2.4 SUPERBIKE 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 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 (see FIM Homologation procedure for Superstock, Supersport and Superbike motorcycles). All motorcycles must comply in every respect with all the requirements for road racing as specified in these Technical Regulations, unless they are already equipped as such on the homologated model.

Once a motorcycle has obtained the homologation, it may be used for racing in the corresponding class for a maximum period of 8 years (MotoAmerica will accept machines homologated as either Superbike or Superstock 1000). 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 Superbike 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.

2.4.1 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.

2.4.2 Engine configurations and displacement capacities

The following engine configurations comprise the Superbike class.

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

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

2.4.3 Balancing various motorcycle concepts

In order to equalize the performance of motorcycles with different engine configurations, an air restrictor may be applied according to their respective racing performances.

This handicap is applied only to the '1200cc 2-cylinder' motorcycles.

A new 2-cylinder entry will not be included in the 'Balancing various motorcycle concepts' rules until the performance is proven during the first two years of use in the MotoAmerica Superbike Championship. In the case that a new 2-cylinder entry wins a race in the Dry in the first year, restrictors will be applied from the start of the second year.

A new 2 cylinder entry is considered an entry by a new manufacturer to the Championship – not a new model of machine from an existing manufacturer.

The air restrictor handicap will be applied according to the relevant provisions described in Art 2.4.3.3: the size of the intake ports will be changed by means of air restrictors. These changes to the size of the air restrictor diameter will be applied in 2 mm steps.

Each racing season will begin with the same balancing level as the preceding season finished.

The MotoAmerica Permanent Bureau can at any time modify the handicap system to ensure fair competition.

2.4.3.1 Balancing Calculation

a. After three events, the best manufacturers of the 1000cc 4 cylinders and 1200cc 2 cylinders will be selected according to the sum of the points of the best two riders for each manufacturer.

b. By taking the race points of the riders of the selected 1000cc 4 cylinder manufacturer and of the selected 1200cc 2 cylinder manufacturer in each race, an average will be calculated after every event, the *'event average'*.

If in any of the races there is only one finisher from one of the selected manufacturers, the *'event average'* will be calculated from the first rider of each selected manufacturer in each race.

No *'event average'* points will be calculated if one of the selected manufacturers has no finishers. The *'event average'* will then be calculated based on the results of the other race from the same event.

If neither race has any finishers from one of the selected manufacturers,

the event will not be considered.

c. 'Wet' races (as declared by the Race Direction) are not taken in account for the calculation of an 'event average'.

2.4.3.2 Air restrictors for 1200cc 2 cylinders

Application: Only the 1200cc 2-cylinder engines will be fitted with air restrictors. Should a restrictor be required then the first restrictor size to be installed will be equivalent to a Ø 52 mm circular area Air restrictor size will be adjusted(in steps equivalent to a change of 2 mm in diameter or equivalent circular area, upwards to Ø 52 mm and then to no restrictor at all, downwards to a minimum of Ø 46 mm), if needed during the Championship, as described below in Art. 2.4.2.4

Definition: An air restrictor is a metallic device with a tract of constant controlled section and which is placed in the induction tract between the throttle body and the cylinder head. The length of the controlled tract must be at least 3 mm. No air and/or air-fuel mixture to the engine must by-pass the restrictor. No part of the fuel injection system (injector, needle, slide, etc.) shall extend through the restrictor.

The Manufacturer must supply the FIM/MotoAmerica with 10 sets of plug-calibers (-gauges) to check the diameter of the air restrictor when using one of the prescribed sizes (Ø 52, Ø 50, Ø 48, Ø 46 mm).

A Manufacturer may have a non-circular air restrictor, provided that the area of this restrictor is equivalent to the area of a nominal circular restrictor. In this case, the Manufacturer must supply the FIM/MotoAmerica with 10 sets of plug-calibers (- gauges) for measuring the restrictor during the technical verifications.

The FIM/MotoAmerica may also request the Manufacturer to supply a cut section of the air restrictor(s) in each of the prescribed sizes.

2.4.3.3 Air restrictor adjustment

The minimum air restrictor size is increased or decreased in 2 mm steps in diameter of equivalent circular area, according to following procedure:

a. If the gap in the average value of 'event averages', calculated as described in Art. 2.4.3.3 is more than 5 points in favor of the 1000cc 4- cylinder manufacturer, and

   If a rider of a 1000cc 4-cylinder motorcycle is leading the riders' MotoAmerica Superbike Championship standings at that time:

   then the initial air restrictor size of all the 1200cc 2-cylinder motorcycles will be increased by one size, to a Ø 52 mm (or the equivalent area

2123.7 mm^2), or as a last step, the air restrictor will be withdrawn.

b. If the resulting gap of the average value of 'event averages', calculated as described in Art. 2.4.3.3, is more than 5 points in favor of the 1200cc 2-cylinder manufacturer, and

If a rider of a 1200cc 2-cylinder motorcycle is leading the riders' MotoAmerica Superbike Championship standings at that time:

then, the initial air restrictor size of the 1200cc 2-cylinder manufacturers will be reduced by one size, to a Ø48 mm (or the equivalent area 1809.6 mm^2) or, as last step, to a minimum of Ø46 mm (or the equivalent area 1661.9 mm^2).

