated motorcycle.

The electronically-controlled valves must remain as homologated. The shims, spacers and shock absorber springs not connected with these valves can be changed.

The ECU for the electronic suspension must remain as homologated and cannot have GPS capabilities.

The electronic interface between the rider and the suspension must remain as on the homologated motorcycle. It is allowed to remove or disable this rider interface.

The original electronic system must work safely in the event of an electronic failure.

Electro magnetic fluid systems which change the viscosity of the suspension fluid(s) during operation are not permitted.

The rear suspension linkage may be modified or replaced.

The original fixing points in the frame (if any) must be used to mount the shock absorber, linkage and rod assembly fulcrum (pivot points).

#### 2.4.10.5 Wheels

Wheels may be replaced (see Art. 2.3.4) and associated parts may be altered or replaced from those fitted to the homologated motorcycle. **Only wheels made from aluminium alloys are allowed. The use of the following alloy materials for the wheels is not allowed: Beryllium (>=5%), Scandium (>=2%), Lithium (>=1%). Each specific racing wheel model must be approved and certified according to JASO (Japanese Automotive Standards Organization) T 203- 85 where W (maximum design load) of art. 11.1.3 is 195 kg for front wheel and 195 kg for rear wheel, K = 1.5 for front and rear wheels. Static radius of tyre: front 0.301 m, rear 0.331 m.**

**Wheel manufacturers must provide copy of the certificate for their wheel(s) as proof of compliance to the Technical Director when requested.**

**On motorcycles equipped with a double-sided swing arm (rear fork), the rear sprocket must remain on the rear wheel when the wheel is removed.**

Bearings, seals, and axles may be altered or replaced from those fitted to the homologated motorcycle. The use of titanium and light alloys is forbidden for wheel spindles (axles).

Wheel balance weights may be discarded, changed or added to. Any inner tube (if fitted) or inflation valves may be used.

**Wheels must be made from aluminium alloys.**

<b>Wheel rim diameter size (front and rear)</b>	<b>17 inches</b>
<b>Front wheel rim width:</b>	<b>3.50 inches</b>
<b>Rear wheel rim width:</b>	<b>6.00 inches</b>

#### **2.4.10.6 Brakes**

Front brake master cylinder may be altered or replaced from those fitted to the homologated motorcycle.

Front brake callipers may be altered or replaced from those fitted to the homologated motorcycle.

Rear brake master cylinder may be altered or replaced from those fitted to the homologated motorcycle.

Rear brake callipers may be altered or replaced from those fitted to the homologated motorcycle.

Brake pads or shoes may be altered or replaced from those fitted to the homologated motorcycle.

Brake hoses and brake couplings may be altered or replaced from those fitted to the homologated motorcycle.

The split of the front brake lines for both front brake callipers must be made above the lower fork bridge (lower triple clamp).

Brake discs may be altered or replaced from those fitted to the homologated motorcycle. Only ferrous materials are allowed for brake discs. The use of exotic alloy materials for brake callipers (i.e. aluminium-beryllium, etc.) is not allowed.

The Anti-Lock Brake System (ABS) may be used only if installed in the homologated model for road use.

However, it must be completely standard (any mechanical or electronic part must remain as homologated, brake discs and master cylinder levers excluded), and only the software of the ABS may be modified.

The Anti-Lock Brake System (ABS) can be disconnected and its ECU can be dismantled. The ABS rotor wheel can be deleted, modified or replaced.

**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.**

#### **2.4.10.7 Handlebars and hand controls**

Handlebars, hand controls and cables may be altered or replaced from those fitted to the homologated motorcycle.

Engine stop switch must be located on the handle bars.

#### **2.4.10.8 Foot rest and foot controls**

Foot rest/foot controls may be relocated, but the original mounting points must be used.

Foot rests may be rigidly mounted or a folding type which must incorporate a device to return them to the normal position.

The end of the foot rest must have at least an 8mm solid spherical radius. (see diagram A & C).

