

## 2.6 STOCK 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 AUTHORIZED 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**

Stock motorcycles require an FIM homologation. All motorcycles must comply in every respect with all the requirements for road racing as specified in these Technical Regulations, unless they are already equipped as such on the homologated model.

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

### **2.6.1 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.

### **2.6.2 Engine configurations and displacement capacities**

The following engine configurations comprise the Stock class:

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

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

### **2.6.3 Balancing various motorcycle concepts**

In order to equalize the performance of motorcycles used in the Stock 1000 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 MotoAmerica Permanent Bureau based on decisions made by the Superbike Commission at any time deemed necessary to ensure fair competition.

## 2.6.4 Minimum weight

All machines 170kg (374 lbs)

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

## 2.6.5 Numbers and Number Plates

The background colors and figures (numbers) for Stock are red (pantone 186c) background with white 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:	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 center of the fairing or slightly off to one side. The number must be centered on the red background with no advertising within 25mm in all directions.

- b. Once, on each side of the motorcycle. The preferred location for the numbers on each side of the motorcycle is on the lower rear portion of the main fairing near the bottom. The number must be centered on the red background. **Any change to this position must be pre-approved a minimum of 2 weeks before the first race by the MotoAmerica Technical Director.**
- c. **The numbers must use the fonts as detailed after Art2. Any numbers not using these fonts must have the design of the numbers and the layout pre-approved by the MotoAmerica Technical Director a minimum of 2 weeks before the first race. All digits must be of standard form.**
- d. **Any outlines must be of a contrasting color and the maximum width of the outline is 3mm. The background color 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 Technical Director will be final.

#### **2.6.6 Fuel**

**Please refer to Article: 2.8**

#### **2.6.7 Tires**

- a. The maximum number of tires, of any type, available to each rider during the event will be **specified in Article: 2.3.7**
- b. A maximum of 11 tires per rider can be mounted at any time.
- c. For both Superbike/Stock 1000 races only, wet tires will not need to be marked with a tire sticker. They will not be considered in the total number of tires available for use; however normal allocation limits still apply.
- d. Every tire used during the event must be marked with an adhesive sticker with a number allocated by the MotoAmerica Technical Director. The sticker will be a different color front and rear.
- e. The tire 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.
- f. The stickers must be applied to the left sidewall of the tire. Officials will check that all the motorcycles in the pit lane are fitted with tires carrying the sticker.
- g. The use of motorcycles without the official stickers will be immediately reported to the Race Direction whom will take appropriate action.
- h. Any modification or treatment (cutting, grooving) is forbidden.
- i. At the beginning of the event, the Official Supplier may be requested by the MotoAmerica Technical Director to deliver to him four (4) samples of each type of tire to be used at the event.
- j. The allocation of individual tires will be made on a random basis, with no

involvement of any representative from the tire supplier, teams or riders. Those tires will be individually identified and may not be exchanged between riders, including between team mates, and may not be exchanged by the tire supplier after the allocation, except with the permission of the Race Direction.

- k. 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 MotoAmerica Technical Director. However, the damaged sticker must be returned to the MotoAmerica Technical Director and/or the tire it was applied to, must be absolutely intact.

## **2.6.8 Engine**

### **2.6.8.1 Fuel injection system**

**2.6.8.1.1** 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. Air Funnels must remain as originally produced by the manufacturer for the homologated motorcycle.
- d. Butterfly valves cannot be changed or modified.
- e. Variable intake tract devices cannot be added if they are not present on the homologated motorcycle and they must remain identical and operate in the same way as the homologated system. All the parts of the variable intake tract device must remain exactly as homologated.
- f. Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.
- g. Electronically controlled throttle valves, known as 'ride-by-wire', may be only used if the homologated model is equipped with the same system. Software may be modified but all the safety systems and procedures designed by the original manufacturer must be maintained.

### **2.6.8.2 Cylinder Head**

- a. No modifications are allowed.
- b. No material may be added or removed from the cylinder head.
- c. The gaskets may be changed.
- d. The valves, valve seats, guides, springs, tappets, oil seals, shims, cotter valve, rocker arms, spring base and spring retainers must be as originally produced by the manufacturer for the homologated motorcycle. Only normal maintenance interventions as prescribed by the Manufacturer in the service manual of the motorcycle are authorized.
- e. Valve spring shims are not allowed.

### **2.6.8.3 Camshaft**

- a. No modifications are allowed.
- b. At the technical checks: for direct cam drive systems, the cam lobe lift is measured; for non-direct cam drive systems (i.e. with rocker arms), the valve lift is measured.

