

2.5 SUPERSPORT TECHNICAL SPECIFICATIONS

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

EVERYTHING THAT IS NOT AUTHORIZED AND PRESCRIBED IN THIS RULEBOOK IS STRICTLY FORBIDDEN

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

Supersport motorcycles require an FIM homologation (see Appendix FIM homologation procedure for Superstock, Supersport and Superbike motorcycles). All machines must be normally aspirated. 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.

For 2018: 2013-2018 Kawasaki ZX-6R (636) is accepted as homologated for MotoAmerica competition.

Once a motorcycle has obtained the homologation, it may be used for racing in the corresponding class for a maximum period of 8 years (see Homologation art 1.4.4), or until such time that the homologated motorcycle is disqualified by new rules or changes in the technical specifications of the corresponding class.

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

2.5.1 Motorcycle specifications

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

2.5.2 Engine configurations and displacement capacities

The following engine configurations comprise the Supersport class.

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

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

2.5.3 Balancing various motorcycle concepts

In order to equalize the performance of motorcycles used in the Supersport 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.

2.5.4. Minimum weight

The minimum weight will be:	600cc	4 cylinders	161kg (354.2lbs)
	675cc	3 cylinders	161kg (354.2lbs)
	750cc	2 cylinders	161kg (354.2lbs)

For 2018: 2013-2018 Kawasaki ZX-6R (636) minimum weight - 161 kg (354.2 lbs)

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

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

During the final technical inspection at the end of the race, the selected motorcycles will be weighed in the condition they finished the race and the established weight limit must be met in this condition. Nothing may be added to the motorcycle. This includes all fluids.

During the practice and qualifying sessions, riders may be asked to submit their motorcycle to a weight control. In all cases, the rider must comply with this request.

The use of ballast is allowed to stay over the minimum weight limit and may be required due to the handicap system. The use of ballast and weight handicap must be declared to the technical director at the preliminary checks.

2.5.5 Numbers and number plates

Numbers must be easily legible, in a clear simple font and contrast strongly with the background color. Backgrounds must be white .

The sizes for all the front numbers are:	Minimum height:	140 mm
	Minimum width:	80 mm

Minimum stroke: 25 mm
Minimum space
between numbers: 10 mm

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

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

- a. Once on the front, either in the center of the fairing or slightly off to one side. The number must be centered on the white background with no advertising within 25 mm in all directions.
- b. Once on each side of the lower rear portion of the lower fairing. The number must be centered on the white background. Any change to this position must be pre-approved a minimum of two (2) weeks before the first race by the technical director.
- c. The numbers must use the fonts as detailed after Art 2. Any numbers not using these fonts must have the design of the numbers and the layout pre-approved by the technical director a minimum of two (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 three (3) mm. 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.

2.5.6 Fuel

- a. Sunoco Apex is the designated fuel.
- b. Please refer to Article 2.10 for additional details.

2.5.7 Tires

- a. The maximum number of tires, of any type, available to each rider during the event will be specified in Article 2.3.7.1.
- b. A maximum of ten (10) tires per rider can be mounted at any time.
- c. For both Supersport 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. During free practices, qualifying practices, Superpole for Superbike, warm up sessions and races, front and rear tires are required to be marked with tire stickers.
- e. See article 2.3.7.

2.5.8 Engine

2.5.8.1 Fuel injection system

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. **All parts of the variable intake tract device must remain exactly as homologated. Variable intake tract devices cannot be added if they are not present on the homologated motorcycle.**
- f. Secondary throttle valves and shafts may be removed or fixed in the open position and the electronics may be disconnected or removed.
- g. Air and air/fuel mixture must go to the combustion chamber exclusively through the throttle body butterflies.
- h. Electronically controlled throttle valves, known as 'ride-by-wire', may only be used if the homologated model is equipped with the same system. Software may be modified but all the safety systems and procedures designed by the original manufacturer must be maintained.

2.5.8.2 Cylinder head

- a. Cylinder head must be the originally fitted and homologated part. The following modifications are allowed:
 - i. Surface grinding of the cylinder head surface on the head gasket side
 - ii. Polishing of the combustion chamber
 - iii. Original valve seats must be used, but modifications are permitted to the shape of the seat.
 - iv. Rocker arms (if any) must remain as homologated.
 - v. The valves must remain as originally equipped and homologated.
 - vi. The shim buckets / tappets must remain as originally equipped and homologated.

