

## DMSB Technical Regulations 2019 for the Supersport 600 class

As at: 12.03.2019 – Changes are shown in italics

In case of doubt only the German text of the Regulations is binding.

The following rules are intended to give freedom to modify a homologated model in the interest of safety and improved competition between various motorcycle concepts.

Everything that is not explicitly authorised and prescribed in the following rules is forbidden.

Supersport 600 motorcycles require an FIM homologation or a DMSB homologation. All motorcycles must comply in every respect with the following Technical Regulations and the Technical Regulations for road racing (see DMSB Motorcycle Yearbook, orange section), unless they are already equipped as such on the homologated model.

The appearance of Supersport 600 motorcycles from the front, rear and the profile must, except when otherwise stated, conform to the homologated shape (as originally produced by the manufacturer).

Any homologation extension of parts submitted by the manufacturer and approved by the FIM will only be eligible in the following year and after verification and approval by the DMSB.

The following reference parts must be submitted to the DMSB until 15<sup>th</sup> April:

- Cylinder head
- Intake and exhaust camshaft(s)
- Camshaft sprockets
- Intake and exhaust valves including valve springs, retainers, collets and tappets
- Pistons including piston rings, pins and clips
- Connecting rods
- Kit ECU, software and access

Should the reference parts not be submitted until the given deadline, a provisional approval of the corresponding motorcycles is issued. If a check cannot be carried out due to missing reference parts, the corresponding parts will be secured by the scrutineers and the check will be carried out as soon as the required reference parts are available.

### 1. Motorcycle specification

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

### 2. Division into classes

Over 401 cm <sup>3</sup> up to 600 cm <sup>3</sup>	4 stroke	4 cylinder
Over 401 cm <sup>3</sup> up to 675 cm <sup>3</sup>	4 stroke	3 cylinder
Over 401 cm <sup>3</sup> up to 750 cm <sup>3</sup>	4 stroke	2 cylinder

All engines must be normally aspirated.

### 3. Minimum weights

600 cm<sup>3</sup> / 4 cylinder: 162 Kg

675 cm<sup>3</sup> / 3 cylinder: 167 Kg

750 cm<sup>3</sup> / 2 cylinder: 167 Kg

The use of ballast is allowed. The ballast must be securely connected with screws.

At any time during the event, the weight of the machine must not be less than the minimum weight.

Nothing may be added before the weighing.

## 4. Start numbers

All start numbers must be visibly displayed on the front (1 x in the centre or 1 x on each side) and at least once on each side of the motorcycle.

- Height of the front figures: 160 mm
- Height of the side figures at wedge/fairing pan 150 mm  
(free 1 x tail unit from rear view in driving direction 150 mm)

The colour combinations: White background / blue figures

Accepted typefaces:

- Verdana / Bold
- Futura Heavy / Bold

Figures may only consist of one or two figures (#1-99).

See also DMSB Motorcycle Yearbook, blue section, drawings to the Technical Regulations.

## 5. Fuel

See DMSB Motorcycle Yearbook, blue section, FIM fuel regulations.

Each participant/team must declare the make and exact type of fuel to be used, the source of supply and the manufacturer in the scrutineering certificate at the preliminary checks and declare any changes before the event to the chief scrutineer.

Fuel samples may be taken by the DMSB at any time during an event for checking purposes.

## 6. Tyres

The use of moulded, commercially available treaded tyres and rain tyres is permitted. The tyres must be commercially available on the free market to the public. Tyres must have the tyre index V and Z, or (W). Like for commercial tyres, both side walls of the tyres must be marked with the manufacturer's name, the product specification, the dimensions, a DOT and/or an E identification etc. The marking of the tyres shall take place during the heating process and must not be applied subsequently in form of stickers or rubber labels etc. The depth of the tyre tread over the whole pattern at pre-event scrutineering must be at least 2.0 mm. All tyres must comply with the general safety standards of the corresponding manufacturer. The use of tyre warmers is permitted

## 7. Engine

Engines will be allocated as follows, the calculated number shall always be rounded off:

$$\text{Number of allocated engines} = \frac{\text{Number of events}}{2}$$

### 7.1. Engine sealing

The engines must in advance be prepared for sealing.

The total number of engines that a rider may use during the entire championship is limited the "allocated number". When a permanent rider changes teams during the championship, his engine limit should not change, but in extra-ordinary circumstances will be reviewed by the Clerk of the Course.