### **2.6.8.4 Cam sprockets or gears**

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

### **2.6.8.5 Cylinders**

- No modifications are allowed.

### **2.6.8.6 Pistons**

No modifications are allowed (including polishing and lightening).

### **2.6.8.7 Piston rings**

No modifications are allowed.

### **2.6.8.8 Piston pins and clips**

No modifications are allowed.

### **2.6.8.9 Connecting rods**

No modifications are allowed (including polishing and lightening).

### **2.6.8.10 Crankshaft**

No modifications are allowed (including polishing and lightening).

### **2.6.8.11 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.

#### **2.6.8.11.1 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 either replaced by a 'heavier' engine cover or protected by a second cover made from metal such as aluminum alloy, stainless steel, steel or titanium, or an approved cover.
- c. Any secondary covers must cover a minimum of 1/3 of the original cover. It must have no sharp edges to damage the track surface. These covers must be fixed properly and securely with a minimum of three (3) case cover screws that also mount the original covers/engine cases to the crankcases.
- d. Plates or crash bars made from aluminum or steel also are permitted in addition to these covers. All of these devices must be designed to be resistant against sudden shocks, abrasions and crash damage.
- e. FIM approved covers will be permitted without regard of the material or dimensions.
- f. These covers must be fixed properly and securely with case cover screws that also mount the original covers/engine cases to the crankcases.
- g. **No oil containing engine case may be secured with aluminum bolts.**
- h. The Technical Director has the right to refuse any cover not satisfying this safety purpose.

#### **2.6.8.12 Transmission / Gearbox**

- a. No modifications are allowed except shimming.
- b. Quick-shift systems are allowed (including wire and potentiometer).
- c. Countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.
- d. The sprocket cover may be modified or eliminated.
- e. Chain guard as long as it is not incorporated in the rear fender may be removed.

#### **2.6.8.13 Clutch**

- a. No modifications are allowed.
- b. Only friction and drive discs may be changed, but their number must remain as original.
- c. Clutch springs may be changed.

#### **2.6.8.14 Oil pumps and oil lines**

- a. No pump modifications are allowed.
- b. Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or threaded connectors.

#### **2.6.8.15 Radiator, cooling system and oil cooler**

- a. The only liquid engine coolants permitted will be water or water mixed with ethyl alcohol.
- b. Protective meshes may be added in front of the oil and/or water radiator(s).
- c. The cooling system hoses and catch tanks may be changed.
- d. Radiator fan and wiring may be removed. Thermal switches, water temperature sensor and thermostat may be removed inside the cooling system.
- e. Radiator cap is free.
- f. An additional water radiator may be fitted but the appearance of the front, the rear and the profile of the motorcycle must not be changed. Extra mounting brackets to accommodate the additional radiator are permitted.

#### **2.6.8.16 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 filter element may be modified or replaced but must be mounted in the original position.
- c. The air box drains must be sealed.
- d. All motorcycles must have a closed breather system. All oil breather lines must be connected and discharge in the airbox.
- e. Additional heat shielding is not allowed (i.e. gold or silver heat tape).

#### **2.6.8.17 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. Quick connectors or dry break connectors may be used.
- e. Fuel vent lines may be replaced.
- f. Fuel filters may be added.

#### **2.6.8.18 Exhaust system**

- a. Exhaust pipes and silencers may be modified or changed. Catalytic converters must be removed.
- b. The number of the final exhaust silencer(s) must remain as homologated. The silencer(s) must be on the same side(s) 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 Stock will be 107 dB/A (with a 3 dB/A tolerance after the race only) except for where local rules prevail.

## 2.6.9 Electrics and electronics

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

- a. The engine control system (ECU) must be an ECU (Kit or OEM) applicable to the specific homologated model. The ECU may have its software changed, but the ECU may not be physically modified. Software modifications must be on the MotoAmerica approved list.
- b. The system may have FIM/DWO/MotoAmerica approved external ignition and/or injection module/s added.
- c. The total combined retail price (software and tuning tools included) on sale to the general public cannot be higher than €3000 (tax excluded) or €3750 if it is a kit ECU than includes data logging facility.
- d. Central unit (ECU) may be relocated.
- e. 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.
- f. During an event the 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.
- g. 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.
- h. Other additional electronic hardware equipment not on the original homologated motorcycle cannot be added with the exceptions noted below.
- i. The characteristics of approved data logging systems must be the following:
  - i. Maximum retail price of the unit (hardware + software, excluding sensors and wiring harness) cannot exceed **€3.000** Euro (VAT excluded) if it is a standalone unit.
  - ii. Maximum retail price of the unit if incorporated into the ECU (hardware + software, excluding sensors and wiring harness) is €3750
  - iii. The Data Logger unit must be available for sale to the public and on the list of FIM/DWO/MotoAmerica 'Superbike EVO' approved data loggers.
  - iv. A maximum of 7 simultaneous working sensors (connected to the additional data logger) may be added to the original sensors on the motorcycle. **The sensors must be from the following list:**
    - 1. **Lambda (must be supplied in the kit if used for strategy).**
    - 2. **Fork position**

