

## 02.4. SuperBike 1000 Technical Specifications

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

### **EVERYTHING THAT IS NOT 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. All motorcycles must comply in every respect with all the requirements for Road Racing as specified in these Regulations, unless they are already equipped as such on the homologated model.

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

#### **02.4.1 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

#### **02.4.2 Displacement capacities**

The following engine configurations comprise the Superbike class:

Over 750 cc up to 1000 cc 4-stroke 3 and 4 cylinders

Over 850 cc up to 1200 cc 4-stroke 2 cylinders

The displacement capacity, bore and stroke (new), must remain at the homologated size. All machines must be normally aspirated.

#### **02.4.3 Balancing various motorcycle concepts**

In order to equalise the performance of motorcycles with different engine configurations, changes in the minimum weight may be applied according to their respective racing performances. The decision about applying a handicap system to a respective class is taken by the FMSCT/TSB Commission at any time.

#### **02.4.4 MinimumWeights**

The minimum weight starting the season will be:

1000 cc.	3 & 4 Cylinders	165 Kg.
1200 cc.	2 Cylinders	165 Kg.

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

There is no tolerance on this minimum weight.

## 2019 FMSCT All Thailand SuperBikes - Technical Regulations

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 FMSCT/TSB Technical Director at the preliminary checks.

### 02.4.5 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:	140 mm
Minimum width:	80 mm
Minimum stroke:	20 mm
Minimum space between numbers	10 mm

The size for all the side numbers is:

Minimum height:	120 mm
Minimum width:	70 mm
Minimum stroke:	25 mm
Minimum space between numbers	10 mm

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

- a) 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.
- b) once on each side of the motorcycle. Alternatively, once across the top of the rear seat section with the top of the number towards the rider. The rear and side numbers are optional. 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.
- c) The numbers must use sufficiently legible fonts.
- d) The background colour must be clearly visible around all edges of the number (including outline). Reflective or mirror type numbers are not permitted.
- e) Numbers cannot overlap.

In case of a dispute concerning the legibility of numbers, the decision of the FMSCT/TSB Technical Director will be final.

#### **02.4.6 Fuel**

Fuel is free.

#### **02.4.7 Tyres**

Only FMSCT/TSB homologated tyres in FMSCT All Thailand Championship are permitted.

The maximum number of front and rear slick tyres allowed to use during the qualifying practices and race are TWO (2). Only the rear slick tyres need to be marked with a tyre sticker.

The wet tyres will not need to be marked with a tyre sticker and will not be considered in the total number of tyres available for use.

The wet tyres will not need to be marked with a tyre sticker and will not be considered in the total number of tyres available for use.

During the preliminary technical inspection the teams will be delivered the adhesive stickers used for marking the tyres. Each team will be responsible of marking their tyres.

The FMSCT/TSB Technical Director may perform random controls during the qualifying practices. If the riders are shown a red flag during the practice or the race/s, the Permanent Race Direction is allowed to authorise the use of a supplementary tyre. All checked tyres must be easily identifiable with a colour marking or a numerical system.

The use of tyre warmers is allowed.

Any modification (cutting, grooving) is forbidden.

In case of a technical problem, the FMSCT/TSB Technical Director will take a decision about the problem.

#### **02.4.8 Engine**

##### **02.4.8.1 Fuel Injection System**

- a. Carburation instruments refer to throttle bodies and variable length intake track devices.
- b. Carburation instruments must remain as homologated.
- c. Bell mouths (including their fixing points) may be altered or replaced
- d. The injectors must remain standard units as on the homologated motorcycle.
- e. Secondary butterflies may be removed if required along with associated parts, just the butterfly may also be removed leaving the remaining parts for engine braking control, the control arm actuating the primary throttle must remain standard

f. Engine Braking/Air Bleed, an auxiliary valve (specified by the control ECU supplier) can be fitted to bleed air past the butterfly to the standard air inlets. The inlet of the airbleed may breathe from atmosphere OR from a hole made in the airbox, not both simultaneously. This is only applicable for models that do not have secondary butterflies or fly by wire throttle control.

g. The throttle body must remain as homologated but intake insulators or intake runners may be modified to allow the fitment of one air bleed stub per cylinder (maximum internal diameter of 8mm). If the throttle body is fitted with stubs as standard these may be opened to a maximum of 8mm internal diameter or the maximum that they will support. Standard stepper motor control will be disabled in the control ECU if this option is utilised.

