

## 2.6 SUPERBIKE CUP TECHNICAL SPECIFICATIONS

The following rules are intended to give freedom to modify or replace some parts for safety, research and development, and improve 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.**

Superbike Cup motorcycles require a Superstock 1000 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 homologation, it may be used for racing in the corresponding class for a maximum period of eight (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 Superbike Cup motorcycles must (except when otherwise stated) conform to the homologated shape (as originally produced by the manufacturer). The appearance of the exhaust system is excluded from this rule.

### 2.6.1 **Motorcycle specifications**

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

~~2019-2022 Ducati V4R is accepted as homologated for MotoAmerica competition. Effective 6-26-2020 the Ducati V4R will be balanced per Article 2.6.3 adjusting the minimum weight to 180 kg.~~

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

The following engine configurations comprise the **Superbike Cup** class:

Over 750cc up to 1100cc	4-stroke	3 and 4 cylinders
Over 850cc up to 1200cc	4-stroke	2 cylinders

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

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

To equalize the performance of motorcycles used in the **Superbike Cup** Championship, a system of performance enhancements or restrictions can be developed (such as minimum weight, air restrictor or REV limit may be applied according to their respective racing performances). The decision to apply a balancing system to a motorcycle will be taken by the MotoAmerica Permanent Bureau based on decisions made by the Superbike Commission at any time deemed necessary to ensure fair competition.

#### 2.6.4 Minimum weight

All machines (unless balanced) 170 kg (374 lbs.)

Aprilia RSV4 1100 balanced at 176kg (388 lbs.)

**Ducati V4R balanced at ~~180kg (396.83 lbs.)~~ 176kg (388 lbs.)**

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

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

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

During the practice and qualifying sessions, riders may be asked to submit their motorcycle to 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.

#### 2.6.5 Numbers and number plates

The background colors and figures (numbers) for **Superbike Cup** are red (pantone 186c) background with white numbers:

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

- Once on the front, either in the center of the fairing or slightly off to one side. The number must be centered on the red background with no advertising within 25 mm in all directions.
- Once, on each side of the motorcycle. The preferred location for the numbers on each side of the motorcycle is on the lower rear portion of the main fairing near the bottom. The number must be centered on the red background. Any change to this position must be pre-approved a minimum of two (2) weeks before the first race by the Technical Director.
- The numbers must use the fonts as detailed in Section 2.15. 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 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.
- f. The Technical Director's decision will be final in case of a dispute concerning the legibility of numbers.

#### **2.6.6 Fuel**

- a. The designated fuel is VP Racing Fuels MGP-R.
- b. Please refer to Article 2.11 for additional details

#### **2.6.7 Tires**

- a. The maximum number of tires, of any type, available to each rider during the event will be specified in Article 2.3.8.1.
- b. **A maximum of twelve (11) tires per rider can be mounted at any time.**
- c. For both Superbike Cup 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, warm-up sessions and races, front and rear tires are required to be marked with tire stickers.
- e. See article 2.3.8

#### **2.6.8 Engine**

- a. For Superbike Cup: No modifications may be made to the engine (all of 2.5.8 and 2.5.9) unless noted in the text or in the **FIMNA National MotoAmerica Eligible Parts for Competition List, where the list will take precedence over the following.**

**For Superbike Cup: FIMNA National MotoAmerica Eligible Parts for Competition List - [Road Racing Regulations - American Motorcyclist Association](#)**

- b. There is no limit to the number of engines that may be used. If the Technical Director wishes to inspect an engine at the current or future rounds, then the engine may be sealed for future inspection. If the engine is not presented when arranged then all points that were earned by this engine will be removed from the rider, team and manufacturer standings. See Art. 2.3.9 for Sealing and Usage Details.
- c. Engines may be chosen and impounded for Dyno testing (during events, between events or after the season) on track or at an approved balancing facility for comparison to the reference engine (see homologation). One team representative may attend the test.

### 2.6.8.1 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 (including their fixing points) may be altered or replaced if listed in the FIM National MotoAmerica Eligible Parts for Competition List.**
- 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.