2.5.8.3 Camshaft

- a. **Camshafts must be the originally fitted and homologated parts with no modification allowed.**
- b. The method of drive must remain as homologated.
- c. At the technical checks: for direct cam drive systems, the cam lobe lift is measured; for non-direct cam drive systems (i.e. with rocker arms), the valve lift is measured.

2.5.8.4 Cam sprockets or cam gears

- a. Camshaft sprockets, pulleys or gears may be altered or replaced to allow degreeing of the camshafts.
- b. The cam chain or cam belt tensioning device(s) can be modified or changed.

2.5.8.5 Cylinders

- a. Cylinders must be the originally fitted and homologated parts with only the following modification allowed:
 - i. Cylinder head gasket surface may be machined to allow the adjustment of compression ratio or resurfacing to repair a warped cylinder surface deck.
- b. Homologated materials and castings for cylinders must be used. The surface finish of the cylinder bore must remain as homologated.

2.5.8.6 Pistons

- a. Pistons must be the originally fitted and homologated parts with no modification allowed.
- b. Polishing and lightening is not allowed.

2.5.8.7 Piston rings

- a. Piston rings must be the originally fitted and homologated parts with no modification allowed.
- b. All piston rings must be fitted.

2.5.8.8 Piston pins and clips

- a. Piston pins and clips must be the originally fitted and homologated parts with no modification allowed.

2.5.8.9 Connecting rods

- a. The connecting rod assembly must be the originally fitted and homologated parts with no modification allowed.

2.5.8.10 Crankshaft

- a. Crankshafts must be the originally fitted and homologated parts with no modification allowed.
- b. Polishing and lightening is not allowed.
- c. Modifications of the flywheels are not allowed.

2.5.8.11 Crankcase / Gearbox housing

- a. Crankcases must be the originally fitted and homologated parts with no modification allowed.
- 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.

2.5.8.11.1 Lateral covers and protection

- a. Lateral (side) covers may be altered, modified or replaced. If altered or modified, the cover must have at least the same resistance to impact as the original one. If replaced, the cover must be made in material of the same or higher specific weight and the total weight of the cover must not be less than the original one.
- b. Titanium bolts may be used to fasten lateral covers.
- c. 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 aluminum alloy, stainless steel, steel or titanium. Composite covers are not permitted.
- d. The secondary cover must cover a minimum of 1/3 of the original cover. It must have no sharp edges to damage the track surface. The technical director's decision on suitability is final.
- e. Plates or crash bars from aluminum or steel also are permitted in addition to these covers. All these devices must be designed to be resistant against sudden shocks, abrasions and crash damage.
- f. FIM approved covers will be permitted without regard to the material or dimensions.
- g. 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.
- h. Oil containing engine covers cannot be secured with aluminum bolts.
- i. The technical director has the right to refuse any cover not satisfying this safety purpose.

2.5.8.12 Transmission / Gearbox

- a. Stock transmission shafts and gear set must be the originally fitted and homologated part. Shimming is allowed.
- 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. If it is not incorporated in the rear fender, the chain guard may be removed.

2.5.8.13 Clutch

- a. Aftermarket or modified clutches are permitted.
- b. Back torque limiters are permitted.
- c. Friction and drive discs may be changed.
- d. Clutch springs may be changed.
- e. No power source (i.e. hydraulic or electric) can be used for clutch operation if not installed in the homologated model for road use. Human power is excluded from the ban.
- f. Clutch system type (wet or dry / single or multi-plate) and method of operation (cable/hydraulic) must remain as homologated.
- g. The clutch basket (outer) must be the originally fitted and homologated part but may be reinforced.

2.5.8.14 Oil pumps and oil lines

- a. The originally fitted and homologated oil pump may be modified but the oil pump housing, mounting points and oil feed points must remain as original.
- b. Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of ~~metal~~ **braided** reinforced construction with swaged or treaded connectors.

2.5.8.15 Radiator / Oil cooler

- a. The only liquid engine coolant permitted is water.
- b. The radiator may be changed with an aftermarket radiator or an additional radiator may be added provided that it fits in the standard location and does not require any modifications to the main frame or to the fairings' outer appearance.
- c. Modifications to the homologated oil-cooler are allowed only if they do not require any modifications to the main frame or to the fairings' outer appearance. A heat exchanger (oil/water) may be replaced with an oil-cooler.
- d. The cooling system hoses and catch tanks may be changed.
- e. Radiator fan and wiring may be changed, modified or removed.
- f. Additional oil coolers are not allowed.
- g. The oil cooler must not be mounted on or above the rear fender.