#### 02.4.8.2 Cylinder Head

The homologated cylinder head may be modified as follows:

- a. Homologated materials and castings for the cylinder heads must be used.
- b. The addition of material in the ports is allowed. Welding is forbidden. No other material may be added to the cylinder head. Material for these parts may only be removed by machining.
- c. The Cylinder head gasket surface may be machined to allow the adjustment of compression ratio or resurfacing to repair a warped cylinder surface deck.
- d. The induction and exhaust system including the number of valves and or ports (intake and exhaust) must be as homologated.
- e. Valves must remain in the same location and at the same angle as the homologated model.
- f. Valves must remain as homologated.
- g. Valve seats can be modified or replaced. The material must remain as homologated.
- h. Valve guides must remain as homologated. Modifications to the port area are allowed.
- i. Valve springs may be altered or replaced from those fitted to the homologated motorcycle. The material must remain as homologated.
- j. Valve spring seats, spring retainers and cotters may be altered or replaced from those fitted to the homologated motorcycle. The material of the valve spring seat must remain as homologated.
- k. 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.
- l. The compression ratio is free
- m. The combustion chamber (shape) must remain as homologated.

- n. The rocker arms (if any) must remain as homologated.
- o. The tappets/buckets must remain as homologated.

#### **02.4.8.3 Camshaft**

- a. The method of drive must remain as homologated.
- b. The duration and lift are free.
- c. The cam chain or cam belt tensioning devices(s) are free.

#### **02.4.8.4 Cam sprockets or Gears**

Cam sprockets or cam gears may be altered or replaced to allow the degreeing of the camshafts.

#### **02.4.8.5 Cylinders**

No modifications are allowed. The Cylinder base gasket may be changed.

#### **02.4.8.6 Pistons**

No modifications are allowed (including polishing and lightening).

#### **02.4.8.7 Piston rings**

No modifications are allowed.

#### **02.4.8.8 Piston pins and Clips**

No modifications are allowed.

#### **02.4.8.9 Connecting rods**

- a. Connecting rod may be altered or replaced from those fitted to the homologated motorcycle. The weight must be the same or greater than the original homologated part.
- b. The material can be the same as the original homologated item or steel.
- c. The centre to centre length of the rod must be the same as the original homologated item.

#### **02.4.8.10 Crankshaft**

- a. No modifications are allowed (including lightening). The balance shaft must remain as homologated.
- b. Bearing surfaces may be polished or surface treated.
- c. Balancing is allowed but only by the same method as the homologated crankshaft. (for example heavy metal i.e. Mallory metal inserts are not permitted unless they are originally specified in the homologated crankshaft).

## 2019 FMSCT All Thailand SuperBikes - Technical Regulations

- d. Balancing is allowed, the addition or reduction in weight of the crankshaft in order to reach a racing balance can be no higher than 5% of the homologated weight without the tolerance as shown on the homologation drawing of the crankshaft.

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

- a. No modification to the crankcases are allowed (including painting, polishing and lightening).
- b. Side cover fasteners can be changed to lightweight metals i.e, titanium.
- c. Vacuum pumps are not allowed if not installed on the homologated motorcycle.
- d. The FMSCT/TSB Technical Director has the right to refuse any cover not satisfying this safety purpose.

#### 02.4.8.11.1 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, steel or titanium.
- c. 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.
- d. FMSCT/TSB approved covers will be permitted without regard of the material.
- e. These covers must be fixed properly and securely with case cover screws that also mount the original covers/engine cases to the crankcases.
- f. The FMSCT/TSB Technical Director has the right to refuse any cover not satisfying this safety purpose.
- g. No damaged cases will be permitted unless approved by the FMSCT/TSB Technical Director

#### 02.4.8.12 Transmission/Gearbox

- h. All transmission/gearbox ratios, shafts, shift drum and selector forks may be altered or replaced. The design concept must remain the same as the original homologated parts.
- i. Only one set of gear ratios may be selected for the season. The chosen ratios must be declared to FMSCT/TSB Technical Director at the first event. Should a team

## 2019 FMSCT All Thailand SuperBikes - Technical Regulations

subsequently present a determinable engineering or other, unavoidable, proven hardware supply issue then a once only change of gearbox ratios may be authorised by the FMSCT/TSB Technical Director. In the event of a team taking this once only option the rider(s) concerned must start the first race at the first event using the new ratios with a +6 grid position penalty.