### 2.6.8.2 Cylinder Head and Valvetrain

- a. The cylinder head must be the originally fitted and homologated part. The following modifications are allowed:
- b. Original valve seats must be used, but modifications are permitted to the shape in the valve contact area, but not to the internal diameter of the main seal material.
- c. The exhaust air bleed system must be blocked and the external fittings on the cam cover(s) may be replaced by plates.
- d. **The throttle body intake insulators may be modified to match their inner surface to the cylinder head and throttle body.**
- e. Adding any material to the cylinder head is forbidden unless described above.
- f. **If your machine is listed below the following modifications to the cylinder head are allowed:**

**2017+ Yamaha YZF-R1/M**

**2019+ Kawasaki ZX-10R/RR**

**2019+ Suzuki GSX-R1000/R**

- i. **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.**
- ii. **Porting and polishing of the cylinder head, which is 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.**
- iii. **The compression ratio is free**
- iv. **The combustion chamber may be modified.**
- v. **Cylinder head gasket may be modified or replaced. (This line also applies to the 2021+ CBR1000RR-R/SP)**
- vi. **Valve seats can be modified or replaced for repair. The material must remain as homologated**
- vii. **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

#### **2.6.8.3 Camshaft**

- a. Camshafts must be the originally fitted and homologated parts with no modification allowed
- b. **Camshafts may be replaced if your specific machine is listed below: See the FIMNA National MotoAmerica Eligible Parts for Competition List for list of approved camshafts.**

**2017+ Yamaha YZF-R1/M**

**2019+ Kawasaki ZX-10R/RR**

**2019+ Suzuki GSX-R1000/R**

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

- a. **Camshaft sprockets, pulleys or gears may be altered or replaced to allow degreasing of the camshafts**
- b. **The cam chain must remain as homologated**
- c. **The cam chain tensioner must remain as homologated.**

#### **2.6.8.5 Cylinders**

- a. **Cylinders must be the originally fitted and homologated parts with no modification allowed.**
- b. **Cylinder base gaskets may be modified or replaced if your machine is listed below.**

**2017+ Yamaha YZF-R1/M**

**2019+ Kawasaki ZX-10R/RR**

**2019+ Suzuki GSX-R1000/R**

#### **2.6.8.6 Pistons**

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

#### **2.6.8.7 Piston rings**

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

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

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

#### **2.6.8.9 Connecting rods**

- a. The connecting rod assembly must be the originally fitted and homologated parts with no modification allowed.
- c. **Connecting Rods may be replaced if the machine is listed below: See the FIMNA National MotoAmerica Eligible Parts for Competition List for list of**

**approved connecting rods.**

**2017+ Yamaha YZF-R1/M**

#### **2.6.8.10 Crankshaft**

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

#### **2.6.8.11 Crankcase / Gearbox housing**

- a. Crankcases must be the originally fitted and homologated parts with no modification allowed.
- b. One threaded area may be altered or created to allow for oil pressure/temperature measurement. The sensor must be positioned so it cannot sustain impact in the case of a crash. **The sensor cannot be mounted directly into the crankcases but must be on a flexible braided hose to reduce vibration and temperature reaching the sensor. The original oil pressure switch may be used as originally installed.**

##### **2.6.8.11.1 Lateral covers and protection**

- a. Lateral (side) covers may be altered, modified, or replaced. If altered or modified, the cover must have at least the same resistance to impact as the original one. If replaced, the cover must be made in material of 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. Oil containing engine covers cannot be secured with aluminum bolts.
- d. 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.
  - i. The secondary cover must cover a minimum of 1/3 of the original cover. It must not have sharp edges that could damage the track surface.
  - ii. Plates or crash bars from aluminum or steel are permitted in addition to these covers. All these devices must be designed to be resistant against sudden shocks, abrasions and crash damage.
  - iii. Covers from the **FIMNA National MotoAmerica Eligible Parts for Competition List** will be permitted without regard to the material or dimensions.
  - iv. 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.
  - v. Oil containing engine covers cannot be secured with aluminum bolts.
  - vi. The Technical Director has the right to refuse any cover not satisfying this safety purpose.