The total number of engines that a team may use during the entire championship is limited to the "allocated number" per permanent registration. When a permanent rider is replaced or substituted during the championship, the total engine allocation for the teams' entry will not change. Should a new team enter the championship part way through the season, the number of engines allowed will be proportional to the season remaining.

Wild card riders (and one event riders) will be allowed to use two sealed engines during the event in which they take part. Should the same rider choose to enter a second event as a wildcard, one extra engine will be added. For any further entry, the rider and/or team will be considered a permanent registration.

The scrutineers must be notified of all engine changes and therefore know at all times which engine is in current use.

The number of engines that may be used during each event is only limited by the remaining allocation.

Each engine must be sealed by the scrutineers before it may be used during an event.

An engine is considered in use or active from the moment it crosses the line at the pit exit.

Seals will bear a serial number, which will be recorded.

Any attempt made to remove the seal will damage it irreparably. Seals may only be removed under the supervision of the scrutineers.

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

A team must request sealing of an engine/engines before its/their use.

A previously sealed engine may be resealed following repair or revision; this will be considered a new engine and count towards the total number of engines allowed.

All seals including the seals on an engine that has completed its life cycle or is in need of repair may only be broken in front of a scrutineer. At the time of the breaking of the seals the scrutineer may ask for this engine to be disassembled to check for compliance of the technical rules.

The crankcases will be sealed in such a way not to allow the disassembly for repair, replacement or adjustment of the crankshaft, connecting rods and/or associated bearings, pistons, piston pins or piston rings.

The cylinder, cylinder head(s) and head cover/cam cover will be sealed to prevent repairs, replacement or adjustment on the cylinder head, valves, valve seats or any other repairs or service work on the valve train.

Valve clearance adjustments may be made after approval of the chief scrutineer and under the supervision of a scrutineer. Approval must be requested in advance to the chief scrutineer. A new seal will subsequently be applied.

The cassette gearbox door and/or crankcases will be sealed to control the gearbox use.

The right and left hand engine side covers will not be sealed as to allow repair or adjustment to the generator, clutch system, water pump or other accessory systems located behind these covers.

If an engine is found not to be in compliance with the regulations, any penalties imposed will apply retrospectively to each race this engine was used in.

## **7.2. Fuel injection system**

Fuel injection systems refers to throttle bodies, fuel injectors, variable intake tract devices, fuel-pump and fuel pressure regulator and may not be modified.

Air and air/fuel mixture must go to the combustion chamber exclusively through the throttle body valves.

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 changed, all the safety systems and procedures as originally provided by the manufacturer must however be retained.

## **7.3. Cylinder head**

The resurfacing of the cylinder head/s sealing surface solely is permitted and only up to minus 0.1 mm below the homologated tolerance.

The cylinder head gasket may be replaced.

Valve spring retainers as well as upper valve spring plates are optional.

Repairs amongst others on the engine and on engine parts are permitted but any damage must previously be established and documented and the chief scrutineer must be fully informed to take a decision or give his permission.

Only the Chief Scrutineer may permit a repair to be carried out

## **7.4. Camshaft drive**

The characteristics of the camshaft drive must comply with the characteristics of the homologation (e.g. chain, cam belt, gear wheels etc.).

Camshaft sprockets, cam chains or cam belt and tensioning devices including guide/tensioning rails are free

## 7.5. Crankshaft

Balancing of the crankshaft is allowed but must be performed by the necessary drilling. A weight tolerance of up to 1% is permitted after this. (The nominal weight according to the homologation documents is decisive.)

Inner engine countershafts including all parts directly connected to them may be machined, modified or removed. (If existing.)

## 7.6. Crankcase and all other engine cases

### 7.6.1. Lateral covers and protection

Oil leading components (e.g. engine and gearbox cases as well as ignition, clutch and generator covers) which risk to be damaged in case of an accident must be protected by additional means made of steel, light-alloy, carbon, Kevlar or composite material components. The protection of at least 50% of the area under risk is mandatory.

Engine case guards in the form of strengthened engine side covers may be installed / machined, but those parts must be made of the same material and may not be lighter in weight than the standard material.

The original covers on the engine side may be modified. The pinion cover may be removed or modified.

Covers of a dry clutch may be modified or replaced to achieve a better cooling.

## 7.7. Transmission/Gearbox

Shifting interior components (in gearbox/ engine) may only be modified to invert the gear selection.

Electronic quick shift systems and shift indicators as well as quick-shift systems to downshifting (blipper) are permitted.