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

#### **2.4.10.9 Fuel tank**

The fuel tank must maintain the homologated appearance and location; however, its actual shape can be slightly changed to suit the rider's preference. The tank may be modified below the upper frame line and under the seat.

The material of construction of the fuel tank may be altered from the one of the tank fitted to the homologated motorcycle.

All fuel tanks must be filled with fire retardant material, or be fitted with a fuel cell bladder.

Fuel tanks made of composite materials (carbon fibre, aramid fibre, glass fibre, etc.) must have passed the FIM Standards for fuel tanks or be lined with a fuel cell bladder.

Tanks made of composite material must bear the label certifying conformity with FIM Fuel Tank Test Standards.

Fuel tanks without a fuel cell bladder must bear a label certifying conformity with FIM Fuel Tank Test Standards. Such labels must include the fuel tank manufacturer's name, date of tank manufacture, and name of testing laboratory.

Each manufacturer is requested to inform the FIM/CCR Secretariat of its fuel tank model(s) which have passed the FIM test standards, together with a copy of the fuel tank label. Full details of the FIM Fuel Tank Test Standards and Procedures are available from the FIM (See 'Fuel Tank Test Standards' below).

Fuel cell bladders must conform to or exceed the specification FIM/FCB-2005. Full details of this standard are available from the FIM.

The fuel tank must be fixed to the frame from the front and the rear with a crash-proof assembly system.

Bayonet style couplings cannot be used, nor may the tank be fixed to any parts of the streamlining (fairing) or any plastic part. The FIM Superbike Technical Director has the right to refuse a motorcycle if he is of the opinion that the fuel tank fixation is not safe.

The original tank may be modified to achieve the maximum capacity of 24 litres, provided the original pro le is as homologated.

A cross over line between each side of the tank is allowed (maximum inside diameter 10 mm).

Fuel tanks with tank breather pipes must be fitted with non-return valves which discharge into a catch tank with a minimum volume of 250 cc made of a suitable material.

Fuel tank filler caps may be altered or replaced from those fitted to the homologated motorcycle, and when closed, must be leak proof. Additionally, they must be secured to prevent accidental opening at any time. The same size fuel tank used in practice must be used during the entire event.

#### **Fuel tank homologation**

1. Any fuel tanks, made of non-ferrous materials (with the exception of aluminium) must be tested according to the test procedure prescribed by the FIM.
2. Each manufacturer is responsible for testing its own fuel tank model(s) and will certify that the fuel tank exceeds the FIM test standard, if it has passed the FIM test procedure for fuel tanks.
3. Each manufacturer must affix a quality and test label on each fuel tank type that is produced for competition use. This quality and test label will be the recognition of a fuel tank model which has passed the FIM test procedure.
4. All fuel tanks that are made to the same design, dimensions, number of fibre layers, grade of fibre, percentage of resin, etc., must be identified with the same quality and test label.
5. The quality and test label will include the following information on each label affixed to each fuel tank: name of the fuel tank manufacturer, date of fabrication, code or part number, name of testing laboratory, fuel capacity.
6. Each manufacturer is requested to inform the FIM/CCR Secretariat of its fuel tank model(s) which have passed the FIM test procedure, with a copy of the quality and test label, according to point 5.
7. Only fuel tanks that have passed the FIM test procedure will be accepted.