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

- a. **Must be the originally fitted and homologated parts (including but not**

limited to shafts, selector mechanism, gears and primary gears) with the following exceptions:

- b. Undercutting and re-shimming is allowed.**
- c. The positive neutral selector mechanism may be removed**
- d. Shift star/indexer, spring, roller, and detent may be replaced or modified but must function as originally designed.**
- ~~**e. Polishing, surface treatment, and heat treatment of all gearbox components is allowed.**~~
- f. Countershaft sprocket, rear wheel sprocket, chain pitch, and size may be changed.**
- g. The sprocket cover may be modified or eliminated.**
- h. Chain Guard If not incorporated in the rear fender, the chain guard may be removed.**
- i. To reduce flex, a support may be added to the gearbox shift shaft; this support may be a separate part or integrated into a cover.**

#### **2.6.8.13 Clutch**

- a. Clutch system (wet or dry type) and the method of operation (by cable or hydraulic) must remain as homologated.**
- b. Friction and drive discs may be changed.**
- c. Clutch springs may be changed.**
- d. The clutch basket (outer) must be the originally fitted and homologated part but may be reinforced.**
- e. The original clutch inner assembly may be modified or replaced by an aftermarket clutch, including back-torque limiting capabilities (slipper type).**
- f. 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.**

#### **2.6.8.14 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 braided reinforced construction with swaged or treaded connectors.**

#### **2.6.8.15 Cooling System**

- 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. **Protective meshes may be added in front of the oil and/or water radiator(s).**
- f. **The cooling system hoses and catch tanks may be changed. The reservoir/overflow/expansion bottle must be fitted. It can have a small vent hole.**
- g. Radiator fan and wiring may be changed, modified or removed. **Thermal switches, unused temperature sensors and thermostat may be removed.**
- h. Radiator cap is free.
- i. The oil cooler must not be mounted on or above the rear mudguard/fender.

#### **2.6.8.16 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 replaced.
- 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. **Only the original breather vents may be used.**
- e. No heat protection may be attached to the air box (i.e. foil heat tape)

#### **2.6.8.17 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. Fuel level sensors may be removed or in a fixed position.
- e. Quick connectors or dry break connectors may be used.
- f. Fuel vent lines may be replaced.
- g. Fuel filters may be added.

#### **2.6.8.18 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 Superbike Cup will be 115 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 article 2.14.

#### **2.6.9 Electrics and Electronics (Kit or OEM) 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. No other software will be allowed for usage. The rider is responsible for using the most recent control software version.
- b. The system may have FIM/DWO/MotoAmerica approved external ignition and/or injection module(s) added. This includes quick shift modules that connect directly to the ignition harness.
- c. The total combined retail price (software and tuning tools included) on sale to the general public cannot be higher than €6000 (tax excluded) or €6750 if it is a kit ECU than includes data logging facility.
- d. Central unit (ECU) may be relocated.
- e. Optional equipment sold by the motorcycle manufacturer for the homologated model is considered not homologated with the bike and must follow the requirements for approved electronics/data loggers.
- f. During an event, the Technical Director has the right to ask a team to substitute their ECU or external module with the sample received from the manufacturer. The change 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 to be changed from the original sensors.
- h. Other additional electronic hardware equipment not on the original homologated motorcycle cannot be added, with the exceptions noted below.
- i. The characteristics of approved data logging systems must be the following:
  - i. Maximum retail price of the unit (hardware + software, excluding sensors and wiring harness) cannot exceed €3.000 (VAT excluded) if it is a standalone unit.
  - ii. Maximum retail price of the unit if incorporated into the ECU (hardware + software, excluding sensors and wiring harness) is €3750.
  - iii. The data logger unit must be available for sale to the public and on the list of FIM/DWO/MotoAmerica approved data loggers.
  - iv. A maximum of seven (7) simultaneously working sensors (connected to the additional data logger) may be added to the original sensors on the motorcycle.

The sensors must be from the following list:

- 1. Lambda – only X1 lambda sensor may be used (must be supplied in the kit if used for strategy)

2. Fork position
  3. Shock position
  4. Front brake pressure
  5. Rear brake pressure
  6. Fuel pressure (not temperature)
  7. Oil pressure
  8. Oil temperature
  9. Transponder / lap time signal
  10. GPS unit (lap timing and track position)
- v. The sensors must be simple function.
  - vi. Approved data loggers with internal inertial platforms (IMU or gyros) may be used for data collection but may not be used for control strategy. Also see 2.6.9.1/i./vii.
  - vii. CAN (or other data) communication from the ECU to an approved data logger (logger can receive data only; no data transmission is allowed) is allowed without any limitation in CAN channel logger number.
- j. The following sensors may be added or changed and are not required to be OEM sensors unless noted below:**
1. Gear shift load cell/switch may only provide a signal to the controlled ECU.
  2. Lambda - Bosch LSU4.9 only (**Only one sensor allowed**).
  3. Fork position
  4. Shock position
  5. Front brake pressure
  6. Rear brake pressure
  7. Throttle grip sensor
  8. Handlebar Switches (Left and right)
- k.** The maximum total price of other active/control/calculation units such as lambda driver modules, quick shifter, and analogue to CAN and traction control units is €750. These devices must be approved by FIM/DWO/MotoAmerica.
- l.** Telemetry is not allowed.
- m.** 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.
- n.** Harness:
- i. The main wiring harness may be replaced by the kit wire harness as supplied for the Kit ECU model, produced and/or approved by the manufacturer of the motorcycle and by FIM/DWO/MotoAmerica.
  - ii. The Kit wiring harness may incorporate the data logging harness.
  - iii. A kit harness that incorporates the data logging harness may only