The original position of the gearbox teeth may be aligned with balance discs.

Pinions, chain sprockets, chain pitch and size may be changed.

## 7.8. Clutch

Friction and drive discs as well as clutch springs may be replaced and/or changed but their numbers and operating systems must remain as original. The fluid container may be modified or replaced.

## 7.9. Oil pumps and oil lines

Oil lines may be changed or replaced.

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

## 7.10. Radiator and oil cooler

Radiators must always be fixed inside the fairing at the original mounting points.

The original heat exchanger may be modified, replaced or removed.

Oil coolers and their connections are free.

One additional water and one additional oil cooler including the necessary connections are permitted.

Additional protective meshes may be added in front of the oil and water radiator(s).

The radiator cap is free but it must be secured to prevent accidental opening.

The radiator catch tank may be modified or removed.

The cooling system hoses from and to the engine may be replaced.

Flexible wave-type connecting pipes are permitted but without additionally formed cooling fins.

The thermostat inlet may be removed or modified.

The only permitted cooling liquid is pure water. Additives are allowed to prevent corrosion, cavitation and abrasion, provided that they do not contain MEG (monoethylene glycol).

## 7.11. Airbox

The airbox must be completely closed around the induction bell mouth of the carburettor/ injection system.

The induction area / air trumpets must be entirely within the air box.

The air box drains must be sealed.

All motorcycles must have a closed breather system with catch tank. A combination with other systems is prohibited. The breather system (air box plus any breather oil collector box) must be capable of retaining a minimum of 500 cc of discharged liquid in the event of a damage (see DMSB Yearbook, blue section, drawings in the Technical Regulations: figure C).

Sound-proofing materials, if originally existing on or in the airbox, may be removed.  
The air filter element may be modified, replaced or removed.  
Sensors for data recording may be added.

## 7.12. Fuel supply

Fuel lines may be replaced.  
Safe and solid quick connectors may be used. Fuel vent lines may be replaced.  
Metal fuel filters may be added.

## 7.13. Exhaust system

Exhaust manifold, collecting pipes and silencers may be replaced or modified, position and arrangement of the silencer/s must remain as originally homologated.  
The number and shape of the exhaust final exit of the exhaust pipes are free, but there must be no 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.

## 7.14. Noise limit

The noise limit is 107 dB/A, with a 3 dB/A tolerance after the race only.

## 8. Electrics and electronics

### 8.1. Ignition / Engine Control Unit (ECU)

The engine control unit (ECU) must be either:

- a) The original system as homologated, a change of software is allowed.
- b) A DMSB approved "Supersport Kit" model (produced and/or approved by the motorcycle manufacturer). 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. €3000 (VAT excluded) if the system excludes data logging,
  2. €3750 (VAT 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.
- c) It is permitted to add commercially available external modules for the ignition and/or fuel injection to the original system (with the standard ECU or Kit-ECU). The combined retail price (including software and tuning tools) must not be more than €1000 (VAT excluded). A special connecting part may be used to connect the module/s and the ECU.
- d) *The Mectronik MKE7 (FIM Supersport:6 approved ECU). The Software and Firmware must be FIM championship approved and listed in the approved parts list. External quickshift modules/sensors may be fitted, it may only provide a signal to the approved Supersport:6 ECU. No external modules may be fitted, except when part of the datalogging system.*

The position of the central unit (ECU) may be changed.

Optional equipment sold by the motorcycle Manufacturer for the homologated model is considered not homologated with the bike and must follow the requirements for approved electronics/data loggers. *When using engine control units (ECU) according to article 8.1 a) to 8.1 c), only sensors for measuring the following values may be added:*

- Gear shift control
- Wheel speed
- Lambda
- Engine speed
- Inclination angle
- Intake air temperature
- Brake pressure
- Spring travel
- Oil pressure
- Oil temperature

- Coolant temperature

When using the engine control unit (ECU) Mectronic MKE7 according to article 8.1 d) the following sensors must be connected directly to the ECU only:

- Throttle position (multiple allowed)
- Map sensor, Map Sync (pressure sensor on the intake port used to synchronize the engine during the start)
- Airbox pressure
- Engine pick-ups (cam, crank)
- Twist grip position
- Front speed
- Rear speed
- Gearbox output shaft speed (if on OEM machine)
- Gear position
- Air pressure
- Water temperature
- Air temperature
- Tip-Over switch (no lean angle) – for 2020 all ECU's will feature crash detection
- Gear shift load cell 7 switch (non-OEM parts must be from the FIM approved parts list) (shift controlled by ECU)
- Lambda – Bosch LSU4.9 only – one sensor only
- Fork position
- Shock position
- Front brake pressure
- Rear brake pressure
- Fuel pressure (not temperature)
- Oil pressure
- Oil temperature
- Switches (left and right)

Wheel speed sensors must be included in the Kit ECU and Harness package, if required.  
The data acquisition system is free.