- 3. Shock position**
- 4. Front brake pressure**
- 5. Rear brake pressure**
- 6. Fuel pressure (not temperature)**
- 7. Oil pressure**
- 8. Oil temperature**
- 9. Transponder / Lap time signal**
- 10. GPS Unit (Lap timing and track position)**

- v. The sensors must be simple-function. No inertial platforms are allowed (if an inertial platform is not installed originally on the homologated motorcycle).
- vi. CAN (or other data) communication from the ECU to an approved data logger (logger can receive data only, no data transmission is allowed) is allowed without any limitation in CAN channel logger number.
- j. The maximum total price of other active/control/calculation units such as lambda driver modules, quick shifter, and analogue to CAN and traction control units is €750. These devices must be approved by FIM/DWO/MotoAmerica.
- k. Telemetry is not allowed.
- l. 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.
- m. 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 and by FIM/DWO/MotoAmerica.
  - b. The Kit wiring harness may incorporate the data logging harness.
  - c. A kit harness that incorporates the data logging harness may only accommodate 7 additional sensors.
  - d. A sample of the kit wiring harness may be requested by the FIM/MotoAmerica.
  - e. The key/ignition lock may be relocated, replaced or removed.
  - f. Cutting of the original main wiring harness is allowed.
- n. Data logger Harness:
  - a. The Data Logger wire harness cannot include any other sensors with the exception of the seven sensors that are allowed. The only function of the approved Data Logger wire harness is to connect the seven sensors to the Data Logger, to transmit the data and supply the power.
- o. For the Stock Kit to be approved, samples of the ECU kits, kit harnesses and external modules with their tuning tools must be sent by the Manufacturers to the MotoAmerica Technical Director, with technical data and selling price.
- p. For the ignition and or injection module, quick shifter or standalone data logger to be approved, samples must be sent by the manufacturer of the device to the MotoAmerica Technical Director with technical data and selling price.

- q. The original speedometer and tachometer may be altered or replaced (see also 2.6.11).
- r. Spark plugs may be replaced.
- s. Battery is free.

#### **2.6.9.2 Generator, alternator, electric starter**

- a. No modifications are allowed.
- b. The electric starter must operate normally and always be able to start the engine during the event.

#### **2.6.10 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 MotoAmerica Technical Director.

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

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

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

**No complete spare machine may be at the track. If found penalties will be applied. For the remainder of the event the machine will be impounded and no part of that machine may be used for spare parts.**

See 2.5.10 for complete EXPLANATION OF THE PROCEDURES

#### **2.6.10.1 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 (chassis number).
  - 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.

#### **2.6.10.2 Front Forks**

- a. Participants in the Stock class must only use the approved and listed suspension units for that season. The price limits are:
  - i. **Fork: For the fork kit, including all parts such as but not limited to cartridge, springs (1 set), adjusters, fork caps, blanking inserts, seals, bushes but excepting oil and fitting the price limit is €2200 excluding tax**
  - ii. **Shock Absorber/RCU: For the complete shock absorber / RCU including but not limited to spring (1 of), pre-load adjuster and length/ride height adjuster the price limit is €2000 excluding tax**
- b. The approved products from the suspension manufacturers must be available to all participants at least one month before the first round of the MotoAmerica Superbike season, and remain available all season. The products must be available within 6 weeks of a confirmed order.
- c. Setting parts and tuning parts must be provided by the suspension manufacturers to all customers/ teams/ participants using the manufacturer's products. These parts can be used by all participants during the season. These parts shall be available for immediate delivery to all teams/customers.
- d. Teams may not modify any part of the forks or shock absorber; all setting parts must be supplied by the Suspension manufacturer and available to all teams/riders.
- e. The suspension manufacturers are allowed to offer service contracts when the team is using the approved and listed suspension products. The suspension manufacturers cannot demand a service contract for a customer or participant in order to obtain a suspension product.
- f. Electronic Suspension:
  - i. No aftermarket or prototype electronically-controlled suspensions may be used. Electronically-controlled suspension may only be used if already present on the production model of the homologated motorcycle.
  - ii. The electronically-controlled valves must remain as homologated. The