If the air restrictor size is not updated, then the results of three more events will be considered and the best manufacturers for each engine configuration will be updated considering the sum of points of the best two riders from each selected manufacturer over six events, and updated every third event. A new average value of the *'event averages'* will be calculated over six events, until the points gap of the average value of the '*event averages'* from the last minimum weight update is higher than 5.

The MotoAmerica Technical Director will inform all the teams about the possible air restrictor size adjustments, within 24 hours from the end of the last event, where the average value of the 'event averages' was calculated. The new air restrictor size adjustments must be applied from the first following event.

2.4.4 Minimum weight

2.4.4.1 The minimum weight will be:

All machines	168kg (370.5lbs)

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 each 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.

2.4.5 Numbers and number plates

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

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

a. Once on the front, either in the centre of the fairing or slightly off to one side; the number must be centred on the white background with no advertising within 25mm in all directions.
b. Once on both sides of the lower rear portion of the lower fairing. The number must be centred on the white 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 MotoAmerica Technical Director will be final.

2.4.6 Fuel

Please refer to Article: 2.8

2.4.7 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. 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.
d. For both Superbike races only, wet and intermediate 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.
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 use of motorcycles without the official stickers will be immediately reported to the Race Direction whom will take appropriate action.
g. Any modification or treatment (cutting, grooving) is forbidden.
h. 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.
i. 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.
j. 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.

2.4.8 Engine

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

a. The homologated engine design model cannot be changed.
b. Homologated materials and castings for the crankcase, cylinder, cylinder head and gear-box housing must be used.
c. The method of cam drive must remain as homologated.
d. The method of valve retention must remain as the homologated model. No

pneumatic valve retention devices are allowed unless fitted to the homologated model.

e. The sequence in which the cylinders are ignited (i.e. 1-2-4-3), must remain as originally designed on the homologated model. Simultaneous (*) firing of 2 cylinders is also forbidden if not adopted on the homologated motorcycle.(up to 5 degrees firing difference in 2 cylinders is regarded as 'simultaneous' firing)

2.4.8.1 Fuel injection system ***until 2016 inclusive***

'Fuel injection system' refers to throttle bodies, fuel injectors, fuel pump and fuel pressure regulator and variable length intake tract devices.

a. The original homologated throttle body must be used.
b. Electronically controlled throttle valves, known as 'ride-by-wire', may be added or changed.
c. Modifications are allowed to the throttle body exterior to add or change the "ride-by-wire". Sensors, bell cranks, pulleys, shaft mounts or clamps may be added changed or removed. However the safety systems and procedures must always be present and fully functional and must include spring closing and/or ignition cut.
d. The ride-by-wire kit (to modify the standard throttle bodies) must be approved and at least 50 units must be available (if ordered). Only the machine manufacturer or one approved partner can submit a system for approval. The throttle grip position sensor must be included in this kit. The maximum price for the kit is €2500 (excluding taxes). The maximum lead time is 8 weeks. The approved supplier may optionally charge up to €500 to fit the system to the throttle bodies.
e. Fuel Injectors must be stock, in the homologated position and unaltered from the original specification and manufacture.
f. If the homologated air box is used to mount top type fuel injectors then the air box and the attached systems must remain as homologated.
g. Variable intake tract devices cannot be added if they are not present on the homologated motorcycle.
h. If the homologated air box is used to mount variable intake tract devices, then the air box and the attached systems must remain as homologated.
i. Variable intake tract devices must function with the same mechanical system as the homologated system.
j. The throttle body intake insulators may be modified.
k. **Air funnels** (including their fixing points) may be altered or replaced.
l. Vacuum slides may be fixed in the open position.
m. Secondary throttle valves and shafts may be removed or fixed in the open position and the electronics may be disconnected or removed.
n. Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.

*2.4.8.1 Fuel injection systems **from 2017 inclusive*

'Fuel injection systems' refers 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** may be altered or replaced.*
d. *Primary throttle valves cannot be changed or modified.*
e. *Secondary throttle valves and shafts may be removed or fixed in the open position and the electronics may be disconnected or removed.*
f. *Variable intake tract devices cannot be added if they are not present on the homologated motorcycle and they must remain identical and operate in the same way as the homologated system. All the parts of the variable intake tract device must remain exactly as homologated (excepting the **air funnels**)*
g. *Air and air/fuel mixture must go to the combustion chamber exclusively through the throttle body valves.*
h. *Electronically controlled throttle valves, known as 'ride-by-wire', may be only used if the homologated model is equipped with the same system.*