The addition of a device for the infrared transmission of a signal between the rider and his team may solely be used for lap times.

The addition of a GPS unit to determine lap times and track positions is permitted.

For the purpose of TV broadcast, the following information may be transmitted from the motorcycle:

Camera pictures, speed, revs, inclination angle.

Harness:

- a) 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.
- b) The kit wiring harness may incorporate the data logging harness.
- c) The key/ignition lock may be relocated, replaced or removed.
- d) Cutting of the original main wiring harness is allowed.

The original speedometer and tachometer may be altered or replaced.

The battery is free, but the use of lithium polymer batteries is prohibited.

If lithium-ion batteries are used, they must be provided with appropriate and approved BMS protection circuit.

## **8.2. Alternator, generator, electric starter**

It must at all times (practice/race) be possible that the motorcycle (engine) can be started.

The alternator must supply the battery with measurable charging tension whilst the engine is running.

All mechanical parts of the alternator / generator (regulator / stator / rotor / coil with windings etc.) must remain as original and meet the manufacturer's homologation.

## **9. Main frame**

The sides of the frame may be covered by a protective part made of plastic or composite material. These protectors must fit the form of the frame.

All motorcycles must display a vehicle identification number punched on the frame body (chassis number). Should the original vehicle identification number be missing, the team manager / rider must establish proof of the originality. The scrutineers shall then apply a seal onto the main frame.

### **9.1. Frame body and rear sub frame**

The rear sub frame may be changed or replaced, but composite materials are prohibited. Additional seat brackets are allowed.

Notwithstanding the dimension of the homologated total height, the height of the frame rear part / rear cowl height is free.

### **9.2. Front fork**

Only original internal parts and fork oils may be replaced or modified. It is permitted to alter or replace the fork clamps and/or the adjustment mechanism but only to allow external adjustment.

It is prohibited to use aftermarket or prototype suspension components with electronic control unless any such suspension is originally fitted in the standard model of the homologated motorcycle. The fitted electronic system must comply with the type of the manufacturer, the software and interior mechanical components are free.

Height and position of the front fork (stanchion) in relation to the fork bridge is free.

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

Steering dampers may be added or replaced by an aftermarket damper. The steering damper must not act as a steering lock limiting device.

Foil fork warming devices may be added to pre-heat the fork.

Due to the variable fork positions and the freedom regarding the windscreen, the total height is free, irrespective of the homologated total height.

It is permitted to modify, to replace or to remove fork dust cuffs / seals on the front fork.

### **9.3. Rear fork (swing-arm)**

The rear wheel chain tensioning device is free.

Rear wheel stand brackets may be added to the rear fork by welding or by bolts. This device must have rounded edges. Fastening points for these stand brackets must be securely fixed to the swing-arm.

It is permitted to securely lock the brake calliper and bracket permanently in one position on the fork, but the brake calliper itself may not be altered. A bore of up to approximately 8.0 mm may be applied on the brake calliper carrier (provided that a sufficient wall thickness is ensured).

For safety reasons, 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.

In the case of a swing arm with lower tube this lower tube may assume the function of a chain guard.

### **9.4. Rear suspension unit**

Rear suspension units including springs are free, but the original attachments to the frame and to the rear fork as well as the homologated levers and their original attachments must be used.

No parts with electronic control may be used unless any such suspension is installed on the production model of the homologated motorcycle. The fitted electronic system must comply with the type of the manufacturer, the software and interior mechanical components are free.

### **9.5. Wheels**

It is permitted to replace and modify the spacers.

The addition of crash bobbins at the wheel axles is permitted.

It is permitted to use polished / painted rims.

Front and rear wheel bearings are free.

### **9.6. Brakes**

The external diameter and thickness of the brake discs as well as the vent systems must however remain as originally produced by the manufacturer for use on the homologated motorcycle. A tolerance of +/-

2mm is accepted for the external diameter. A tolerance of -1.0 up to +1.5 mm is accepted for the width of the brake discs.