2.5.8.16 Air box

- a. The air box must be the originally fitted and homologated part with no modification allowed.
- b. The air filter element may be removed or replaced but if fitted 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 (may pass through an oil catch tank) and discharge in the air box.
- e. Ram air tubes or ducts running from the fairing to the air box may be modified, replaced or removed. If tubes/ducts are utilized, they must be attached to the original, unmodified air box inlets.
- f. No heat protection may be attached to the air box (i.e. foil heat tape).

2.5.8.17 Fuel supply

- a. Fuel pumps and fuel pressure regulators must be the originally fitted and homologated parts with no modification allowed.
- b. The fuel pressure must be as homologated.
- c. Fuel lines from the fuel tank up to the injectors (fuel hoses, delivery pipe assembly, joints, clamps, fuel canister) may be replaced and must be located in such a way that they are protected from crash damage.
- d. Quick connectors or dry break connectors may be used.
- e. Fuel vent lines may be replaced.
- f. Fuel filters may be added.

2.5.8.18 Exhaust system

- a. Exhaust pipes and silencers may be altered or replaced from those fitted on the homologated motorcycle. Catalytic converters must be removed.
- b. The number of final exhaust silencer(s) must remain as homologated. The silencer(s) must be on the same side(s) as on the homologated model.
- c. For safety reasons, the exposed edge(s) of the exhaust pipe(s) outlet(s) must be rounded to avoid any sharp edges.
- d. Wrapping of exhaust systems is not allowed except in the area of the rider's foot or an area in contact with the fairing for protection from heat.
- e. The noise limit for Supersport will be **107 dB/A** (with a three (3) dB/A tolerance after the race only). The test will be carried out according to the details noted in Art 2.14.

2.5.9.0 Electrics and electronics

2.5.9.1 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.

- 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 €2500 (tax excluded).
- 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 must be done before Sunday warm up.
- g. No extra sensors may be added for control strategies except shift rod sensors, 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 €3000 (VAT excluded) if it is a standalone unit.
 - ii. The data logger unit must be available for sale to the public and on the list of FIM/DWO/MotoAmerica approved data loggers.
 - iii. A maximum of seven (7) simultaneously working sensors (connected to the additional data logger) may be added to the original sensors on the motorcycle.
 - iv. The sensors must be simple-function. No inertial platforms are allowed if an inertial platform is not installed originally on the homologated motorcycle.
 - v. Type of sensor is free.
 - vi. 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, analogue to CAN, air bleed control and traction control units is €750. These devices must be approved by FIM/DWO/MotoAmerica.
- k. The addition of a device for infra-red (IR) transmission of a signal between the racing rider and his team, used exclusively for lap timing, is allowed and considered in the seven (7) sensors.
- l. The addition of a GPS unit for lap timing/scoring purposes is allowed and considered in the seven (7) sensors.
- m. Telemetry is not allowed.
- n. 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.
- o. Harness:

- i. The main wiring harness may be replaced by the kit wire harness as supplied for the kit ECU model that is produced and/or approved by the manufacturer of the motorcycle and by FIM/DWO/MotoAmerica. The kit wiring harness may incorporate the data logging harness.
 - ii. A kit harness that incorporates the data logging harness may only accommodate seven (7) additional sensors.
 - iii. A sample of the kit wiring harness may be requested by the FIM/MotoAmerica.
 - iv. The key/ignition lock may be relocated, replaced or removed.
 - v. Cutting of the original main wiring harness is allowed.
- p. Data logger harness:
- i. The data logger wire harness cannot include any other sensors with the exception of the seven (7) sensors that are allowed. The only function of the approved data logger wire harness is to connect the seven (7) sensors to the data logger, to transmit the data and supply the power.
- q. For the Superstock 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.
- r. For the ignition and/or injection module, quick shifter or stand-alone 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.
- s. The original speedometer and tachometer may be altered or replaced (see also 2.5.11).
- t. Electric cables, connectors, battery and switches are free.
- u. Spark plugs, plug caps, coils and wires may be replaced.

2.5.9.2 Generator, alternator, electric starter

- a. The generator (ACG) must remain as homologated. No modifications are allowed.
- b. The stator must be fitted in its original position and without offsetting.
- c. The electric starter must operate normally and always be able to start the engine during the event.
- d. During parc fermé, the starter must crank the engine at a suitable speed for starting for a minimum of two (2) seconds without the use a boost battery. No boost battery may be connected to the machine after the end of the session.