2.4.8.2 Cylinder Head

The homologated cylinder head may be modified as follows:

a. The cylinder head must begin as a finished production part using homologated materials and castings. Material may only be added by epoxy or removed by machining. No machining or modification is allowed in the cam box / valve mechanism area.
b. The induction and exhaust system including the number of valves and or ports (intake and exhaust) must be as homologated.
c. 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. Epoxy may be used to shape the ports.
d. The compression ratio is free.
e. The combustion chamber may be modified.
f. Valves must remain as homologated.
g. Valve seats can be modified or replaced for repair. The material must remain as homologated.
h. Valve guides must remain as homologated. Modifications in the port area are allowed by machining.
i. Valve springs may be altered or replaced, their material must remain as homologated. An additional spring may be added or the spring may be removed.
j. Valve spring retainers, collets, spring seats may be altered or replaced.

k. Valves must remain in the homologated location and at the same angle as the homologated valves.
l. Rocker arms (if any) must remain as homologated.
m. The exhaust air bleed system must be blocked and the external fittings on the cam cover(s) may be replaced by plates.
n. The shim buckets / tappets may be replaced but must be the same height, diameter, material type, surface finish and shim to top surface dimension as the homologated part. The weight must be equal to or greater than the homologated part.
o. The homologated cylinder head / cam cover may be replaced by a cosmetic replica of higher specific weight material (i.e. replace magnesium part with aluminum)

2.4.8.3 Camshaft

a. Camshafts may be altered or replaced from those fitted to the homologated motorcycle (see also Art. 2.4.8).
b. Offsetting the camshaft is not allowed. The camshaft must remain in the homologated location.

2.4.8.4 Cam sprockets or cam gears

a. Camshaft sprockets, pulleys or gears may be altered or replaced to allow degreeing of the camshafts (see also Art. 2.4.8).
b. The cam chain or cam belt tensioning device(s) can be modified or changed.
c. The cam chain may be altered or replaced but must remain the same type.

2.4.8.5 Cylinders

No modifications are allowed. The cylinder base gasket(s) may be changed.

2.4.8.6 Pistons

Must remain as homologated **(no polishing, lightening or extra coatings).**

2.4.8.7 Piston rings

Must remain as homologated.

2.4.8.8 Piston pins and clips

Must remain as homologated.

2.4.8.9 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 must be the same type as the homologated item. (i.e. steel, titanium, alloy) or steel.
c. If the original connecting rod is fitted with a little end insert then the replacement connecting rods may also have an insert of the same material as fitted in the original homologated connecting rod.
d. The center to center (little end to big end) length of the rod must be the same as the original homologated item.
e. Connecting rod bolts are free.

2.4.8.10 Crankshaft

Only the following modifications are allowed to the homologated crankshaft:

a. Bearing surfaces may be polished or a surface treatment may be applied.
b. 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.
c. 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.
d. The balancing must be performed by the original method i.e. drilling or machining and in the same position (i.e. edge of flywheels).
e. Polishing of the crankshaft is not allowed.
f. Balance shaft may be altered, removed or modified.

2.4.8.11 Crankcase / Gearbox housing

a. Crankcases must remain as homologated. If the crankcases have an integral cylinder then the top face of the cylinder may be ground to adjust deck height. Oil Spray nozzles may be modified. No other modifications are allowed (including painting, polishing and lightening).
b. It is not allowed to add a pump used to create a vacuum in the crankcase. If a vacuum pump is installed on the homologated motorcycle then it may be used only as homologated.
c. Oil-pan (sump) may be altered or replaced and oil pick up may be altered or replaced.
d. One thread may be altered for direct oil pressure/temperature sensor fitting in the crankcases or engine covers.

2.4.8.11.1 Lateral covers and protection

a. Lateral (side) covers may be altered, modified or replaced (excluding pump covers). 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. 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 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.
d. 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.
e. Plates or crash bars 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.
f. FIM approved covers will be permitted without regard of the material or dimensions.
g. These covers must be fixed properly and securely with 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 MotoAmerica Technical Director has the right to refuse any cover not satisfying this safety purpose.

2.4.8.12 Transmission / Gearbox

a. Stock transmission shafts and gear set only. Shimming is allowed
b. Undercutting and surface treatments are permitted.
c. OEM Shift drum detent stars may be modified or replaced
d. No other modifications are allowed
e. Countershaft sprocket, rear wheel sprocket, chain pitch and size can be changed. Chain master links must be rivet type.
f. Final drive system, if not by chain, may be modified to chain type using kits specified on the eligible equipment list

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(The following is under consideration for 2017)
Note: there will be no homologated price limited WSBK gearbox available.

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

b. The chosen ratios must be declared before the start of the first event.
c. External Quick-Shift systems are permitted (including wire and potentiometer).
d. Only the homologated primary gear ratio may be used (see art. 2.4.8.13)
e. The layout of the transmission shafts must be the same as on the homologated motorcycle.
f. The gear design and material is free.
g. The selector drum and gear index mechanism may be modified and/or surface treated (but not replaced). Any springs may be replaced.
h. The selector forks may be changed. However the forks must engage with the same gears and function in the same way as on the homologated motorcycle.
i. Countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.
j. The sprocket cover may be modified or eliminated.
k. It will not be allowed to change the gearboxes at the track - a broken Gearbox will equal a broken engine.