Internally ventilated discs are not allowed as after-market part. The brake discs must be of ferrous material. Otherwise, the brake discs are free.

Cover plates may be removed. Brake calliper pistons in the front and rear brake callipers are free. Fixed heat protection sheets between the brake pad carrier and the brake piston are allowed.

The use of fitting springs on the locking pins between the brake pads – solely at the rear brake – is allowed. The construction must ensure that the brake pistons do not move back independently.

Spacers made of steel up to 1.5 mm thickness for the adjustment on the socket of the brake callipers are allowed.

An additional manual control of the rear brakes (so-called thumb-brake) is permitted. Both systems must operate independently. If a thumb-brake is used, the rear master brake cylinder is free but, compared to the originally homologated component, it must have no other function than providing a connection for a thumb-brake and its control. Moreover, the interior diameter of the hand and foot brake cylinders must comply with the homologated dimensions of the manufacturer.

The brake fluid reservoir may be modified or replaced.

The arrangement of the rear master cylinder and of its reservoir is free.

Front and rear brake lines are free.

The split of the front brake lines for both front brake callipers must be made above the lower fork bridge. In exceptional cases, a permanent, secure fixation to the lower fork bridge, immediately beneath, is possible. The front and rear brake pads may be replaced. Brake pad locking pins may be modified for quick change type.

## 9.7. Handle bars and hand controls

Handle bars and hand controls may be replaced (except for the brake and clutch master and slave cylinders) or be relocated. Clutch and brake levers may be replaced by an after-market part, optionally with manual adjusting device.

Handlebars made of carbon or carbon/Kevlar or of other composite materials are prohibited.

## 9.8. Foot rests/foot controls

Foot rests may be replaced but the hanger/brackets must be mounted to their original frame mounting points.

Foot control devices may be modified to invert the gear selection, foot rests may be rigidly mounted or of a folding type but folding types must incorporate a device to return them to the normal position.

The end of the foot rest must have a solid spherical radius of at least 8mm (see DMSB Yearbook, blue section, drawings in the Technical Regulations: figures A and C).

Non-folding 'metallic' footrests must be sealed at the end.

The sealing plug must be permanently fixed and be made of plastic, Teflon or an equivalent type of material (radius at least 8mm).

## 9.9. Fuel tank

The fuel tank may be protected with a cover (also made of carbon and/or carbon composite material). These covers must fit the shape of the fuel tank.

A drain hole/device may be added but it must be fixed with protection inside the chassis / frame (not in the frame).

The fuel tank filler cap may be modified to a quick filling system, but it must be mounted in a way that it does not protrude beyond the tank surface and that it may not break away in the case of an accident.

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 and made of a suitable material.

All fuel tanks must be completely filled with fire retardant material (preferably Explosafe®).

## 9.10. Fairing / bodywork

Fairing may be replaced and the material may be changed.

The use of carbon or carbon composite materials is not permitted, unless this is an original part. (Except for tank fairing, frame protection, hump seat, air intake ducts, front and rear fender).

Local reinforcements made of Kevlar® or carbon (diameter of 20 to 25 mm) at the fairing inside and only around the mounting bores are permitted. (Co-ordination with the Chief Scrutineer).

The fairing may be slightly cut at the front, in the area of the radiator, but **only** towards the bottom, to achieve a better air supply to the radiator. Additional fairing elements, situated at the inside, between radiator system and main fairing elements as well in the area of the lower fork bridge, are admitted but only to achieve a better cooling air supply to the cooling system.

The mountings must for this purpose be located within or on the fairing and be fitted so that the vehicle handling is not compromised.

The fairing in the area of generator, gearbox and crankshaft may be closed.

The windscreen may be replaced by a duplicate of transparent material, the shape may be changed (so called bubble form).

The suspension / attachment to the fairing must be as homologated.

No fairing may be added to motorcycles which were originally not equipped with a fairing.

The original combined bracket for instrument/ fairing may be replaced. All other fairing brackets may be altered or replaced. Each attachment point of the front/rear wheel suspension must either be screwed to the frame or to the engine block. No part may protrude beyond the fairing (except foot pads). Modifications of the fairing for the sole purpose of the foot pads are permitted. The maximum distance between the foot pads or supports and the fairing must not represent any kind of danger.

The original air ducts running between the fairing and the air box may be altered or replaced. The outer air inlet openings in the fairing must remain as original and may only be adjusted at the interior or for the air inlet ducts. Additional air inlets are prohibited.