- j. Primary gears (and ratio) must remain as homologated.
- k. External quick shift sensors are allowed and must be wired to an input of the control ECU.
- l. Countershaft sprocket, rear wheel sprocket, chain pitch and size can be changed.
- m. Chain guard as long as it is not incorporated in the rear fender may be removed.

### 02.4.8.13 Clutch

- a. Aftermarket or modified clutches are permitted.
- b. Back torque limiting capacity (slipper) is permitted.
- c. Clutch type (wet or dry) and the way of operation (by cable or hydraulic) must remain as homologated.
- d. Clutch springs may be changed.

### 02.4.8.14 Oil pumps and Oil lines

Original equipment oil pumps are required but may be modified:

- e. Modifications may include
  - Blueprinting.
  - Changing the pressure relief spring.
  - Reducing gear and housing thickness.
- f. The external appearance must remain as homologated.
- g. Aftermarket oil sumps and the associated pump pick up will be allowed.
- h. Oil lines may be replaced with high pressure braided stainless or equivalent for durability purposes.
- i. 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. Water pipes may be modified or replaced

### 02.4.8.15 Radiator, cooling system and oil coolers

- a. The original radiator or oil cooler may be altered or replaced from those fitted to the homologated motorcycle.
- b. Additional radiators may be added.

- c. Oil coolers can be added to those machines not fitted with one as standard. An adaptor may be fitted between the oil filter and the engine to provide supply and return to an oil cooler. The standard heat exchanger may be removed.
- d. Radiator fan and wiring may be changed, modified or removed.
- e. Oil cooler must not be mounted on or above the rear mudguard.
- f. The appearance from the front, rear and profile of the machine must in principle conform to the homologated shape after the addition of additional radiators or oil coolers.

#### **02.4.8.16 Air box**

- a. The air box must remain as originally produced by the manufacturer on the homologated motorcycle but the air box drains must be sealed.
- b. The air filters, internal flap type valve, and vacuum fittings may be removed, modified, or replaced with aftermarket parts.
- c. Any holes in the airbox to the outside atmosphere resulting from the removal of components must be completely sealed from incoming air.
- d. Ram air tubes or ducts may be modified, replaced with aftermarket parts or removed. If tubes/ducts are utilized, they must be attached to the original airbox inlets, modified as above.
- e. Velocity stacks may be modified, replaced with aftermarket parts or removed. The only modification permitted to the airbox to allow use of alternate velocity stacks is the removal of internal debris deflectors/plates.

#### **02.4.8.17 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 to the delivery pipe assembly (excluded) may be replaced.
- d. The fuel line(s) going from the fuel tank to the carburetion instruments must be located in such a way that they are protected from possible crash damage.
- e. Fuel vent lines may be replaced.
- f. Fuel filters may be added.
- g. Fuel petcock may be altered or replaced from those fitted to the homologated motorcycle.

#### **02.4.8.18 Exhaust system**

- a. Exhaust pipes and silencers may be modified or changed. Catalytic converters must be removed.



## 2019 FMSCT All Thailand SuperBikes - Technical Regulations

- b. The number of the final exhaust silencer(s) must remain as homologated. The silencer(s) must be on the same side(s) of the homologated model.
- c. For safety reasons, the exposed edges of the exhausts pipe(s)outlet must be rounded to avoid any sharp edges.
- d. Wrapping of exhaust systems is not allowed except in the area of the rider's foot or an area in contact with the fairing for protection from heat.
- e. The noise limit for Superbike be 107 dB/A (with a 3 dB/A tolerance after the race only)

### 02.4.8.19 Sound level control

#### 02.4.8.19.1 Sound limits in force:

Noise will be controlled at : Max. 107 dB/A measured at a mean piston speed of 11 m/sec.

#### 02.4.8.19.2 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.

	2 Cylinders	3 Cylinders	4 Cylinders
Over 750 cc.	5,000 RPM	5,000 RPM	5,000 RPM

#### 02.4.8.19.3 Noise control after the competition

In a competition which requires a final examination of machines before the results are announced, this examination can include a noise control measurement of at least the first three machines listed in the final classification. At this final test, there will be a 3 dB/A tolerance.