2.4.8.13 Clutch

a. Aftermarket or modified clutches are permitted.
b. Back torque limiter is permitted.
c. Any power source (i.e. hydraulic or electric) cannot be used for clutch operation, if not installed in the homologated model for road use. Human power is excluded from the ban.
d. Clutch system (wet or dry), type (multi-plate) and method of operation (cable/hydraulic) must remain as homologated.
e. Clutch basket and primary gear must remain as homologated.

2.4.8.14 Oil pumps and oil lines

a. Homologated oil pumps may be modified, only the original pump parts may be modified, and or shims/spacers added. Modifications include:
    i. Blueprinting
    ii. Changing the oil pressure relief spring.
    iii. Reducing gear and/or housing thickness.
b. The external appearance must remain as homologated.
c. Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or treaded connectors.

2.4.8.15 Radiator / Oil cooler

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

b. The original radiator or oil cooler may be altered or replaced from those fitted to the homologated motorcycle.
c. Additional radiators or oil coolers may be added.
d. The original oil/water heat exchanger may be modified, replaced or removed.
e. The cooling system hoses and catch tanks may be changed.
f. Radiator fan and wiring may be changed, modified or removed.
g. The oil cooler must not be mounted on or above the rear mudguard.
h. The appearance from the front, rear and profile of the motorcycle must in principle conform to the homologated shape after the addition of additional radiators or oil coolers.

2.4.8.16 Air box

a. The air box must remain as originally produced by the manufacturer on the homologated motorcycle.
b. If the homologated air box is used to mount top type fuel injectors, then the air box and the attached systems must remain as homologated.
c. If the homologated air box is used to mount variable intake tract devices, then the air box and the attached systems must remain as homologated and function in the same way.
d. Variable intake tract devices must function in the same way as on the homologated system.
e. Air filters, internal flap type valve, sensors and vacuum fittings may be removed, modified or replaced with aftermarket parts.
f. Any holes in the air box to the outside atmosphere resulting from the removal of components must be completely sealed from incoming air.
g. The air box drains must be sealed.
h. External airbox body features may be modified for clearance and to mount other parts if it results in no changes to the internal structure of the airbox. Permission must be given by the MotoAmerica Technical Director in each case.
i. 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.
j. All motorcycles must have a closed breather system. All oil breather lines must be connected and discharge in the air box.
k. If the top of the airbox is formed by the bottom of the tank then that part of the tank will be considered as the airbox and must conform to its homologated shape excepting 2mm variance in corner radii and must be the same volume. A dry break / quick release connector may be fitted. See art 2.4.8.17
l. Additional heat shielding is allowed (i.e. gold or silver heat tape).

2.4.8.17 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 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. The pressure tolerance at the technical control is +0.5 bar in respect to the maximum pressure of the homologated motorcycle.
e. All motorcycles must have a special device on the fuel line in accordance with FIM specifications for fuel pressure checks, or teams must provide a temporary adaptor to allow checks.
f. Fuel petcock may be altered, replaced or removed from those fitted to the homologated motorcycle.
g. Quick connectors or dry break connectors may be used.
h. Fuel vent lines may be replaced.
i. Fuel filters may be added.

2.4.8.18 Exhaust system

a. Exhaust pipes, catalytic converters and silencers may be altered or replaced from those fitted to the homologated motorcycle. Catalytic converters may 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) 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 Superbikes will be **115 dB/A** (with a 3 dB/A tolerance after the race only) except for where local rules prevail.

2.4.9 Ignition and Electronic Control System

a. The engine control system (including ECU) must be either:
    i. A DWO/FIM approved 'Superbike Kit System' See art 2.4.9.1
    ii. A DWO/FIM approved 'Superstock 1000' kit model plus DWO/FIM approved data logger. See art 2.4.9.2
    iii. A 2014 ''American Superbike Kit''. **See art 2.4.9.3**
b. No other external ignition/injection controllers, traction control modules or other active expansion modules or calculation units may be fitted.
c. Central unit (ECU) may be relocated.
d. Telemetry (remote signals to or from the bike) is not allowed.
e. 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.
f. Spark plugs, spark plug caps and HT leads (if applicable) are free.
g. Battery is free.

2.4.9.1 The DWO/FIM approved 'Superbike Kit System' must meet the following:

a. The system must be a complete package including all electrical / electronic parts not supplied on the homologated motorcycle required for full operation of all strategies – excepting the wiring harness.
b. Only the machine manufacturer or one approved partner can submit a single system for approval.
c. The total price of the complete system including ECU, dashboard/display, all additional sensors essential for full operation of all strategies, IMU, software, enable codes, datalogging, analysis software, ECU 'tuning' or 'setting' software, datalogger, download/connection cable, example harness design, manual for use, (not a complete list), is €8000 Euro (excluding taxes). Data Logging only sensors are excluded from the price cap.
d. There must be at least 50 Superbike Kit Systems **(currently approved system)** available worldwide **per season,** if ordered, through authorized distributors or dealers. **The Superbike Kit System** must be marked and considered as for race use only.
e. Lead time less than 8 weeks.
f. The ECU must be from the FIM/DWO Approved Superbike ECU List.
g. The following sensors may be used:
    1. Throttle position (multiple)
    2. Map sensor, Map Sync (pressure sensor on the intake port used to synchronize the engine during the start)
    3. Airbox Pressure
    4. Engine pick-ups (Cam, crank) (Crank trigger may be replaced)
    5. Lambda
    6. Twist grip position
    7. Front speed
    8. Rear Speed
    9. Gearbox output shaft speed
    10. Gear position
    11. Gear shift load cell
    12. Front brake pressure
    13. Rear brake pressure
    14. Oil pressure
    15. Air pressure
    16. Water temperature
    17. Air temperature
    18. IMU (various signals)
    19. Transponder / Lap time signal
    20. Knock Sensor
    21. Fuel pressure
    22. Oil temperature
    23. Fork position
    24. Shock position
    25. Tilt / Tip-Over Switch
    26. GPS Unit
    27. Rear tire temperature (External) (Multiple)
    28. Rear TPMS Monitor (Temperature and Pressure)