The lower fairing must be constructed to hold, in case of an engine breakdown, at least half of the total oil and engine coolant capacity used in the motorcycle (minimum 5 litres).

The lower edge of the openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.

The lower part of the fairing must incorporate a minimum of one and a maximum of two holes with a 25mm diameter each at the lowest point. This(ese) hole(s) must remain closed in dry conditions and may only be opened in wet race conditions as declared by the Clerk of the Course.

The front mudguard may be replaced. The front mudguard may be spaced upwards for increase of tyre clearance. The appearance must comply with the original.

The rear mudguard may be modified, replaced or removed.

Rear mudguards fixed to the swing arm that incorporates the chain guard may be modified / replaced to accommodate larger diameter rear sprockets.

All exposed edges must be rounded.

## 9.11. Seat

Seat, seat base and associated bodywork may be replaced with parts of the same shape as originally produced by the manufacturer for the homologated motorcycle. The appearance from front, rear and profile must conform to the homologated shape. The top portion of the rear bodywork around the seat may be modified to a solo seat and be closed on the lower part towards the wheel.

The use of carbon fibre or carbon composite materials is not allowed.

All exposed edges must be rounded.

## 9.12. Rear safety light

All motorcycles must have a functioning red rear light provided with LEDs. This light must be mounted to the rear fairing, at least 600mm above the ground and be located in the area between the rear wheel and the hump. It must be ensured that it is not obstructed by components and/or by the rider and that its lights are directed to the rear with a deviation of maximum 5° in relation to the vehicle longitudinal axis. Glare prevention is mandatory.

It must be switched on only in the case of a wet-race or upon instruction of Race Control.

## 9.13. Fasteners / connectors

Standard fasteners/ connectors (note: e.g. screws, bolts) may be replaced. Aluminium fasteners may only be used in non-structural locations.

These fasteners may be drilled for safety wire, but intentional weight-saving modifications are not allowed. Titanium fasteners may not be used.

Fairing/bodywork fasteners may be replaced with the quick disconnect type.

## **10. The following items may be altered or replaced**

Any type of filter, lubrication, brake or suspension fluid as well as any type of spark plugs, tubes and valves may be used.

Wheel balance weights may be removed, replaced or added.

Gaskets and gasket materials as well as painted external surface finishes, anodisation and decals are free.

It is permitted to fit or to remove heat protection mats (except Article 7.12.).

## **11. The following items may be removed - replaced**

- Instruments, including cables and instrument brackets,
- Tachometer, drive shaft and drive,
- Speedometer,
- Radiator fan and wiring,
- Chain guard as long as it is not incorporated in the rear fender.
- Components screwed onto the sub frame,
- Ignition lock and wiring,
- Emission control system components inside or in the vicinity of the air box,
- Control motors and their control cables from the area of the exhaust system,
- Lambda sensor
- Secondary air system
- Air ducts in the area fairing/cooler.

## **12. The following items must be removed**

- Rear view mirror,
- Lights and reflectors,
- Horn
- Licence plate bracket,
- Toolkit,
- Passenger foot rests,
- Passenger grab rail,
- Safety bars, centre and side stands.

## **13. The following items must be altered**

Electric fuel pumps must be connected to the ignition breaker switch.

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

It is compulsory to fit a tip-over switch.

It must be ensured that, after the qualifying practice or the race, it is working within 15 seconds.

Safety bars, centre and side stands must be removed, but fixed brackets must remain.

All drain plugs must be safety wired. External screws and bolts in the area of an oil flow must be safety wired and external oil filter be fully secured.

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.

Where oil breather pipes are required and fitted, the outlet must discharge into a catch tank located in an easily accessible position and which must be emptied before the start of a race. The minimum size of this catch tank must be 500 cc for gearbox engine breather pipes.

All motorcycles must have a closed breather system.

## **14. Equipment and protective clothing**

Rider clothing / equipment in compliance with FIM Article 1.65 is mandatory.

The rider's name must appear on the right arm of the rider's clothing near the wrist (embroidered, patch).

## **15. Camera / Camera mounting**

It is permitted to mount a camera to the motorcycle. It must be solidly connected to the vehicle, e.g. using clamp brackets. The use suction pad mountings or magnetic foot mountings is prohibited. The camera must moreover be additionally secured, e.g. with a cable which is attached both to the camera housing

and to the motorcycle. The camera must be fitted to the motorcycle when it is presented for scrutineering. It is at the discretion of the scrutineers to decide whether the camera is safely mounted.