2.5 SUPERSPORT TECHNICAL REGULATIONS

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.

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 already equipped as such on the homologated model.

Once a motorcycle has obtained the homologation, it may be used for racing in the corresponding class for a maximum period of 8 years, or until such time that the homologated motorcycle is disqualified by new rules or changes In the Technical specifications of the Corresponding class.

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

2.5.1 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 used in the Supersport World Championship, A system of performance enhancements or restrictions can be developed. (Such as minimum weight, air restrictor or REV Limit may be applied according to their respective racing performances.) The decision to apply a balancing system to a motorcycle will be taken by the Superbike Commission at any time deemed necessary to ensure fair competition.

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:	140 mm
	Minimum width:	80 mm
	Minimum stroke:	25 mm
	Minimum space between numbers	10 mm
The sizes for all the side numbers are:	Minimum height:	120 mm
	Minimum width:	**70 mm**
	Minimum stroke:	20 mm
	Minimum space between numbers	10 mm

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

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

b) Once, on each side of the fairing or on the lower rear portion of the lower fairing. The number must be centered 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.

2.5.6 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

a) 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.

b) 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.

c) 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.

d) 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”.

e) The maximum number of tyres, of any type, available to each rider during the event will be 18 (8 front tyres – 10 rear tyres).

f) A maximum of 11 tyres per rider can be mounted per rider at any time.

g) For the Supersport race only, Wet and Intermediate tyres will not need to be marked with a tyre sticker. They will not be considered in the total number of tyres available for use, however normal allocation limits still apply.

h) Every tyre used during the event must be marked with an adhesive sticker with a number allocated by the FIM Superbike Technical Director. The sticker will be a different colour front and rear.

i) The tyre stickers will be delivered to the teams in a sealed envelope, on the day before the first practice after which the teams will be responsible for their use.

j) The stickers must be applied to the left sidewall of the tyre. Officials will check that all the motorcycles in the pit lane are fitted with tyres carrying the sticker.

k) The use of motorcycles without the official stickers will be immediately reported to the Race Direction whom will take appropriate action.

l) For both Supersport race only, Wet and Intermediate tyres will not need to be marked with a tyre sticker. They will not be considered in the total number of tyres available for use, however normal allocation limits still apply.

m) Any modification or treatment (cutting, grooving) is forbidden.

n) 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 to be used at the event.

o) 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.

p) 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.

2.5.8 Engine

The allocated number of engines per permanent rider is 6.

See Art. 2.3.8 For Sealing and Usage Details

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

a) The homologated engine design model cannot be changed.

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

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.

a) The original homologated fuel injection system must be used without any modification.

b) The fuel injectors must be stock and unaltered from the original specification and manufacture.

c) The throttle body intake insulators may be modified.

d) Bell mouths (including their fixing points) may be altered or replaced.

e) Butterflies cannot be changed or modified.

f) Variable intake tract devices cannot be added if they are not present on the homologated motorcycle and they must remain identical and operate in the same way as the homologated system. All the parts of the variable intake tract device must remain exactly as homologated.

g) Vacuum slides may be fixed in the open position.

h) Secondary throttle valves and shafts may be removed or fixed in the open position and the electronics may be disconnected or removed

i) Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.

j) 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:

a) 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. Welding is not allowed. **No machining or modification is allowed in the cam box/valve mechanism area.**

b) Modifications of the inlet and exhaust ports by taking off or adding material (welding is forbidden) epoxy may be used to shape the ports.

c) Surface grinding of the cylinder head surface on the head gasket side.

d) Original homologated valves guides may be cut or modified, but only on the intake or exhaust port side

e) Polishing of the combustion chamber

f) Original valve seats must be used, but modifications are allowed to the shape

g) Compression ratio is free, but the combustion chamber may be modified only by taking material off.

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

i) Rocker arms (if any) must remain as homologated.

j) The valves must remain as homologated.

k) Valve springs may be changed **but the number must remain as homologated.**

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

m) The shim buckets/tappets must remain as homologated.

2.5.8.3 Camshaft

a) The method of drive must remain as homologated.

b) The duration is free but the maximum lift must remain as homologated.

c) The cam chain or cam belt tensioning device(s) can be changed or modified.

d) 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 degreeing of camshafts.

2.5.8.5 Cylinders

a) Cylinders must remain as homologated.

b) 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.

c) 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

a) Pistons must remain as homologated. No modifications are allowed.

b) No oversized pistons may be used.

c) Polishing and lightening is not allowed.

2.5.8.7 Piston rings

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

b) All piston rings must be fitted.

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

a) Connecting rods must remain as homologated. No modifications are allowed.
b) Polishing and lightening is not allowed.