accommodate seven (7) additional sensors.

- iv. A sample of the kit wiring harness may be requested by FIM/MotoAmerica.
- v. The key/ignition lock may be relocated, replaced or removed.
- vi. Cutting of the original main wiring harness is allowed. **No Autosport or mill spec connectors may be added.**
- o. Data logger harness:
  - i. The data logger wire harness cannot include any other sensors except for the seven (7) sensors that are allowed. The only function of the approved data logger wire harness is to connect the seven sensors to the data logger, to transmit the data and supply the power. **No Autosport or mill spec connectors allowed.**
- p. For the **Superbike Cup** 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.
- q. For the ignition and/or injection module, quick shifter or standalone data logger to be approved, samples must be sent by the manufacturer of the device to the MotoAmerica Technical Director with technical data and selling price.
- r. Spark plugs may be replaced.
- s. The original speedometer and tachometer may be altered or replaced.
- t. Battery is free.

#### **2.6.9.1 Superbike Cup Approved Electrics and Electronics**

- a. The ECU must be the Superbike Cup approved ECU as documented in the **FIMNA National MotoAmerica Eligible Parts for Competition List**.
- b. If Superbike Cup approved ECU is used, No other external modules may be fitted except:
  - i. Part of a quick shifter where the module may only provide a signal to the control ECU.
  - ii. Championship-mandated devices (e.g., 2-way RF system).
  - iii. Datalogger.
- ~~iv. Additional lambda driver module.~~
- c. **Two (2) CAN** connections must be made available for Championship devices. One must be located in the rear of the seat unit of the bike. They must be connected to the ECU CAN bus ~~and the TPMS system (if fitted) must be connected to the same bus.~~ 12v power should be available switched by the main switch (not switched by the ignition switch). The devices may be championship-mandated or nominated by the Technical Director.

Connector spec: JST 04R-JWPF-VSLE-S

- i. Ground
- ii. CAN Lo
- iii. CAN Hi

iv. 12v Main Switch

- d. The rain light must be powered **and switched exclusively** by the ECU (as detailed in the harness schematics).
- e. The ECU may be freely located but must be fitted securely, in a damped mounting without vibration.
- f. During an event, the Technical Director has the right to ask a team to substitute their ECU. The change must be made before the Sunday warm-up.
- g. During an event the Technical Director or his appointed deputy has the right to read and save the team's calibration file, it will not be shared except for conformity checks with control electronics system partners but may be used in Dyno tests.
- h. The following sensors must be connected directly to the ECU only and must be the original OEM sensors unless noted below: **No other sensors may be fitted.**
  - 1. Throttle position (multiple allowed)
  - 2. Map sensor, map sync (pressure sensor on the intake port used to synchronize the engine start)
  - 3. Airbox pressure
  - 4. Engine pick-ups (cam, crank)
  - 5. Twist grip position
  - 6. Front speed (add only if not available OEM)
  - 7. Rear speed (add only if not available OEM)
  - 8. Gearbox output shaft speed (if on OEM machine)
  - 9. Gear position
  - 10. Ambient air pressure
  - 11. Water temperature
  - 12. Air temperature
  - 13. Tip-over switch (no lean angle except from ECU) (all ECU's feature crash detection by IMU).
- i. The following sensors may be connected directly to the ECU only and are not required to be OEM sensors unless noted below:
  - 1. Gear shift load cell/switch may only provide a signal to the controlled ECU.
  - 2. Lambda - Bosch LSU4.9 only (**Only one per cylinder allowed**).
  - 3. Fork position
  - 4. Shock position
  - 5. Front brake pressure
  - 6. Rear brake pressure
  - 7. Fuel pressure (not temperature)
  - 8. Oil pressure
  - 9. ~~Oil temperature~~
  - 10. Switches (Left and right)