- shims, spacers and fork/shock springs not connected with these valves can be changed.
- iii. The ECU for the electronic suspension must remain as homologated and cannot receive any motorcycle track position or sector information; the suspension cannot be adjusted relative to track position.
  - iv. The electronic interface between the rider and the suspension must remain as on the homologated motorcycle. It is allowed to remove or disable this rider interface.
  - v. The original suspension system must work safely in the event of an electronic failure.
  - vi. Electro-magnetic fluid systems which change the viscosity of the suspension fluid(s) during operation are not permitted.
- g. Electronic controlled steering damper cannot be used if not installed in the homologated model for road use. However, it must be completely standard (any mechanical or electronic part must remain as homologated).

#### **2.6.10.3 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. After market damper kits or valves may be installed.
- c. The original surface finish of the fork tubes (stanchions, fork pipes) may be changed. Additional surface treatments are allowed.
- d. Fork caps and external damping adjusters may be modified or replaced.
- e. The upper and lower fork clamps (triple clamp, fork bridges, and stem) may be modified or replaced.
- f. A fork brace may be installed. Fork bottoms may be modified for speed and suspension sensors. Axle hole may not be increased in bore but may have a sleeve for captive axle's nut.
- g. Fender brackets may be modified to maintain stock tire to fender clearance when using race tires or to provide clearance for caliper mounting brackets
- h. A steering damper may be added or replaced with an 'after-market' damper.
- i. The steering damper cannot act as a steering lock limiting device.
- j. Electronic forks may have their complete internal parts (including all electronic control) replaced with a conventional damping system and it will be considered as a mechanical fork.

#### **2.6.10.4 Rear fork (Swing arm)**

- a. The rear fork must remain as originally produced by the manufacturer for the homologated motorcycle.
- b. A chain guard must be fitted in such a way as to reduce the possibility that any part of the riders' body may become trapped between the lower chain run and the rear wheel sprocket.
- c. Rear fork pivot bolt must remain as originally produced by the manufacturer for the homologated motorcycle.

- d. Rear pivot position must remain in the homologated position (as supplied on the production bike). If the standard bike has inserts then the orientation/position of the original insert may be changed but the insert cannot be replaced or modified.
- e. Rear wheel stand brackets may be added to the rear fork by welding or by bolts. Brackets must have rounded edges (with a large radius). Fastening screws must be recessed. An anchorage system or point(s) to keep the original rear brake caliper in place may be added to the rear swing-arm.

#### **2.6.10.5 Rear suspension**

- a. Rear suspension unit may be changed but a similar system must be used (i.e. dual or mono).
- b. All rear suspension linkage parts must remain as originally produced by the manufacturer for the homologated motorcycle.
- c. Mechanical Suspension: Rear suspension unit (shock absorber) may be modified or replaced, but the original attachments to the frame and rear fork (swing arm) must be as homologated.
- d. Electronic suspension may be used if such suspension is already present on the production model of the homologated motorcycle, and it must remain completely standard (all mechanical and electronic parts must remain as homologated with the exception of shims and springs). The original suspension system must work properly and safely in the event of an electronic failure. The electronic shock absorber can be replaced with a mechanical one.

#### **2.6.10.6 Wheels**

- a. Wheels must remain as originally produced by the manufacturer for the homologated motorcycle.
- b. Wheels that are standard on same model year bikes can be used instead of the original wheels but they must appear in the MotoAmerica Superstock 1000 wheel approval list.
- c. A non-slip coating / treatment may be applied to the bead area of the rim.
- d. If the original design includes a cushion drive for the rear wheel, it must remain as originally produced for the homologated motorcycle.
- e. Wheel axles must remain as homologated, wheel spacers may be modified or replaced.
- f. Wheel balance weights may be discarded, changed or added.
- g. Any inflation valves may be used.