2.5.10 Main frame and pre-assembled spare frame

- a. During the entire duration of the event, each rider can only use one (1) complete motorcycle, as presented for technical control, with the frame clearly identified with a seal.

- b. In case the frame needs to be replaced, the rider or the team can request the use of a spare frame to the technical director.
- c. The pre-assembled spare frame must be presented to the technical director to receive the permission to rebuild the motorcycle. The pre-assembly of the frame shall be strictly limited to:
 - i. Main frame
 - ii. Bearings (steering pipe, swing arm, etc.)
 - iii. Swing arm
 - iv. Rear suspension linkage and shock absorber
 - v. Upper and lower triple clamps
 - vi. Wiring harness
- d. The spare frame will not be allowed in the pit box before the rider or the team has received authorization from the technical director.
- e. 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.
- f. 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.

EXPLANATION OF THE PROCEDURES

Only one (1) complete motorcycle may be presented for the preliminary technical checks and it will be the only motorcycle allowed on the track and in the pit box during the practices, qualifying, warm up and race.

The frame of this motorcycle will be officially sealed by the technical director or by his appointed staff. The seal will bear a serial number, which will be recorded. Any attempt made to remove the seal will damage it irreparably.

At any time during the event the technical stewards, under the direction of the technical director, may check the seal and verify that it conforms to the motorcycle and rider it was assigned to. For cross reference, every frame must have a unique number punched on it, preferably on the steering-head.

If the motorcycle is damaged in a crash or in any other incident, it is permitted to use the pre-assembled spare frame to rebuild the motorcycle.

The spare frame may be pre-assembled with the following items: main frame assembly, swing-arm, rear suspension linkage, shock-absorber, steering head bearings, upper and lower triple clamps and wiring harness.

When a team decides that a crashed or damaged motorcycle requires a change of frame, the team must inform the technical director. Only at this point may the pre-assembled spare frame be brought into the pit box.

Parts may be transferred from the damaged motorcycle for the assembly of the replacement motorcycle.

Once the assembly of the replacement motorcycle is completed, it will then undergo technical and safety checks and it will be officially sealed. The seal on the damaged motorcycle will be destroyed by the technical staff and the chassis of this motorcycle must not be used for the remainder of the event. The new serial number will be recorded by the technical director.

The replacement motorcycle may be used on the track only after the end of the practice and qualifying sessions or race in which the damage occurred. The damaged motorcycle must be removed from the pit box as soon as possible and put in storage outside the pit box.

After the pre-assembled spare part frame has been used, should it become necessary to replace the frame again because of a further crash or damage, the assembly work must be done using a bare frame with no components attached. The technical director must inspect the bare frame and give his approval before work can start.

Any actions contrary to these procedures will result in a penalty as described in the sporting regulations.

2.5.10.1 Frame body and rear sub-frame

- a. The frame must be the originally fitted and homologated part with no modification allowed.
- 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 (a proper "legal VIN" or a unique designation by the team, which the technical director may choose to append). No detachable plates are permitted.
- f. Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
- g. Front sub frames / fairing mounts may be changed or altered.
- h. Rear sub frames may be changed or altered, but the type of material must remain as homologated, or of higher specific weight.
- i. Additional seat brackets may be added; non-stressed protruding brackets may be removed if they do not affect the safety of the construction or assembly. Bolt-on accessories to the rear sub-frame may be removed.
- j. The paint scheme is not restricted but polishing the frame body or sub-frame is not allowed.

2.5.10.2 Suspension – General

- a. Participants in the Supersport 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 (1) month before the first round of the MotoAmerica Superbike season and remain available all season. The products must be available within six (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. Electronically-controlled suspension must be removed.
- g. Electronic controlled steering dampers cannot be used if not installed on the homologated model for road use. If equipped it must be completely standard (any mechanical or electronic part must remain as homologated).

2.5.10.3 Front suspension

- a. Forks must be the originally fitted and homologated parts with the following modifications allowed:
- b. Original internal parts of the homologated forks may be modified or changed.
- c. After market damper kits or valves may be installed.
- d. Fork springs may be modified or replaced.
- e. Fork caps may be modified or replaced to allow external adjustment.
- f. Dust seals may be modified, changed or removed if the fork is totally oil-sealed.
- g. The original surface finish of the fork tubes (stanchions, fork pipes) may be changed. Additional surface treatments are allowed.

- h. The upper and lower fork clamps (triple clamp, fork bridges, and stem) must remain as originally produced by the manufacturer on the homologated motorcycle.
- i. A steering damper may be added or replaced with an aftermarket damper.
- j. The steering damper cannot act as a steering lock limiting device.
- k. 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.