~~11. Rear TPMS (Temperature and pressure, must be CAN)\*~~

~~12. Front TPMS (Temperature and pressure must be CAN)\*~~

- j. The data logger must be from the **FIMNA National MotoAmerica Eligible Parts for Competition List** (Data Logger list). The characteristics of approved data logging systems must be the following:
  - i. The maximum retail price of the unit (hardware + software, excluding sensors and wiring harness) cannot exceed €3000 Euro (VAT excluded). The “unit” may consist of multiple parts, such as an input module or recording module.
  - ii. The Data Logger unit must be available for sale to the public.
  - iii. The data logger may ONLY be connected to the CAN bus and to those sensors listed in section 2.5.9.2/h.
  - iv. **The logged data must be available to the Technical Director (uploaded to a secure file share or via flash drive). The logger must log any channels/signals requested by the series.**
  - v. **The ECU may log data exclusively for the Championship. It will be used for BOP and diagnostics purposes.**
- k. Only the following may be connected directly to the logging system.
  - i. GPS Unit (Lap timing and track position)
  - ii. ~~Rear tire temperature (Infra-Red)(External)(Maximum 3)~~
  - iii. **Any exceptions noted in the FIMNA National MotoAmerica Eligible Parts for Competition List.**
- o. Telemetry is not allowed.
- p. No remote or wireless connection to the bike for any data exchange or setting is allowed while the engine is running, or the bike is moving.
- q. All shift lights must be white.
- r. If handlebar switches are replaced from those supplied in the kit then they must meet the specification documented on [www.soloengineering.com](http://www.soloengineering.com) Their basic layout, switch function, position and color must follow those supplied in the kit.
- s. Plug caps and coils must be as homologated.
- t. Electric cables, connectors, batteries, and switches are free.
- u. The main wiring harness may be replaced. No Autosport or mill spec connectors allowed.
- v. Spark plugs and wires may be replaced.

#### **2.6.9.2 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 of a boost battery. No boost battery may be connected to the machine after the end of the session.

#### **2.6.10 Main frame and spare motorcycle**

- 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.
- b. In case the frame or motorcycle needs to be replaced, the rider or the team must request the use of a spare frame or motorcycle from the Technical Director. The participants recognize the need for the Technical Director to make decisions requiring judgment and exercising discretion. The Technical Director's decision is final.
- c. One (1) spare complete motorcycle is allowed per rider. The spare motorcycle may only be used once the Technical Director deems your original frame or motorcycle unusable. (For example, you may not go to your spare motorcycle for a complete engine failure unless there are extenuating circumstances, and the Technical Director approves it.)
- d. The spare motorcycle will not be allowed in the pit box before the rider or the team has received authorization from the Technical Director.
- e. The technical stewards must inspect the motorcycle before it is used for safety checks, and a new seal will be placed on the frame.
- f. 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 the pit box during the practices, qualifying, and races.

The Technical Director or his appointed staff will officially seal the frame of this motorcycle. The seal will bear a serial number, which will be recorded. Any attempt 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 (VIN) punched on the steering head.

If the primary or active motorcycle is damaged in a crash/incident or is declared unrepairable for other reasons (safely and within the available time) by the Technical Director or his appointed staff. In that case, the technical staff will destroy the seal on the damaged motorcycle. The chassis of this motorcycle must not be used for the remainder of the event. The technical director will record the new serial number.

The frame or motorcycle can be any spare available that is not necessarily provided by the same team.

The spare motorcycle must be of the same manufacturer and have the same displacement. Changes to manufacturer or displacement may be allowed at the discretion of race direction and may be accompanied by grid position penalties.

Minor adjustments may be made to the spare motorcycle during an event, intending

to allow teams to maintain parity with the primary bike.

If the spare motorcycle is used in competition, the primary machine is removed from the competition. At that time, the damaged machine must be kept out of view.

The spare machine can only be used in the next session in which the incident occurred, rendering the primary bike unusable. The first opportunity to use the spare machine in a race situation is the next session or race. A race will be deemed to have begun when the rider exits the pit lane for the sighting laps. All restarts, including those three laps or less, are considered a continuation of the original race for determining spare machine eligibility.

The team may rebuild the original primary machine; however, only in the case of TOTAL PROVEN WRECKAGE with the spare bike can an application be made to utilize the original machine. The Technical Director's decision regarding this is final.

The Technical Director may impound the damaged frame for a later examination.