h. **2** further additional sensor channels (that are not included in the above list) may be added to the machine.
i. Redundant/doubled sensors are allowed but must be included in the Superbike Kit System if they are required for safe operation.
j. Analogue/Logic to CAN sensors are allowed.
k. The sensors originally fitted to the homologated machine and used as homologated, will not be included in the price limit.
l. When the following sensors are damaged through crashes they may be replaced by parts of the same function but do not have to be the same specific part from the Superbike Kit System:
    i. Fork and Shock Potentiometers
    ii. Brake pressure sensors
    iii. Gear shift sensor (but must remain the same type included with the kit – i.e. Load cell, switch etc.)
m. Before the final pre-season test, before the mid-season test(s) or at the season midpoint and within three hours of the last race of the season any firmware / software updates being used by the factory teams must be made available to all same manufacturer customer SBK teams (more frequent updates are allowed).
n. The manufacturer must provide current strategies but may remove the ability to change or see these settings, base mapping must be provided.
o. Only firmware and software from the FIM/DWO approved software and firmware list may be used.
p. Factory Teams may use any development firmware and software which will be made available to teams according to the update schedule.
q. Transponder is NOT included in the ‘’Superbike Kit System’’
r. The selection of logged channels is free.
s. Coils and coil drivers are free and must be included in the Superbike Kit System if altered.
t. No other external ignition/injection controllers, traction control modules or other active expansion modules or calculation units may be fitted unless included in the Superbike System.
u. The factory team must use the current seasons ‘’Superbike Kit System’’. No backdated parts may be used.
v. Superbike kit systems remain approved for 3 seasons (first season inclusive).

Manufacturer nominated Superbike Kit System suppliers please also see ‘’Superbike Kit System Approval Requirements’’ documentation.

2.4.9.2 DWO/FIM approved ‘Superstock 1000’ kit model.

a. The ECU must be from the approved Superstock Kit.
b. The Kit includes all parts necessary to operate including ECU activations.
c. The ECU software may be changed.
d. Sensors and coils must remain as homologated, only wheel speed

sensors may be added for strategy functions.

e. No inertial platforms are allowed if an inertial platform is not installed on the original homologated motorcycle. If an inertial platform is fitted to the homologated motorcycle then the original sensor must be used. If the approved data logger is fitted with internal inertial sensors the inertial data cannot be logged or transmitted.
f. *The characteristics of approved data logging units must be the following:*
    i. *Maximum retail price of the unit (hardware + software, excluding sensors and wiring harness) cannot exceed €3000 (VAT excluded).*
    ii. *Maximum retail price of the complete system, including logger, sensors and harness, is €5000.*
    iii. *The unit must be available for sale to the public and listed in the FIM/DWO list of approved data loggers.*
    iv. *A maximum of 8 simultaneous working sensors (connected to the additional data logger) may be added to the original sensors on the motorcycle.*
    v. *The sensors must be simple-function. The type of sensor is free.*
    vi. *Data Logging wiring harness design is free.*
    vii. *CAN communication between the ECU and approved data logger is allowed without any limitation in CAN channel logger number.*
    viii. *Sensors changed but of the same function i.e. Lambda will be considered in the 8 sensors.*
    ix. *The addition of a IR receiver and/or GPS unit and/or transponder lap timing signal for lap timing/scoring/logging purposes is allowed and will be considered one of the 8 sensors.*

2.4.9.3 American Superbike Kit System

a. **Systems will only be accepted if used by teams who participated in the 2015 MotoAmerica superbike class and are using the same homologation year motorcycle. Teams may apply to extend the use of the 2015 American Superbike Kit for up to one season.**
    Teams must contact technicaldirector@motoamerica.com to obtain the exemption.
b. Engine control system may be modified or replaced with aftermarket products that appear on the 2014 Eligible Equipment List.
c. Complete specification follows 2014 documentation.
d. A copy of the 2014 American Superbike Electronic Component Declaration / Cost Document must be submitted to the MotoAmerica Technical Director at least one month prior to on track activity at the first round of the season for approval.
e. Data systems must be approved and appear on the Eligible Equipment list if separate from ECU/ dash.

