



SUPERSPORT300



FIM EUROPE CUP 2018

EUROPEAN SUPERSPORT 300 CUP TECHNICAL REGULATIONS 2018

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TR 1.0 EUROPEAN SUPERPORT 300 CUP TECHNICAL REGULATIONS

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

EVERYTHING THAT IS NOT AUTHORISED AND PRESCRIBED IN THESE RULES 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

EUROPEAN SUPERSPORT 300 CUP motorcycles require an FIM homologation (see Appendix 1.1 FIM homologation procedure for Superbike, Superstock and Supersport motorcycles in the FIM Superbike, Supersport & Supersport 300 World Championship Regulations).

All motorcycles must be naturally aspirated.

All motorcycles must comply in every respect with all the requirements for Road Racing as specified in these Technical Regulations, unless they are already equipped as such on the homologated model.

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

The appearance from the front, rear and the profile of EUROPEAN SUPERSPORT 300 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.

TR 1.1 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.

TR 1.2 ELIGIBLE MOTORCYCLES

The class will be based around the machines sold in Europe as A2 class motorcycles and excluding the A1 class motorcycles. The **FIM Europe Road Racing Commission** has the right to decide which motorcycles will be eligible in this class.

For **2018** the following motorcycles will be legal (this list can be amended at any time by the FIM Europe Road Racing Commission):

- Honda CBR 500R
- Kawasaki Ninja 300 (EX 300A/D/F)
- **Kawasaki Ninja 400 (EX400G/H/J)**
- Yamaha YZF-R3
- **Yamaha YZF-R3A**
- KTM RC 390
- **KTM RC 390R**

Except as expressly authorized by this Regulation and the approval files, motorcycles must remain as originally produced by the manufacturer.

TR 1.3 BALANCING VARIOUS MOTORCYCLE CONCEPTS

The FIM Europe Road Racing Commission reserve the right to apply balancing to the motorcycles in this class in order to maintain equality among the motorcycles. Balancing methods may include – but are not limited to the following:

- Rev limit change
- Weight limit change

The decision to apply the handicap will be taken by the FIM Europe Road Racing Commission at any time deemed necessary to ensure fair competition.

TR 1.4 MINIMUM WEIGHTS

The minimum weight of the motorcycle in running condition must be as follows:

- Honda CBR 500 R **156 kg**
- Kawasaki Ninja 300 (EX 300 A/D/F) 140 kg
- **Kawasaki Ninja 400 (EX400G/H/J) 150 kg**
- Yamaha YZF-R3 140 Kg
- **Yamaha YZF-R3A 140 Kg**
- KTM RC 390 136 Kg
- **KTM RC 390R 136 kg**

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.

During the final inspection at the end of the race, the selected motorcycles will be weighted 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 Chief Technical Steward at the preliminary checks.

TR 1.5 NUMBER PLATES / STARTING NUMBERS

The background colours and figures (numbers) for EUROPEAN SUPERSPORT 300 CUP are recommended as follows:

Number	Background
Light blue	White

Numbers only: Colours from FIM Supersport 300 World Championship are accepted.

The sizes for all the front numbers are:	Minimum height	120 mm
	Minimum width	60 mm
	Minimum stroke	20 mm
	Minimum space between numbers	10 mm
The sizes for all the side numbers are:	Minimum height	100 mm
	Minimum width	50 mm
	Minimum stroke	15 mm
	Minimum space between numbers	10 mm

The number must be clearly visible and in a good shape.

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

- One on the front, either in the centre of the fairing or slightly off to one side.
- One, on each side of the motorcycle, the location for the number is on the lower rear portion of the main fairing near the bottom.
- Numbers must be easily legible in a clear simple font and contrast strongly with the background colour.
- Backgrounds must be of one single colour and must be clearly visible around all edges of the number (including outline).
- Any outlines must be of a contrasting colour and the maximum width of the outline is 3 mm.
- Reflective or mirror type numbers are not permitted.
- Numbers cannot overlap.

In case of a dispute concerning the legibility of numbers, the decision of the Chief Technical Steward will be final.

TR 1.6 FUEL

- a. All engines must function on normal unleaded fuel with a maximum lead content of 0.005 g/l (unleaded) and a maximum MON of 90 based on the FIM SBK 2016 Rules, Art. 2.7 and its sub articles 2.7.1 – 2.7.6 (see **AACRTR 2018** - Appendix D).
- b. Normal unleaded fuel from any public petrol station and racing fuels according to the FIM SBK 2016 Rules, Art. 2.7 and its sub articles 2.7.1 – 2.7.6 (see **AACRTR 2018** - Appendix D) can be used.
- c. At the technical control each rider must declare the brand and type of fuel he is using.
- d. At least 1 litre fuel must remain in the fuel tank of all the motorcycles that finished the race to take samples if needed.