2.5.10.4 Swing arm (rear fork)

- a. The rear fork must be the originally fitted and homologated part with no modification allowed except the following:
 - i. 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.
 - ii. 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.
 - iii. A rear axle chain adjuster slot may be enlarged to allow the brake caliper bracket mounting to become captive by use of a sleeve. The slot may only be modified on the side the rear brake caliper is located. The enlarged slot may not increase or decrease the original wheel base.
 - iv. The sides of the swing-arm may be protected by a thin vinyl cover only; no composite or structural covers are allowed.
- b. The rear fork pivot bolt must be the originally fitted and homologated part with no modification allowed.
- c. Rear axle chain adjusters may be modified or changed.

2.5.10.5 Rear suspension unit (shock)

- a. The rear suspension unit (shock absorber) may be changed or modified. The original attachment points to the frame and rear fork (or linkage) must be as homologated.
- b. All the rear suspension linkage parts must be the originally fitted and homologated parts with no modification allowed.
- c. Removable top shock mounts must remain as homologated. A nut may be made captive on the top shock mount and shim spacers may be fitted behind it.

2.5.10.6 Wheels

- a. Wheels must be the originally fitted and homologated parts with no modification allowed.

- b. A non-slip coating / treatment may be applied to the bead area of the rim.
- c. If the original design included a cushion drive for the rear wheel, it must be the originally fitted and homologated parts with no modification allowed.
- d. Wheel axles must remain as homologated; wheel spacers may be modified or replaced.
- e. The speedometer drive may be removed and replaced with a spacer.
- f. Wheel balance weights may be discarded, changed or added to.
- g. Any inflation valves may be used.

2.5.10.7 Brakes

- a. Front and rear brake discs may be replaced with aftermarket brake discs that must fit the original caliper and mounting. However, the outside diameter and the ventilation system must remain the same as on the homologated motorcycle. Internally ventilated discs are not allowed if not present on the homologated motorcycle.
- b. The brake disc carriers may be changed, but they must retain the same off set and same type of mounting to the wheels of the homologated motorcycle.
- c. Only steel (max. carbon content 2.1 wt. %) is allowed for brake discs.
- d. Front and rear brake calipers as well as all the mounting points and mounting hardware (mount, carrier, hanger) must remain as originally produced by the manufacturer for the homologated motorcycle (see also Article 2.5.10.4/a./ii./iii.).
- e. 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.
- f. The front brake master cylinder may be replaced.
- g. The rear brake master cylinder must be the originally fitted and homologated parts with no modification allowed.
- h. Front and rear hydraulic brake lines may be changed. The brake fluid reservoir may be replaced and/or repositioned. Quick connectors may be used. The split of the front brake lines for both front brake calipers must be made above the lower edge of the fork bridge (lower triple clamp).
- i. Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type.
- j. Additional air ducts are not allowed.
- k. The anti-lock 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.
 - i. Composite guards are not permitted. FIM approved guards will be permitted without regard to the material. Only composite guards need to be approved.

- ii. The technical director has the right to refuse any guard not satisfying this safety purpose.
- m. Brake caliper bolts must be safety wired; the use of clips is permitted.**

2.5.10.8 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. The clutch and brake lever may be replaced with an after-market model. An adjuster to the brake lever is allowed.
- f. Switches may be changed but the electric starter switch and engine stop switch must be located on the handlebars.
- g. Motorcycles must be equipped with a functional ignition kill switch or button mounted on the right-hand handlebar (within reach of the hand while on the hand grips) that is capable of stopping a running engine. The button or switch must be RED.

2.5.10.9 Foot rest and foot controls

- a. The 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. The 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 eight (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 8 mm). The plug surface must be designed to reach the widest possible area. The technical director has the right to refuse any plug not satisfying this safety purpose.

2.5.10.10 Fuel tank

- a. Fuel tanks must be the originally fitted and homologated parts with no modification allowed.
- 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 250 cc 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. A rider spacer/pad may be fitted to the rear of the tank with non-permanent adhesive. It may be constructed of foam padding or composite material.
- f. The tank may not have a cover fitted over it unless the homologated machine also features a full cover.
- g. 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.
- h. The fuel tank may have heat reflective sheet attached to its bottom surface.