2.5.8.10 Crankshaft

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

2.5.8.11 Crankcase/Gearbox housing

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

b) 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.

c) 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

a) Lateral (side) covers may be altered, modified or replaced. If altered or modified, the cover must have at least the same resistance to impact as the original one. If replaced, the cover must be made in material of same or higher specific weight and the total weight of the cover must not be less than the original one.

b) All lateral covers/engine cases containing oil and which could be in contact with the ground during a crash, must be protected by a second cover made from metal, such as aluminium alloy, stainless steel or steel or titanium, **composite covers are not permitted.**

c) The secondary cover must cover a minimum of 1/3 of the original cover. It must have no sharp edges to damage the track surface.

d) Plates or crash bars 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.

e) FIM approved covers will be permitted without regard of the material **or dimensions.**

f) These covers must be fixed properly and securely **with a minimum of three (3)** with case cover screws that also mount the original covers/ engine cases to the crankcases.

g) The Technical Director has the right to **refuse** ~~forbid~~ any cover **not satisfying this safety purpose.**

2.5.8.12 Transmission/Gearbox

a) Only one (1) set of gear ratios will be allowed for the whole season. These ratios can be freely chosen.

b) The team must declare the gearbox ratios before the first event.

c) The gear design and material is free.

d) It will not be allowed to change the gearboxes at the track - a broken Gearbox will equal a broken engine.

e) The number of gears must remain as homologated.

f) Primary gears must remain as homologated.

g) Quick-shift systems are allowed.

h) 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.

i) The shift drum must **remain as** homologated **but may be polished or surface treated.**

j) 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.

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

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

2.5.8.13 Clutch

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

b) Friction and drive discs may be changed.

c) Clutch springs may be changed.

d) The clutch basket (outer) may be reinforced.

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

f) 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

a) Modifications are allowed but **oil** pump housing, mounting points and oil feed points must remain as original.

b) 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.

c) The water pump must remain as homologated.

2.5.8.15 Radiator/Oil cooler

a) The only liquid engine coolants permitted will be water or water mixed with ethyl alcohol.

b) 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.

c) 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.

d) The cooling system hoses and catch tanks may be changed.

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

f) Additional oil coolers are not allowed.

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

2.5.8.16 Air box

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

b) The air filter element may be removed or replaced.

c) The air box drains must be sealed.

d) All motorcycles must have a closed breather system. All oil breather lines must be connected and discharge in the air box only. The lines must discharge above the throttles, they cannot discharge into the inlet tract, or exhaust air inlet system.

e) 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

a) Fuel pump and fuel pressure regulator must remain as homologated.

b) The fuel pressure must be as homologated.

c) Fuel lines from the fuel tank up to the injectors (fuel hoses, delivery pipe assembly, joints, clamps, fuel canister) may be replaced and must be located in such a way that they are protected from crash damage.

d) Quick connectors or dry break connectors may be used.

e) Fuel vent lines may be replaced.

f) Fuel filters may be added.

2.5.8.18 Exhaust system

a) Exhaust pipes and silencers may be altered or replaced from those fitted on the homologated motorcycle. Catalytic converters may be removed.

b) 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.

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

d) Wrapping of exhaust systems is not allowed except in the area of the rider's foot or an area in contact with the fairing for protection from heat.

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

2.5.9.1 Electrics and electronics

a) The ECU must be from the DWO/FIM Approved Supersport ECU list. All approved ECU's must have manufacturer supplied firmware (and or settings) available to operate all of the homologated Supersport machines. The ECU must be freely available in the open market. (For future approvals the price of the ECU including logging and all activations must be less than € 5000.00) ***all currently used ECU's will be legal.

b) The software in the ECU may be changed.

c) Central unit (ECU) may be relocated.

d) Any inertial measurement units must be from the DWO/FIM approved list. The retail price of the unit must be € 600 or less. If more than one unit is used then the total retail price must be less than € 600.

e) The data logger, if not incorporated in the ECU must be from the DWO/FIM Supersport Approved logger list or the DWO/FIM Superbike EVO Data Logger list. *same as 2014 EVO + other units

f) Data logging sensors are free.

g) 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.

h) The addition of a GPS unit for lap timing/scoring purposes is allowed.

i) Telemetry is not allowed.

j) No remote or wireless connection to the bike for any data exchange or setting is allowed whilst the engine is running or the bike is moving.

k) Electric cables, **harness,** connectors, battery and switches are free.

l) Spark plugs, plug caps, coils and wires may be replaced.

2.5.9.2 Generator, alternator, electric starter

a) Generator may be modified or replaced.

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

For 2016 onwards:

a) The stator system must remain as homologated.

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

2.5.9.3 Additional equipment

**moved to 2.5.9.1

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 the FIM Superbike Technical Director. 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

2.5.10.1 Frame body and rear sub-frame

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

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

c) The sides of the frame-body may be covered by a protective part made of a composite material. These protectors must fit the form of the frame.

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

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

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

g) Front sub frame/fairing mount may be changed or altered.

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

i) Additional seat brackets may be added, non-stressed protruding brackets may be removed if they do not affect the safety of the construction or assembly. Bolt-on accessories to the rear sub-frame may be removed.