### 02.4.9 Electrics and Electronics

#### 02.4.9.1 Ignition / Engine Control System (ECU)

- a. The engine control system(ECU) is free:
- b. The Central unit(ECU) may be relocated.
- c. Optional equipment sold by the motorcycle Manufacturer for the homologated model is considered not homologated with the bike and must follow the requirements for approved electronics/data loggers.
- d. During an event the FMSCT/TSB Technical Director has the right to ask a team to substitute their ECU or external module with the sample received from the Manufacturer. The change has to be done before Sunday warm up.
- e. No extra sensors may be added for control strategies except shift rod sensor, wheel speed sensors and lambda sensors. Wheel speed sensors must be included in the Kit ECU and Harness package if required.

- f. The data logging system is free.
- g. The addition of a device for infrared (IR) transmission of a signal between the racing rider and his team, used exclusively for lap timing.
- h. The addition of a GPS unit for lap timing/scoring purposes is allowed.
- i. Telemetry is not allowed.
- j. 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.
- k. The original speedometer and tachometer may be altered or replaced.
- l. Spark plugs may be replaced.
- m. Battery is free.

#### **02.4.9.2 Generator, alternator, electric starter**

- a. No modification are allowed.
- b. The electric starter must operate normally and always be able to start the engine during the event. The starter must crank the engine at a speed suitable for starting for at least 2 seconds.

#### **02.4.10 Main frame**

During the entire duration of the event, each rider can only use one (1) complete motorcycle, as presented for Technical Control, with the frame clearly identified with a seal. In case the frame will need to be replaced the rider or the team must request the use of a spare frame to the FMSCT/TSB Technical Director.

The pre-assembled spare part frame must be presented to the FMSCT/TSB Technical Director for the permission of rebuilding. The pre-assembly shall be strictly limited to:

- Main frame
- Bearings (steering pipe, swing arm , etc)
- Swing arm
- Rear suspension linkage and shock absorber
- Upper and lower clamps (triple clamp, fork bridges)

- Wiring harness

The spare frame will not be allowed in the pit box before the rider or the team has received authorisation from the FMSCT/TSB Technical Director.

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 motorcycle frame.

Once the starting procedure is initiated, it isn't possible to verify a second motorcycle, neither in case of detention by red flag. In case of events with two races, once the first race is finished, the FMSCT/TSB Technical Director may allow the request for verification of a second motorcycle.

### 02.4.10.1 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, but they must leave an empty place to add the technical control sticker close to the right side of the pivot frame.
- d. Nothing else may be added or removed from the frame body.
- e. All motorcycles must display a vehicle identification number punched on the frame body (chassis number).
- f. Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
- g. Front subframe/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 subframe is not allowed.

### 02.4.10.2 Front Forks

- a. Front fork in whole or part may be changed but must be the same type homologated (leading link, telescopic, etc.). NB - Upside down is a type of telescopic. The aftermarket front fork must be homologated with FMSCT/TSB.
- b. No aftermarket or prototype electronically-controlled suspensions can be used. If original electronic suspensions are used, they must be completely standard (any

mechanical or electronic part must remain as homologated). The original electronic system must work properly in the event of an electric/electronic failure otherwise it cannot be homologated for FMSCT/TSB competitions.

- c. The upper and lower fork clamps (triple clamp, fork bridges) can be changed or modified.
- d. 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. 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).

### 02.4.10.3 Rear fork (Swing arm)

- a. The rear fork may be altered or replaced from those fitted to the homologated motorcycle. The use of carbon fibre or Kevlar® materials is not allowed if not homologated on the original machine. The aftermarket rear fork must be homologated with FMSCT/TSB.
- b. 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.
- c. Rear wheel stand brackets may be added to the rear fork by welding or by bolts.
- d. Brackets must have rounded edges (with a large radius).
- e. Fastening screws must be recessed.