2.4.9.4 Generator, alternator, electric starter

a. The stator/coils must remain as homologated.
b. The flywheel may be modified or replaced.

c. The electric starter must operate normally and always attempt to start the engine during the event. The starter must crank the engine at a suitable speed for starting for a minimum of 2 seconds.
d. The starter motor gear system must remain as homologated.
e. Motorcycles should self start on the starting grid in neutral. Push-starting on the starting grid is not allowed, however start line Officials may push start the motorcycle if necessary (in gear).
f. The use of a 'booster' battery is permitted.

2.4.9.5 Wiring harness

a. The Wiring Harness is free.
b. Each team must provide a download connection lead to the MotoAmerica Technical Director.

2.4.10 Main frame

a. In MotoAmerica Superbike, riders may practice on two (2) motorcycles providing that all such motorcycles have been approved by Tech Inspection in the rider's name.
b. One (1) Spare complete motorcycle is allowed per rider.

Under consideration for 2017:

a. During the entire duration of the event, each rider may 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 must request the use of a spare frame to the MotoAmerica Technical Director.
b. One (1) Spare complete motorcycle is allowed per rider.
c. A team may opt to have one (1) spare machine shared by two or more riders.

Explanation of 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 front of pit box during the practices, qualifying, Superpole and races.***
- ***The frame of this motorcycle will be officially sealed by the MotoAmerica 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 MotoAmerica 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 (VIN) punched on it, on the steering-head.

- ***If the motorcycle is damaged in a crash or in any other incident and is declared unrepairable (safely and in the available time) by the MotoAmerica Technical Director or his appointed staff then 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 MotoAmerica Technical Director. The spare machine may then be presented for scrutineering before the next session.***
- ***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 front of the pit box as soon as possible and put in storage at the back of the pit box out of view of pit lane.***
- ***Once a rider exits the pit lane for any session including the race the spare machine can no longer be used.***
- ***Any actions contrary to these procedures will result in a penalty as described in the Technical Regulations.***
- ***The damaged frame may be impounded by the MotoAmerica Technical Director for later examination.***

2.4.10.1 Frame body and sub-frames

a. The main frame must remain as originally produced by the manufacturer for use on the homologated machine.
b. The main frame may only be altered by the addition of gussets or tubes. No gussets or tubes may be removed.
c. Holes may be drilled on the frame only to fix approved components (i.e. fairing brackets, steering damper mount).
d. The homologated dimensions and position of bearing seats in the steering head column, and the engine, swing arm, rear shock, and suspension linkage mounting points must remain as original.
e. Steering angle changes are permitted by fitting offsetting inserts onto the bearing seats of the original steering head, but no part of the insert must protrude axially more than 3 mm from the original steering head.
f. If the homologated machine has exchangeable bearing inserts/bushes: The bushings/inserts are free to make a +/- 6mm adjustment fore and aft in the plane of the original bearing seat. The homologated position is considered as the position in which the production motorcycle is supplied.
g. **The swing arm pivot axis may be moved a maximum of 5 mm radially (excluding tolerances) measured from the homologated axis. If the**

homologated machine does not allow pivot adjustment then the swingarm pivot position may be adjusted by the use of offset inserts, the frame cannot be modified to accommodate the inserts.

h. All motorcycles must display a unique vehicle identification number on the main frame body (chassis number).
i. No polishing or surface refinishing is allowed but the paint scheme is not restricted.
j. Front and rear sub frame may be changed altered or removed.

2.4.10.2 Suspension - General

a. Participants in the Superbike class must only use parts appearing in the MotoAmerica eligible equipment list.
b. No aftermarket or prototype electronically-controlled suspensions maybe used. Electronically-controlled suspension may only be used if already present on the production model of the homologated motorcycle.
    i. The electronically-controlled valves must remain as homologated. The shims, spacers and fork/shock springs not connected with these valves can be changed.
    ii. 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.
    iii. 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.
    iv. The original suspension system must work safely in the event of an electronic failure.
    v. Electro-magnetic fluid systems which change the viscosity of the suspension fluid(s) during operation are not permitted.
c. 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).

2.4.10.3 Front Suspension

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.

2.4.10.3 Front Suspension (Under consideration for 2017) – using WSBK price capped components

*a. **The front fork in whole or part may be changed but must be the same type homologated (leading link, telescopic, etc.).***
*b. **The upper and lower fork clamps (triple clamp, fork bridges) and stem may be changed or modified.***
*c. **A steering damper may be added or replaced with an 'after-market' damper.***
*d. **The steering damper cannot act as a steering lock limiting device.***

2.4.10.4 Rear fork (Swing-arm)

a. Swingarm must remain as originally produced by the manufacturer for the homologated motorcycle with the following changes:
    i. Rear wheel stand mounts may be added to the swingarm by welding or by bolts. Brackets must have rounded edges (with a large radius). Mounting bolts must be recessed.
    ii. Gussets and bracing may be added. A provision for shock absorber and spring clearances is allowed**.**
    iii. Link and link arm pick up points must remain as homologated.
    iv. Axle components associated with locating the rear axle position (not permanently attached to the swingarm) may be modified or replaced.
    v. The range of axle adjustment may be modified by machining existing components or replacing only the area the axle assemblies' travel. i.e. welding in billet blocks to provide optional wheelbase range. Any modifications to the swing arm assembly must be pre-approved by MotoAmerica.
b. A chain guard must be fitted in such a way as to reduce the possibility that any part of the riders' body must become trapped between the lower chain run and the rear wheel sprocket.