#### **2.6.10.1 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. Crash protectors may be fitted to the frame using existing points (max. length: 50 mm) or pressed into the ends of the wheel axles (max. length: 30mm).
- e. Nothing else may be added or removed from the frame body.
- f. All motorcycles must display a **unique** 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.
- g. Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
- h. If the original chassis includes adjustable inserts for the engine mounting position the engine position must stay in the homologated positions.
- i. If the homologated machine has adjustable/exchangeable bearing inserts/bushings for the steering stem position. The steering stem must stay in the homologated position.
- j. If the original chassis includes adjustable inserts for the swinging arm pivot axis, then the swingarm pivot position must stay in the homologated position.
- k. Front subframes / fairing mounts may be changed or altered; the material is free.
- l. Rear sub frames may be changed or altered. The material must be metal. No composites are allowed.
- m. 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.

- n. The paint scheme is not restricted, but polishing the frame body or sub-frame is not allowed.

#### **2.6.10.2 Suspension - General**

- a. Participants in the Superbike Cup class must only use units from the **FIMNA National MotoAmerica Eligible Parts for Competition List**. 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 €2450 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 eligible 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 eligible suspension products. The suspension manufacturers cannot demand a service contract for a customer or participant in order to obtain a suspension product.
  - i. No aftermarket or prototype electronically controlled suspensions may be used. Electronically controlled suspension may only be used if already present on the production model of the homologated motorcycle.
  - ii. The electronically controlled valves must remain as homologated. The shims, spacers and fork/shock springs not connected with these valves can be changed.
  - iii. The ECU for the electronic suspension must remain as homologated and cannot receive any motorcycle track position or sector information; the suspension cannot be adjusted relative to track position.



- iv. The electronic interface between the rider and the suspension must remain as on the homologated motorcycle. It is allowed to remove or disable this rider interface.
- v. The original suspension system must work safely in the event of an electronic failure.
- vi. Electro-magnetic fluid systems which change the viscosity of the suspension fluid(s) during operation are not permitted.
- f. 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).

#### **2.6.10.3 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, as listed in the FIMNA National MotoAmerica Eligible Parts for Competition List.**
- 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 front fender mounts integrated in the fork lower may be modified or replaced.~~
- i. **Fittings for suspension stroke sensors (potentiometers) may be attached**
- j. **The axle bore in the fork lower cannot be modified. The front axle nut/sleeve may be added or modified and/or made captive.**
- k. **The triple clamp assembly (Upper clamp, lower clamp and stem) may be replaced if your machine is listed below.** The parts may be manufactured by the team but must be listed on the FIMNA National MotoAmerica Eligible Parts for Competition List at least two (2) weeks before their first use during official sessions and be freely available for other teams to purchase (and supplied within four (4) weeks of a paid order). The registration of the parts must include dimensioned drawings and photographs to allow easy identification. The price limit for the complete assembly is €1250.

**2017+ Yamaha YZF-R1/M**

**2019+ Kawasaki ZX-10R/RR**

**2019+ Suzuki GSX-R1000/R**

**~~2021+ CBR1000RR-R/SP removed~~**

**~~2021+ Aprilia RSVR (1100)~~**

- l. A steering damper may be added or replaced with an aftermarket damper.
- m. The steering damper cannot act as a steering lock limiting device.

**2.6.10.3 Swing arm (rear fork)**

- a. The rear fork must be the originally fitted and homologated part with no modification allowed except the following:
- b. Rear axle chain adjuster may be modified or changed. The wheel axle nut may be replaced and/or made.
- c. A rear axle chain adjuster slot may be enlarged to allow the brake caliper mounting to become captive
- d. A solid protective cover (shark fin) shall be fixed to the swing-arm, and must always cover the opening between the lower chain run, swingarm and the rear wheel sprocket, irrespective of the position of the rear wheel.
- e. Rear wheel stand brackets may be added to the rear fork by welding or by bolts. Brackets must have rounded edges (with a large radius). Fastening screws must be recessed. An anchorage system or point(s) to keep the original rear brake caliper in place may be added to the rear swing arm.
- f. An anchorage system or point(s) to keep the original brake calipers in place may be added to the rear swing arm.
- g. The sides of the swing arm may be protected by a thin vinyl cover only; no composite or structural covers are allowed.
- h. Wheel support rails/guides may be added to permit quick wheel changes.