### 02.4.10.4 Rear suspension unit

- a. Rear suspension unit can be changed but a similar system must be used (i.e. dual or mono). The aftermarket rear suspension unit must be homologated with FMSCT/TSB.
- b. No aftermarket or prototype electronic ally-controlled suspensions can be used. If original electronic suspensions are used, they must be completely standard (any mechanical or electronic part must remain as homologated). The original electronic system must work properly in the event of an electric/electronic failure otherwise it cannot be homologated for FMSCT/TSB competitions
- c. The rear suspension linkage may be modified or replaced.
- d. The original fixing points in the frame (if any) must be used to mount the shock absorber, linkage and rod assembly fulcrum (pivot points).

### 02.4.10.5 Wheels

- a. Wheels may be replaced and associated parts may be altered or replaced from those fitted to the homologated motorcycle.

## 2019 FMSCT All Thailand SuperBikes - Technical Regulations

- b. Only wheels made from aluminium alloys are allowed.
- c. The use of the following alloy materials for the wheels is not allowed: Beryllium ( $\geq 5\%$ ), Scandium ( $\geq 2\%$ ), Lithium ( $\geq 1\%$ ).
- d. 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.
- e. Wheel balance weights may be discarded, changed or added to.
- f. Any inner tube (if fitted) or inflation valves may be used.
- g. Wheels must be made from aluminium alloys.
- h. Wheel rim diameter size (front and rear) 17 inches
  - Front wheel rim width : 3.50 inches
  - Rear wheel rim width : 6.00 inches

### 02.4.10.6 Brakes

- a. Front master cylinder may be altered or replaced from those fitted to the homologated motorcycle.
- b. Rear master cylinder may be altered or replaced from those fitted to the homologated motorcycle.
- c. Front calipers may be altered or replaced from those fitted to the homologated motorcycle.
- d. Rear calipers may be altered or replaced from those fitted to the homologated motorcycle.
- e. Brake pads or shoes may be altered or replaced from those fitted to the homologated motorcycle.
- f. Brake hoses and brake couplings may be altered or replaced from those fitted to the homologated motorcycle.
- g. The split of the front brake lines for both front brake calipers must be made above the lower fork bridge (lower triple clamp).
- h. 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 discs and brake calipers (i.e. aluminum beryllium, etc.) is not allowed.
- i. Anti Lock Braking Systems (ABS) are not permitted.

- j. 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.

#### 02.4.10.7 Handle Bars and Hand Controls

- a. Handle bars may be replaced.
- b. Handle bars and hand controls may be relocated.
- c. Throttle controls must be self closing when not held by the hand.
- d. Throttle assembly and associated cables may be modified or replaced but the connection to the throttle body and to the throttle controls must remain as on the homologated motorcycle. Cable operated throttles (grip assembly) must be equipped with both an opening and a closing cable including when actuating a remote drive by wire grip/demand sensor.
- e. Clutch and brake lever may be replaced with an after-market model. An adjuster to the brake lever is allowed.
- f. Switches may be changed but the electric starter switch and engine stop switch must be located on the handlebars.
- g. Motorcycles must be equipped with a functional ignition kill switch or button mounted on the right hand handlebar (within reach of the hand while on the hand grips) that is capable of stopping a running engine. The button or switch must be red.

#### 02.4.10.8 Foot rest / Foot controls

- a. Foot rest/foot controls may be relocated but brackets must be mounted to the frame in 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 aluminium, plastic, Teflon® or an equivalent type material (minimum radius 8mm). The plug surface must be designed to reach the widest possible area. The FMSCT/TSB Technical Director has the right to refuse any plug not satisfying this safety aim.

#### 02.4.10.9 Fuel tank

- a. Material of construction of the fuel tank may be altered or replaced from those fitted to the homologated motorcycle.
- b. All fuel tanks must be completely filled with fire retardant material (open-celled mesh, i.e. Explosafe).

## 2019 FMSCT All Thailand SuperBikes - Technical Regulations

- c. 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.
- d. 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. (Full details of this standard are available from the FIM.)
- e. The original tank may be modified to achieve the maximum capacity of 24 litres, provided the original profile is as homologated.
- f. A cross over line between each side of the tank is allowed (maximum inside diameter 10 mm).
- g. 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.
- h. Fuel cap must be changed for a "screw type" cap to prevent accidental opening at any time. Fuel cap when closed must be leak proof.
- i. The sides of the fuel tank may be protected with a cover made of a composite material. These covers must fit the shape of the fuel tank.