2.4.10.4 Rear fork (Swing-arm) (Under consideration for 2017) – using WSBK price capped components

a. The rear fork may be altered or replaced from those fitted to the homologated motorcycle.
b. However the type single or double sided must remain as homologated.

c. ***The use of carbon fiber or Kevlar® materials is not allowed if not homologated on the original motorcycle.***
d. ***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.***
e. ***Rear wheel stand brackets may be added to the rear fork by welding or by bolts.***
f. ***Brackets must have rounded edges (with a large radius). Fastening screws must be recessed.***

2.4.10.5 Rear suspension unit

a. Rear suspension unit may be changed but a similar system must be used (i.e. dual or mono).
b. The rear suspension linkage may be modified or replaced.
c. The original fixing points on the frame (if any) must be used to mount the shock absorber, linkage and rod assembly fulcrum (pivot points).
d. **Removable top shock mounts may be replaced. If replaced they must retain their homologated geometry.**

2.4.10.6 Wheels

a. Wheels may be replaced (see Art. 2.3.4) and associated parts may be altered or replaced from those fitted to the homologated motorcycle.
b. Aftermarket wheels must be made from aluminum (aluminum) alloys.
c. The use of the following alloy materials for the wheels is not allowed: Beryllium (>=5%), Scandium (>=2%), Lithium (>=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 tire: front 0.301 m, rear 0.331 m.
e. Wheel manufacturers must provide copy of the certificate for their wheel(s) as proof of compliance to the MotoAmerica Technical Director when requested.
f. From 2016: The homologated road bike wheel and sprocket carrier assembly may be used with no modification, irrespective of material. They must meet article 2.4.10.6.(d)(e). Bearings and spacers may be changed.
g. On motorcycles equipped with a double sided swing arm (rear fork), the rear sprocket and brake rotor must remain on the rear wheel when the wheel is removed.
h. Bearings, seals, and axles may be altered or replaced from those fitted to the homologated motorcycle. The use of titanium and light alloys is forbidden for wheel spindles (axles).
i. Wheel balance weights may be discarded, changed or added to.
j. Any inflation valves may be used.

Wheel rim diameter size (front and rear)	17 inches

Front wheel rim width:	3.50 inches
Rear wheel rim width:	6.00 inches

2.4.10.7 Brakes

a. Front brake master cylinder may be altered or replaced from those fitted to the homologated motorcycle.
b. Front brake calipers may be altered or replaced from those fitted to the homologated motorcycle.
c. Rear brake master cylinder may be altered or replaced from those fitted to the homologated motorcycle.
d. Rear brake 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. The split of the front brake lines for both front brake calipers must be made above the lower fork bridge (lower triple clamp).
g. 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 brake calipers (i.e. aluminum-beryllium, etc.) is not allowed.
h. The Anti-Lock Brake System (ABS) may be used only if installed in the homologated model for road use. However, it must be completely standard (any mechanical or electronic part must remain as homologated, brake discs and master cylinder levers excluded), and only the software of the ABS may be modified.
i. The Anti-Lock Brake System (ABS) can be disconnected and its ECU can be dismantled. The ABS rotor wheel can be deleted, modified or replaced.
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. Composite guards are not permitted. FIM approved guards will be permitted without regard to the material.
k. The MotoAmerica Technical Director has the right to refuse any guard not satisfying this safety purpose.

2.4.10.8 Handlebars and hand controls

a. Handlebars, hand controls (Subject to Art 2.4.8.1) and cables may be altered or replaced from those fitted to the homologated motorcycle.
b. **Cable operated throttles (grip assembly) must be equipped with both an opening and a closing cable including when actuating a remote ride by wire grip/demand sensor.**
c. 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**.**

2.4.10.9 Foot rest and foot controls

a. Foot rest/foot controls may be relocated, but the original mounting points must be used.
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 8mm solid spherical radius.
d. Non folding footrests must have an end (plug) which is permanently fixed, made of aluminum, plastic, Teflon® or equivalent type of material (min. radius of 8mm). The plug surface must be designed to reach the widest possible area of the footrest. The MotoAmerica Technical Director has the right to refuse any plug not satisfying this safety purpose.