**2.6.10.4 Rear suspension unit**

- a. The rear suspension unit (shock absorber) may be replaced with a unit from the **FIMNA National MotoAmerica Eligible Parts for Competition List** (see 2.5.10.2b).
- b. The original attachment points to the frame and rear fork (or linkage) must be as homologated.

**The rear suspension linkage assembly (all parts, including bearings) may be replaced if your machine is listed below.** The parts may be manufactured by the team but must be listed on the FIMNA National MotoAmerica Eligible Parts for Competition List at least two (2) weeks before their first use during official sessions and be freely available for other teams to purchase (and supplied within four (4) weeks of a paid order). The registration of the parts must include dimensioned drawings and photographs to allow easy identification. A maximum of two (2) types of linkages per supplier are allowed. The price limit for the complete assembly is €600.

**2017+ Yamaha YZF-R1/M**

**2019+ Kawasaki ZX-10R/RR**

**2019+ Suzuki GSX-R1000/R**

**2021+ CBR1000RR-R/SP**

**2021+ Aprilia RSVR 1100 RR/Factory**

**2019+ BMW S1000RR**

- 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.

#### **2.6.10.5 Wheels**

- a. Wheels may be the originally fitted and homologated parts with no modification allowed.
- b. Wheels may be replaced but not modified and associated parts may be altered or replaced from those fitted to the homologated motorcycle.
- c. Aftermarket wheels must be made from aluminum (aluminum) alloys. No Carbon wheel allowed.
- d. A non-slip coating/treatment may be applied to the bead area of the rim.
- e. 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.
- f. **Wheel axles may be modified or replaced.**
- g. **Wheel spacers may be modified or replaced.**
- h. Bearing spacers are free.
- i. Wheel balance weights may be discarded, changed, or added.
- j. Aluminum or steel inflation valves are compulsory.
- k. The only allowed rim sizes are:

Wheels Size	
Front	3.5"
Rear	6.0"

#### **2.6.10.6 Brakes**

- a. Front and rear brake discs may be replaced with aftermarket brake discs that must fit the original caliper and mounting. Internally ventilated discs are not allowed if not present on the homologated motorcycle.
- b. The maximum thickness of the brake disc is 6mm.
- c. Only steel (max. carbon content 2.1 wt. %) is allowed for brake discs.
- d. **Front brake calipers may be replaced. Spacers may be fitted between the caliper and fork lower to fit larger diameter disks. May use either calipers listed on SBK brakes, or Twins Cup brake caliper list. See FIMNA National MotoAmerica Eligible Parts for Competition List for approved brake calipers.**
- e. **Rear brake calipers may be replaced. The mounting points must remain as homologated, but the mounting hardware (mount, carrier, hanger) may have the axle bore sleeved to capture the brake caliper assembly to the swingarm to permit quick wheel changes.**

- f. The rear brake caliper carrier/hanger may be replaced, and the caliper's position may be moved. The caliper's underslung position is allowed.
- g. 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.
- h. The front brake master cylinder can be the originally fitted and homologated part with no modification allowed or may be replaced with a unit from the **FIMNA National MotoAmerica Eligible Parts for Competition List**. The retail price limit for the front master cylinder (including the lever) is €450. The brake lever design is free.
- i. The rear brake master cylinder can be the originally fitted and homologated part with no modification allowed or may be replaced with a unit from the **FIMNA National MotoAmerica Eligible Parts for Competition List**. The retail price limits are:
  - i. Thumb brake (including lever and mounts) €450
  - ii. Hand brake €450
  - iii. Foot operated master €300

The use of thumb or hand brakes is allowed in addition to or instead of the foot-operated system. To facilitate this, an adaptor may be fitted to the reservoir input of the OEM master cylinder.
- j. 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). Brake line hose fittings (including banjo bolts) can only be steel or titanium.
- k. Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type.
- l. Additional air ducts are not allowed.
- m. The anti-lock brake system (ABS) must be removed.
- n. 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. Guards from the **FIMNA National MotoAmerica Eligible Parts for Competition List** will be permitted without regard to the material. The Technical Director has the right to refuse any guard not satisfying this safety purpose.

#### 2.6.10.7 Handlebars and hand controls

- a. Handlebars may be replaced.
- b. Handlebars and hand controls may be replaced and relocated.
- c. Throttle controls must be self-closing when not held by the hand.
- d. (Drive-by-wire) grip sensor may be replaced.
- e. The clutch assembly 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 and engine stop switches 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 can stop a running engine. The button or switch must be red.