#### **2.4.10.10 Fairing / Bodywork**

- a) Fairing, mudguards and body work must conform in principle to the homologated shape as originally produced by the manufacturer.
- b) Wind screen may be replaced.
- c) Original air ducts running between the fairing to the air box may be altered or replaced from those fitted to the homologated motorcycle.
- d) The lower fairing has to be constructed to hold, in case of an engine breakdown, at least half of the total oil and engine coolant capacity used in the engine (min. 5 litres). The lower edge of openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.
- e) The lower fairing must incorporate one hole of 25 mm in the bottom of the front lower area. This hole must remain closed in dry conditions and must be only opened in wet race conditions, as declared by the Race Director.
- f) Minimal changes are allowed in the fairing to permit the use of an elevator (stand) for wheel changes and to add plastic protective cones to the frame or the engine.
- g) Holes may be drilled or cut in the fairing or bodywork to allow additional increased intake air to the oil cooler. Holes bigger than 10mm must be covered with a particle grill or fine wire mesh. Grill/mesh must be painted to match the surrounding material.  
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%.
- h) Front mudguard must conform in principle to the homologated shape originally produced by the manufacturer.
- i) Holes may be drilled in the front mudguard to allow additional cooling. Holes bigger than 10mm must be covered with metal gauze or fine mesh. Mesh must be painted to match the surrounding material.
- j) Rear mudguard may be added or removed.
- k) Material of construction of the front mudguard, rear mudguard and fairing may be altered or replaced from those fitted to the homologated motorcycle.
- l) **The exact appearance, shape, size and location of the front headlights of the homologated motorcycle must be respected, and should be obtained by applying a plastic or metallic film on the front of the motorcycle.**

#### **2.4.10.11 Seat**

Seat may be altered or replaced from those fitted to the homologated motorcycle.

The top portion of the rear body work around the seat may be modified to a solo seat. The solo seat then must incorporate the rear number plates. The appearance from both front, rear and profile must conform in principle to the homologated shape.

The seat/rear cowl must allow for proper number display.

Holes may be drilled in the seat or rear cowl to allow additional cooling. Holes which are bigger than 10mm must be covered with metal gauze or fine mesh. Mesh must be painted to match the surrounding material.

Material of construction of the seat may be altered or replaced from those fitted to the homologated motorcycle.

#### **2.4.10.12 Rear Safety Light**

All motorcycles must have a functioning red light mounted at the rear of the seat, to be used during Wet Races or in low visibility conditions, as declared by the Race Direction.

The rear safety light must comply with the following:

- a) the lighting direction must be parallel to the centre line of the motorcycle (running direction) and it must be clearly visible from the rear, at least 15 degrees to both the left and right sides of the centre line of the motorcycle.
- b) it must be safely mounted on the very end of seat/rear bodywork and approximately on the centre line of the motorcycle. In case of dispute over the mounting position or visibility of the Rear Safety Light, the decision of the FIM Superbike Technical Director will be final.
- c) the power output/luminosity must be equivalent to approximately 10- 15W (incandescent) or 3-5W (led).
- d) the light must be able to be switched on and off.

#### **2.4.11 The following items MAY BE altered or replaced from those fitted to the homologated motorcycle.**

- Any type of lubrication, brake or suspension fluid may be used.
- Gaskets and gasket material.
- Bearings (ball, roller, taper, plain, etc.) of any type or brand may be used.
- Fasteners (nuts, bolts, screws, etc.).
- External surface finishes and decals.
- It is recommended that motorcycles are equipped with a red light on the instrument panel that will flash in the event of oil pressure drop.

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

- Instrument and instrument bracket and associated cables.
- Tachometer.
- Speedometer and associated wheel spacers.
- Chain guard.

#### **2.4.13 The Following Items MUST BE Removed**

- Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing). Openings must be covered by suitable materials.
- Rear-view mirrors.
- Horn.
- License plate bracket.
- Tool box.
- Helmet hooks and luggage carrier hooks
- Passenger foot rests.
- Passenger grab rails.
- Safety bars, centre and side stand brackets welded to the main frame may be removed.

#### **2.4.14 The following items MUST BE altered**

Motorcycles must be equipped with a functional ignition kill switch or button mounted at least on one side of the handlebar (within reach of the hand while on the hand grips) that is capable of stopping a running engine.

Throttle controls must be self-closing when not held by the hand.

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).

All motorcycles must have a closed breather system. The oil breather line must be connected and discharge in the air box.

Where breather or over ow pipes are fitted they must discharge via existing outlets. The original closed system must be retained; no direct atmospheric emission is permitted.