2.4.10.10 Fuel Tank

a. The fuel tank must maintain the homologated appearance and location; however its actual shape can be slightly changed to suit the rider's preference. The tank may be modified below the upper frame line and under the seat. The material of construction of the fuel tank may be altered from the one of the tank fitted to the homologated motorcycle.
b. All fuel tanks must be filled with fire retardant material (i.e. fuel tank foam), or be fitted with a fuel cell bladder.
c. Fuel tanks made of composite materials (carbon fiber, aramid fiber, glass fiber, 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.
e. Such labels must include the fuel tank manufacturer's name, date of tank manufacture, and name of testing laboratory.
f. Each manufacturer is requested to inform the FIM/CCR Secretariat of its fuel tank model(s) which have passed the FIM test standards, together with a copy of the fuel tank label. Full details of the FIM Fuel Tank Test Standards and Procedures are available from the FIM (See 'Fuel Tank Test Standards' below).
g. Fuel cell bladders must conform to or exceed the specification FIM/FCB-2005. Full details of this standard are available from the FIM.
h. The fuel tank must be fixed to the frame from the front and the rear with a crash-proof assembly system. Bayonet style couplings cannot be used, nor may the tank be fixed to any parts of the streamlining (fairing) or any plastic part. The MotoAmerica Technical Director has the right to refuse a motorcycle if he is of the opinion that the fuel tank fixation is not safe.

i. The original tank may be modified to achieve the maximum capacity of 24 liters, provided the original profile is as homologated.
j. A cross over line between each side of the tank is allowed (maximum inside diameter 10 mm).
k. Fuel tanks with tank breather pipes must be fitted with non-return valves which discharge into a catch tank with a minimum volume of 250 cc made of a suitable material.
l. Fuel tank filler caps may be altered or replaced from those fitted to the homologated motorcycle, and when closed, must be leak proof. Additionally, they must be secured to prevent accidental opening at any time.
m. The same size fuel tank used in practice must be used during the entire event.

Fuel tank homologation

a. Any fuel tanks, made of non-ferrous materials (with the exception of aluminum) must be tested according to the test procedure prescribed by the FIM.
b. Each manufacturer is responsible for testing its own fuel tank model(s) and will certify that the fuel tank exceeds the FIM test standard, if it has passed the FIM test procedure for fuel tanks.
c. Each manufacturer must affix a quality and test label on each fuel tank type that is produced for competition use. This quality and test label will be the recognition of a fuel tank model which has passed the FIM test procedure.
d. All fuel tanks that are made to the same design, dimensions, number of fiber layers, grade of fiber, percentage of resin, etc., must be identified with the same quality and test label.
e. The quality and test label will include the following information on each label affixed to each fuel tank: name of the fuel tank manufacturer, date of fabrication, code or part number, name of testing laboratory, fuel capacity.
f. Each manufacturer is requested to inform the FIM/CCR Secretariat of its fuel tank model(s) which have passed the FIM test procedure, with a copy of the quality and test label, according to point 5.
g. Only fuel tanks that have passed the FIM test procedure will be accepted.

2.4.10.11 Fairing / Bodywork

a. The fairing, mudguards and body work must conform in principle to the homologated shape as originally produced by the manufacturer.
b. **The fairing has a tolerance of +/-15mm from the original homologated road fairing, respecting the design and features of the homologated fairing, with the exception of the oil containing portion of the lower fairing, seat area and the area supporting the screen. The overall width of the frontal area may be +30mm maximum. The decision of the Technical Director will be final.**

c. The windscreen may be replaced.
d. The original air ducts running between the fairing to the airbox 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 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 permit the use of an elevator (stand) for wheel changes and to add plastic protective cones to the frame or the engine.
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 10mm 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 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 front mudguard must conform in principle to the homologated shape originally produced by the manufacturer.
k. Holes may be drilled in the front mudguard to allow additional cooling. Holes bigger than 10mm must be covered with metal gauze or fine mesh. Mesh must be painted to match the surrounding material.
l. A rear mudguard may be added or removed.
m. Material of construction of the front mudguard, rear mudguard and fairing may be altered or replaced from those fitted to the homologated motorcycle.

2.4.10.12 Seat

a. Seat may be altered or replaced from those fitted to the homologated motorcycle.
b. The top portion of the rear body work around the seat may be modified to a solo seat.
c. The appearance from front, rear and profile must conform in principle to the homologated shape.
d. Holes may be drilled in the seat or rear cowl to allow additional cooling. Holes which are bigger than 10mm must be covered with metal gauze or fine mesh. Mesh must be painted to match the surrounding material.
e. Material of construction of the seat may be altered or replaced from those fitted to the homologated motorcycle.

2.4.10.13 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 MotoAmerica Technical Director. In case of dispute over the mounting position or visibility, the decision of the MotoAmerica 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.

2.4.11 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 material.
c. Bearings (ball, roller, taper, plain, etc.) of any type or brand may be used.
d. Fasteners (nuts, bolts, screws, etc.), internal engine bolts must remain of standard homologated materials or materials of higher specific weight.
e. Thread repair may be made using inserts of different material such as helicoils and timeserts.
f. External surface finishes and decals.

2.4.12 The following items MAY BE removed

a. Instrument and instrument bracket and associated cables.
b. Tachometer.
c. Speedometer and associated wheel spacers.
d. Chain guard.

2.4.13 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. Tool box.
f. Helmet hooks and luggage carrier hooks
g. Passenger foot rests.
h. Passenger grab rails.
i. Safety bars, center and side stand brackets welded to the main frame may be removed.

2.4.14 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. Throttle controls must be self-closing when not held by the hand.
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.