TR 1.7 TYRES

- a. If competitors use tyres of Dunlop, Pirelli or Bridgestone brand, these are distributed or approved exclusively by the official tyre suppliers during the event only:
- b. Dunlop tyres only by Maco Racing, s.r.o. I.D. 35804241**
- c. Pirelli tyres only by Pirelli Racing service /TBA.**
- d. Bridgestone tyres only by IVRacing, s.r.o. I.D. 26921961**
- e. All tyres in use must be easily identifiable with colour marking stickers, to be applied by the official tyre suppliers in case of Dunlop, Pirelli or **Bridgestone**.
- f. The stickers must be placed on the side of motorcycle which is facing to the pit lane before the motorcycle is entering the track.
- g. Sticker requirements:
 - i. In the case of two free practises:
 - Stickers are not required for Free Practice one.
 - Stickers are required for Free Practice two, Qualifying Practices and Races.
 - ii. In the case of three free practises:
 - Stickers are not required for Free Practice one and two.
 - Stickers are required for Free Practice three, Qualifying Practices and Races.
- h. The stickers of 2017 season are not valid for 2018 season.**
- i. Tyres must be a fully moulded type carrying all size and sidewall marking of the tyres for commercial sale to public.
- j. Tyres with a maximum W rating must be used.
- k. The depth of the tyre treads must be at least 2.5 mm. over the entire tyre pattern width at a pre-race control. The tyres must have a positive and negative tread of 96 % and minimum 4 % negative (land

and sea ratio) The maximum distance from the external edge of the tyre to 50 % of the tread elements is 35 mm. Each size, front and rear, must be available with the same tread pattern as the commercial tyres for road use.

- l. The tyres must have a DOT and/or E-Mark, the DOT and/or E-mark must be on the tyre sidewall.
- m. Any modification or treatment of the tyres (cutting, grooving) is forbidden.
- n. Wet tyres and intermediate tyres can be used only when the Race Direction has declared the race or practice "WET".
- o. Wet tyres must be a fully moulded tyre.
- p. Wet tyres do not need to carry a DOT and/or E-marks; however, these tyres must be marked "not for highway use" or "NHS".
- q. The use of hand-cut tyres is not allowed.

TR 1.8 ENGINE

There is no allocated number of engines.

Motorcycles will be randomly chosen for dyno testing.

TR 1.8.1 Fuel injection system

General: Fuel injection systems refer to throttle bodies, fuel injector, variable length intake track devices, fuel pump and fuel pressure regulator.

- a. The original homologated fuel injection system must be used without any modification.
- b. The throttle bodies must be stock and unaltered from the original specification and manufacture and in the same position as on the homologated motorcycle.
- c. The fuel injectors must be stock and unaltered from the original specification and manufacture and in the same position as on the homologated motorcycle.
- d. Air funnels must remain as originally produced by the manufacturer for the homologated motorcycle.
- e. Butterfly valves must remain as originally produced by the manufacturer for the homologated motorcycle.
- f. Secondary throttle valve plates may be removed or fixed in the open position and the electronics may be disconnected or removed. The secondary throttle shaft(s) must remain in place.
- g. All the parts of the variable intake tract device (if present on the homologated motorcycle) must remain and operate exactly as homologated. A variable intake tract device cannot be added if it is not installed on the homologated motorcycle.
- h. Air and air/fuel mixture can go to the combustion chamber exclusively through the throttle body butterflies.
- i. Electronically controlled throttle valves, known as "ride by wire" can only be used if the homologated **motorcycle** is equipped with the same system. **Software may not be modified and all the safety systems and procedures designed by the original manufacturer must be maintained.**

TR 1.8.2 Cylinder head

- a. The cylinder head must be the originally fitted and homologated part with no modifications allowed.
- b. The valves, valve seats, valve guides, valve springs, tappets, oil seals, shims, valve cotters, spring base and spring retainers must be the originally fitted and homologated parts with no modifications allowed.
- c. Valve spring shims are not allowed.
- d. The head gasket may be changed.
- e. Only normal maintenance interventions as prescribed by the Manufacturer in the model's Service Manual are authorised.
- f. **The exhaust air bleed system must be blocked and the external fittings on the cam cover(s) may be replaced by plates.**

TR 1.8.3 Camshaft assembly

- a. The camshafts must be the originally fitted and homologated parts with no modifications allowed.
- b. At the technical checks: for direct cam drive systems, the cam lobe lift is measured; for non-direct cam drive systems (i.e. with rocker arms), the valve lift is measured.