### 02.4.10.10 Fairing / Body work

- a. Fairing, mudguards and bodywork may be replaced with exact cosmetic duplicates of the original parts, but must appear to be as originally produced by the manufacturer for the homologated motorcycle, with slight differences due to the racing use (different pieces mix, fixing points, fairing bottom, etc). The material may be changed. The use of carbon fibre or carbon composite materials is not allowed. Specific reinforcements in Kevlar® or carbon are allowed locally around holes and stressed areas.
- b. Overall size and dimensions must be the same as the original part, with a tolerance of +/-10mm, respecting the design and features of the homologated fairing as far as possible. The overall width of the frontal area may be +10mm maximum. The decision of the FMSCT/TSB Technical Director is final.
- c. Wind screen may be replaced with an aftermarket product. The height of the windscreen is free, within a tolerance of +/- 15 mm referred to the vertical distance from/to the upper fork bridge. The screen must conform to the same profile from the front as the original. From a top view the length of the windscreen may be shortened by 25mm to allow clearance for the rider. The edge of the screen must have no sharp edges
- d. Motorcycles that are not originally equipped with streamlining are not allowed to add streamlining in any form, with the exception of a lower fairing device, as described in point (g). This device cannot exceed above a line drawn horizontally from wheel axle to wheel axle and must follow the specifications described at point (g).

## 2019 FMSCT All Thailand SuperBikes - Technical Regulations

- e. The original combination instrument/fairing brackets may be replaced, but the use of titanium and carbon (or similar composite materials) is forbidden. All other fairing brackets may be altered or replaced.
- f. The original air ducts running between the fairing and the air box may be altered or replaced. Carbon fibre composites and other exotic materials are forbidden. Particle grills or “wire-meshes” originally installed in the openings for the air ducts may be taken away.
- g. 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.
- h. The upper edge of the rear transverse wall of the lower fairing must be at least 70 mm above the bottom. The angle between this wall and the floor must be  $\leq 90^\circ$ .
- i. 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  $> 60\%$ .
- j. The lower fairing must incorporate a single opening of  $\varnothing 25$  mm diameter in the front lower area. This hole must remain sealed in dry conditions and must be only opened in wet race conditions.
- k. Front mudguards may be replaced with a cosmetic duplicate of the original parts and may be spaced upward for increased tyre clearance.
- l. Rear mudguard fixed on the swing arm may be modified, changed or removed
- m. Motorcycles may be equipped with inner ducts to improve the air stream
- n. towards the radiator but the appearance of the front, the rear and the profile of the motorcycle must not be changed.

### 02.4.10.11 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 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.) may be removed.
- d. Material of construction of the seat may be altered or replaced from those fitted to the homologated motorcycle.

### 02.4.10.12 Rear Safety Light



All motorcycles must have a functioning red light mounted at the rear of the machine, to be used in rain or low visibility conditions. 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 FMSCT/TSB Technical Director. In case of dispute over the mounting position or visibility, the decision of the FMSCT/TSB Technical Director will be final.
- c. Power output/luminosity equivalent to approximately: 10 – 15 (incandescent), 0.6 – 5 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 FMSCT/TSB Technical Director has the right to refuse any light system not satisfying this safety purpose.

### 02.4.10.13 Fasteners

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

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

- a. Any type of lubrication, brake or suspension fluid may be used.
- b. Gaskets and gasket materials.
- c. Instruments, instrument bracket(s) 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.

- f. Protective covers for the frame, chain, footrests, etc. may be made in other materials like fibre composite material if these parts do not replace original parts mounted on the homologated model.

**02.4.12 The Following Items MAY BE Removed**

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

**02.4.13 The Following Items MUST BE Removed**

- a. Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing). Openings must be covered by suitable materials.
- b. Rear-view mirrors.
- c. Horn.
- d. License plate bracket.
- e. Toolkit.
- f. Helmet hooks and luggage carrier hooks
- g. Passenger foot rests.
- h. Passenger grab rails.
- i. Safety bars, centre and side stands must be removed (fixed brackets must remain).

**02.4.14 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. 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
- 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).
- d. All motorcycles must have a closed breather system. The oil breather line must be connected and discharge in the airbox.
- 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.

Updated by Kraitos Wongsawan, 9th January 2019  
FMSCT/TSB Director, FMSCT All Thailand SuperBikes Race Direction