#### **2.6.10.7 Brakes**

- a. Brake discs may be replaced by aftermarket discs which comply with following requirements:
  - i. Only steel (max. carbon content 2.1 wt. %) is allowed for brake discs.
  - ii. Carrier must retain the same material as the homologated disc

- and carrier.
- iii. The outside and inner diameters of the brake disc must not be larger than the ones on the homologated disc.
- iv. The thickness of the brake disc may be increased but the disc must fit into the homologated brake caliper without any modification. The number of floaters is free.
- v. The fixing of the carrier on the wheel must remain the same as on the homologated disc.
- b. The front and rear brake caliper (mount, carrier, hanger) must remain as originally produced by the manufacturer for the homologated motorcycle.
- c. In order to reduce the transfer of heat to the hydraulic fluid it is permitted to add metallic shims to the calipers, between the pads and the calipers, and/or to replace light alloy pistons with steel pistons made by the same manufacturer of the caliper.
- d. The rear brake caliper bracket may be mounted fixed on the swing- arm, but the bracket must maintain the same mounting (fixing) points for the caliper as used on the homologated motorcycle. Also See Art. 2.7.10.4 e.
- e. The front and rear master cylinder must be the originally fitted and homologated part with no modification allowed. Front and rear brake fluid reservoirs may be changed.
- f. Front and rear hydraulic brake lines may be changed.
- 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. "Quick" (or "dry-brake") connectors in the brake lines are allowed.
- i. Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type.
- j. Additional air scoops or ducts are not allowed.
- k. The Antilock Brake System (ABS) must be removed.
- l. 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. The Technical Director has the right to refuse any guard not satisfying this safety purpose.

#### **2.6.10.8 Handlebars and hand controls**

- a. Handlebars may be replaced.
- 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.

#### **2.6.10.9 Foot rest / Foot controls**

- a. Foot rests, hangers/brackets and hardware may be replaced and relocated but the hangers/brackets must be mounted to their original frame mounting points.
- b. Foot controls: gear shift and rear brake must remain operated manually by foot.
- c. Foot rests may be rigidly mounted or a folding type which must incorporate a device to return them to the normal position.
- d. The end of the foot rest must have at least an 8 mm solid spherical radius.
- e. Non folding footrests must have an end (plug) which is permanently fixed, made of aluminum, plastic, Teflon® or an equivalent type material (minimum radius 8mm). The plug surface must be designed to reach the widest possible area.
- f. The MotoAmerica Technical Director has the right to refuse any plug not satisfying this safety aim.

#### **2.6.10.10 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 (i.e. fuel tank foam)**
- c. Fuel tanks with tank breather pipes must be fitted with non-return valves that discharge into a catch tank with a minimum volume of 250cc made of a suitable material.
- d. Fuel caps may be changed. Fuel caps when closed must be leak proof. Additionally, they must be securely locked to prevent accidental opening at any time.
- e. 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.

#### **2.6.10.11 Fairing / Bodywork**

- a. Fairing and bodywork may be replaced with exact cosmetic duplicates of the original parts, but must appear to be as originally produced by the manufacturer for the homologated motorcycle, with slight differences due to the racing use (different pieces mix, fixing points, fairing bottom, etc.). The material may be changed. The use of carbon fiber 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.
- c. Wind screen may be replaced with an aftermarket product. The height of the windscreen is free **but must be** 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 – no double bubble or wide types. From a top view the length of the windscreen may be shortened by 25mm to allow clearance for the rider. The edge of the screen must have no sharp edges.
- 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).
- 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 fiber composites and other exotic materials are forbidden. Particle grills or “wire-meshes” originally installed in the openings for the air ducts may be removed.
- g. The lower fairing must to be constructed to hold, in case of an engine breakdown minimum 6 liters. 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 centers, circle centers 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 as declared by the Race Director.
- k. Front mudguards may be replaced with a cosmetic duplicate of the original parts and may be spaced upward for increased tire 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 towards the radiator but the appearance of the front, the rear and the profile of the motorcycle must not be changed.

#### 2.6.10.12 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 bodywork 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.

#### **2.6.10.13 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 center line (motorcycle running direction), and be clearly visible from the rear at least 15 degrees to both left and right sides of the machine center line.
- b. The rear light must be mounted near the end of the seat/rear bodywork and approximately on the machine center 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 MotoAmerica Technical Director has the right to refuse any light system not satisfying this safety purpose.

#### **2.6.10.14 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 repairs may be made using inserts of different material such as helicoils and timeserts.
- d. Fairing / bodywork fasteners may be replaced with the quick disconnect type.
- e. Aluminum fasteners may only be used in non-structural locations.

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

**2.6.12 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 sub frame.

**2.6.13 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, center and side stands must be removed (fixed brackets must remain).

**2.6.14 The following items MUST BE Altered**

- a. All drain plugs must be wired. External oil filter(s) screws and bolts that enter an oil cavity must be safety wired (i.e. on crankcases).
- b. All motorcycles must have a closed breather system. The oil breather line must be connected and discharge in the airbox.
- c. Motorcycles must be equipped with a red light on the instrument panel that will illuminate in the event of oil pressure drop.