#### **2.6.10.8 Footrest and foot controls**

- a. The footrests, 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. Footrests 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 footrest 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 of 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.

#### **2.6.10.9 Fuel tank**

- a. Fuel tanks must begin as the originally fitted and homologated part with no the following modification allowed.
- b. Fuel tank may be modified for increased fuel capacity only, the modification may only be made to the rearward section of the fuel tank.
- c. All fuel tanks must be completely filled with fire retardant material (open-celled mesh, i.e. "Explosafe®").
- d. 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.
- e. 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.
- f. If the tank has a filler 'neck' (tube) inside the tank that restricts its complete filling, then the neck may be removed or have vent holes drilled through it.
- g. Fuel tank drains may be added.
- h. 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.
- i. The tank may not have a cover fitted over it unless the homologated machine also features a full cover.

- j. The sides and rear of the fuel tank may be protected with a cover made of a composite material. These covers must follow the shape of the fuel tank exactly.
- k. The fuel tank may have a heat reflective sheet attached to its bottom surface.

#### **2.6.10.10 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. All bodywork paint and decal designs are free.
- c. The fairing has a tolerance of +/-10mm from the original homologated road fairing, respecting the design and features of the homologated fairing and any articles below. The overall width of the frontal area may be +10mm maximum. The decision of the Technical Director is final.
- d. The windscreen may be replaced.
- e. Fairing brackets may be altered or replaced.
- f. The ram-air intake must maintain the originally homologated shape and dimensions **the use of carbon fiber or Kevlar® composites are allowed.**
- g. **Original air ducts running between the fairing and the air box may be altered or replaced by exact cosmetic replicas of the original parts. If the parts serve another function (e.g., dashboard mounting), then the airflow passage must retain the homologated internal shape. Material is free.**
- h. Particle grills or “wire meshes” originally installed in the openings for the air ducts may be removed. Flap valve systems may be removed. Air ducts cannot be added if not on the original machine.
- i. The lower fairing must be constructed to hold, in case of an engine breakdown, at least half of the total oil and engine coolant capacity used in the engine if they are not present on the original machine. (min. 5 liters). The lower edge of openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.
- j. 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.
- k. Minimal changes are allowed in the fairing to allow clearance for protective engine covers.
- l. 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 **the use of carbon fiber or Kevlar® composites are allowed.**
- m. Front mudguard must conform in principle to the homologated shape originally produced by the manufacturer. Front mudguards may be replaced and the use of carbon fiber or Kevlar® composites are allowed.

- n. Front mudguard may be spaced upward for increased tire clearance.
- o. Rear hugger type mudguards fixed on the swing-arm may be replaced with a cosmetic duplicate of the original part. The use of carbon fiber or Kevlar® composites are allowed.
- p. The chain guard may be removed if it is not incorporated in the rear hugger. If the chain guard is incorporated in the hugger, then the chain guard section may be removed or modified to accommodate larger diameter rear sprockets **the use of carbon fiber or Kevlar® composites are allowed.**
- q. The chain guard may be removed if it is not incorporated in the rear fender.
- r. The existing rear mudguard under the seat may be removed.

#### **2.6.10.11 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.

#### **2.6.10.12 Rear safety light**

All motorcycles must have a functioning red light mounted at the rear of the machine. See 2.3.4h.

#### **2.6.10.13 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 materials such as Helicoils and Timeserts.
- g. Fairing/bodywork fasteners may be changed to the quick disconnect type.

**2.6.11 The following items MAY BE altered or replaced from those fitted to the homologated motorcycle.**

- a. Any type of lubrication, brake, or suspension fluid
- b. Bearings (ball, roller, taper, plain, etc.) of **any type** or brand may be used
- c. Gaskets, seals, and gasket materials **(head and cylinder base gaskets may NOT be replaced unless noted in the FIMNA National MotoAmerica Eligible Parts for Competition List)**

**2.6.12 The following items MAY BE removed.**

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

**2.6.13 The following items MUST BE removed.**

- a. Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing). Openings must be covered by suitable materials.
- b. Rear-view mirrors
- c. Horn
- d. License plate bracket
- e. Toolbox
- f. Helmet hooks and luggage carrier hooks
- g. Passenger footrests
- h. Passenger grab rails
  
- i. Safety bars, center and side stands must be removed (fixed brackets must remain)
- j. Catalytic converters.
- k. Rear mudguards affixed to the seat unit.