2.5.10.11 Fairing / Bodywork

- a. Fairing, mudguards and body work must conform in principle to the homologated shape as originally produced by the manufacturer. The use of carbon fiber or Kevlar® materials is not allowed in fairing, fuel tank cover, seat, seat base and associated bodywork construction. Specific reinforcements in Kevlar® or carbon are allowed locally around holes and stressed areas. Headlights must be included even when considered external.
- b. Wind screen may be replaced.
- c. The ram-air intake must maintain the originally homologated shape and dimensions.
- d. Original air ducts running between the fairing to the air box may be altered or replaced from those fitted to the homologated motorcycle.
- e. The lower fairing has to be constructed to hold, in case of an engine breakdown, at least half of the total oil and engine coolant capacity used in the engine (min. 5 liters). The lower edge of openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.
- f. The lower fairing must incorporate one (1) hole of 25 mm in the bottom of the front lower area. This hole must remain closed in dry conditions and must be only opened in wet race conditions, as declared by the race director.
- g. Minimal changes are allowed in the fairing to allow clearance for protective engine covers.
- h. Holes may be drilled or cut in the fairing or bodywork to allow additional increased intake air to the oil cooler. Holes bigger than 10 mm must be covered with a particle grill or fine wire mesh. Grill/mesh must be painted to match the surrounding material.
- 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 plates.

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. Motorcycles may be equipped with a radiator shroud 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.
- k. Front mudguards may be replaced with a cosmetic duplicate of the original parts and may be spaced upward for increased tire clearance. The use of carbon fiber or Kevlar® composites is allowed.
- l. Rear mudguards fixed on the swing arm may be modified, changed or removed. The use of carbon fiber or Kevlar® composites is allowed.

2.5.10.12 Seat

- a. The seat, seat base and associated bodywork may be replaced with parts of similar appearance as originally produced by the manufacturer for the homologated motorcycles.
- b. The top portion of the rear body work around the seat may be modified to a solo seat.
- c. Holes may be drilled in the seat or rear cowl to allow additional cooling. Holes which are bigger than 10 mm must be covered with metal gauze or fine mesh. Mesh must be painted to match the surrounding material.
- d. The appearance from the front, rear and profile must conform in principle to the homologated shape.
- e. The same material as fairing must be used (article 2.5.10.11.a).
- f. All exposed edges must be rounded.

2.5.10.13 Rear safety light

All motorcycles must have a functioning red light mounted at the rear of the machine. This light must be switched on any time the motorcycle is on the track or being ridden in the pit lane and the session is declared WET. All lights must comply with the following:

- a. Lighting direction must be parallel to the machine 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 is allowed whilst on track. Flashing is allowed in the pit lane when the pit limiter is active.
- e. The safety light power supply may be separated from the motorcycle.

- f. The technical director has the right to refuse any light system not satisfying this safety purpose.

2.5.10.14 Fasteners

- a. Standard fasteners may be replaced with fasteners of any material and design.
- b. Aluminum fasteners may only be used in non-structural locations.
- c. Titanium fasteners may be used in structural locations, but the strength and design must be equal to or exceed the strength of the standard fastener it is replacing.
- d. Special steel fasteners may be used in structural locations, but the strength and design must be equal to or exceed the strength of the standard fastener it is replacing.
- e. Fasteners may be drilled for safety wire, but intentional weight-saving modifications are not allowed.
- f. Threads repairs may be made using inserts of different material such as Helicoils and Timeserts.
- g. Fairing/bodywork fasteners may be changed to the quick disconnect type.

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

- a. Any type of lubrication, brake or suspension fluid
- b. Instruments, their supports(s) and associated cables
- c. Bearings (ball, roller, taper, plain, etc.) of any type or brand may be used
- d. Gaskets and gasket materials
- e. Painted external surface finishes and decals
- f. 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 **except the exhaust silencer hanger that may be in carbon.**

2.5.12 The following items MAY BE removed

- a. Emission control items (anti-pollution) in or around the air box and engine (O2 sensors, air injection devices)
- b. Tachometer
- c. Speedometer and related wheel spacers
- d. Bolt on accessories on a rear sub frame

2.5.13 The following items MUST BE removed

- a. Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing). Openings must be covered by suitable materials.
- b. Rear-view mirrors
- c. Horn

- d. License plate bracket
- e. Tool box
- f. Helmet hooks and luggage carrier hooks
- g. Passenger foot rests
- h. Passenger grab rails
- i. Safety bars, center and side stands must be removed (fixed brackets must remain).

2.5.14 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. 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.
- c. Motorcycles must be equipped with a red light on the instrument panel that will illuminate in the event of oil pressure drop (Yamaha R6 exempt).