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

2.5.10.2 Front forks

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

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

c) 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.

d) After market damper kits or valves may be installed.

e) Fork springs may be modified or replaced.

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

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

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

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

j) A steering damper may be added or replaced with an aftermarket damper.

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

2.5.10.3 Rear fork (swing arm)

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

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

c) Rear axle chain adjuster may be modified or changed.

d) 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.

e) Rear wheel stand brackets may be added to the rear fork by welding or by bolts. Brackets must have rounded edges (with a large radius). Fastening screws must be recessed. An anchorage system or point(s) to keep the original rear brake calliper in place may be added to the rear swing-arm.

2.5.10.4 Rear suspension unit

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

b) Rear suspension unit spring(s) may be changed.

c) 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.

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

2.5.10.5 Wheels

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

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

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

d) Wheel axles must remain as homologated, wheel spacers may be modified or replaced.

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

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

g) Any inflation valves may be used.

2.5.10.6 Brakes

a) 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.

b) 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.

c) Replacement brake discs must be of ferrous material.

d) 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).

e) 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.

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

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

h) 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).

i) Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type.

j) Additional air ducts are not allowed.

k) 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.

l) 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.

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

n) The Technical Director has the right to refuse any guard not satisfying this safety purpose.

2.5.10.7 Handlebars and hand controls

a) Handlebars may be replaced (except for the brake master cylinder).

b) Handlebars and hand controls may be relocated.

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

d) Throttle assembly and associated cables may be modified or replaced but the connection to the throttle body and to the throttle controls must remain as on the homologated motorcycle.

e) Clutch and brake lever may be replaced with an after-market model. An adjuster to the brake lever is allowed.

f) Switches may be changed but the electric starter switch and engine stop switch must be located on the handlebars.

g) Motorcycles must be equipped with a functional ignition kill switch or button mounted on the right hand handlebar (within reach of the hand while on the hand grips) that is capable of stopping a running engine. The button or switch must be RED.

2.5.10.8 Foot rest and 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. (see diagram A & C).

d) Non folding footrests must have an end (plug) which is permanently fixed, made of aluminium, plastic, Teflon® or an equivalent type material (minimum radius 8 mm). 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

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 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, mudguards and body work must conform in principle to the homologated shape as originally produced by the manufacturer. The use of carbon fibre or Kevlar® materials is not allowed in fairing, fuel tank cover, seat, seat base and associated bodywork construction. Specific reinforcements in Kevlar® or carbon are allowed locally around holes and stressed areas.

b) Wind screen may be replaced.

c) Original air ducts running between the fairing to the airbox 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 allow clearance for protective engine covers.

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 10 mm must be covered with a particle grill or fine wire mesh. Grill/mesh must be painted to match the surrounding material.

h) 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%.

i) Front mudguard must conform in principle to the homologated shape originally produced by the manufacturer. Front mudguards may be replaced and the use of carbon fibre or Kevlar® composites are allowed.

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

k) 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 are allowed.

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

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

2.5.10.11 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 motorcycles.

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

c) 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.

d) All exposed edges must be rounded.

2.5.10.12 Fasteners

a) Standard fasteners may be replaced with fasteners of any material and design.

b) Aluminium fasteners may only be used in non-structural locations.

c) 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.

d) 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.

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

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

g) 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 machine, this light must be switched on any time the motorcycle is on the track or being ridden in the pit lane **and the session is declared WET**. All lights must comply with the following:

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

b) The rear light must be mounted near the end of the seat/rear bodywork and approximately on the machine centre line, in a position approved by the Technical Director. In case of dispute over the mounting position or visibility, the decision of the Technical Director will be final.

c) Power output/luminosity equivalent to approximately: 10 – 15 (incandescent), 0.6 – 1.8 W (LED).

d) The output must be continuous - no flashing safety light whilst on track, flashing is allowed in the pit lane when pit limiter is active.

e) Safety light power supply may be separated from the motorcycle.

f) The Technical Director has the right to refuse any light system not satisfying this safety purpose.

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

a) Any type of lubrication, brake or suspension fluid.

b) Instruments, their supports(s) and associated cables.

c) Bearings (ball, roller, taper, plain, etc.) of any type or brand may be used.

d) Gaskets and gasket materials.

e) Painted external surface finishes and decals.

2.5.12 The following items MAY BE removed

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

b) Tachometer.

c) Speedometer and related wheel spacers.

d) Bolt on accessories on a rear sub frame.

2.5.13 The following items MUST BE removed

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

b) Rear-view mirrors.

c) Horn.

d) License plate bracket.

e) Tool box.

f) Helmet hooks and luggage carrier hooks

g) Passenger foot rests.

h) Passenger grab rails.

i) Safety bars, centre and side stands must be removed (fixed brackets must remain).

2.5.14 The following items MUST BE altered

a) 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.**

b) 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).

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

d) 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.

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