TR 1.8.4 Cam sprockets or gears

- a. **The cam sprockets may be slotted to allow the adjustment of cam timing.**
- b. **Pressed on cam sprockets may be replaced with an adjustable boss and cam sprocket.**
- c. The cam chain and tensioner must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.5 Cylinders

The cylinders must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.6 Pistons

The pistons must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.7 Piston rings

The piston rings must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.8 Piston pins and clips

The piston pins and clips must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.9 Connecting rods

The connecting rods must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.10 Crankshaft

The crankshaft must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.11 Crankcase / Gearbox housing

The crankcase / gearbox housing must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.12 Lateral covers and protection

- a. Lateral (side) covers may be altered, modified or replaced. If altered or modified, the cover must have at least the same resistance to impact as the original one. If replaced, the cover must be made in material of same or higher specific weight and the total weight of the cover must not be less than the original one.
- b. All lateral covers/engine cases containing oil and which could be in contact with the ground during a crash, must be protected by a second cover made from metal such as aluminium alloy, stainless steel, steel or titanium. Covers made from composite materials are not permitted. These covers must be fixed properly and securely with a minimum of three (3) case cover screws that also mount the original covers to the crankcase. All these covers must be designed to be resistant against sudden shocks, abrasions and crash damages. Sharp edges which could damage the track surface are not allowed.
- c. **The secondary covers must cover a minimum of 1/3 of the original cover. It must have no sharp edges which could damage the track surface.**
- d. FIM approved covers will be permitted without regard of the material or its dimensions.
- e. Oil containing engine covers must be fixed with steel bolts.
- f. Plates or crash bars made from aluminium or steel are also permitted in addition to these covers. All these devices must be designed to be resistant against sudden shocks, abrasions and crash

damages and must be fixed properly and securely. Sharp edges which could damage the track surface are not allowed.

- g. The Chief Technical Steward has the right to refuse any cover not satisfying the safety requirements.

TR 1.8.13 Transmission / Gearbox

- a. The transmission / gearbox must be the originally fitted and homologated parts with no modifications allowed **except:**
 - i. **The positive neutral selector mechanism may be removed.**
 - ii. **Shift star/indexer and detent may be replaced but must function as originally designed on the homologated motorcycle.**
- b. Quick-shift (upshift only) systems are allowed (including wiring and potentiometer). This system must be the FIM-Europe approved quick-shifter/rev-limiter system.
- c. Downshift blipping is not allowed.
- d. Countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.
- e. The sprocket cover may be modified or eliminated.
- f. The chain guard may be removed as long as it is not incorporated in the rear fender.

TR 1.8.14 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 but their number must remain as original.
- c. Clutch springs may be changed.
- d. The clutch basket (outer) must be the originally fitted and homologated parts but may be reinforced.
- e. The original clutch inner assembly may be modified or replaced by an aftermarket clutch, also including back torque limiting capabilities (slipper type).

TR 1.8.15 Oil pumps and oil lines

- a. The oil pumps and oil lines must be the originally fitted and homologated parts with no modifications allowed.

TR 1.8.16 Cooling system

- a. Only water may be used as cooling liquid. Additives are not permitted.
- b. Protective meshes may be added in front of the oil and/or water radiator(s).
- c. The radiator tubes/hoses to and from the engine may be changed, but the system must be unaltered. Catch tanks may be changed but must be fixed in a secure way.
- d. Radiator fan and wiring may be removed. Thermal switches, water temperature sensor and thermostat may be removed inside the cooling system.
- e. Radiator cap is free.
- f. An additional water radiator may be fitted but the appearance of the front, the rear and the profile of the motorcycle must not be changed. Extra mounting brackets to accommodate the additional radiator are permitted.
- g. **The original water radiator may be modified or replaced.**

TR 1.8.17 Air box

- a. The air box must be the originally fitted and homologated part with no modifications allowed.
- b. The air filter element may be modified or replaced but not eliminated and must be mounted in the original position.
- c. The air box drains must be sealed.
- d. All motorcycles must have a closed breather system. All the oil breather lines must be connected, may pass through an oil catch tank, and must exclusively discharge in the air box.
- e. No heat protection may be added to the air box.

TR 1.8.18 Fuel supply

- a. Fuel pump and fuel pressure regulator must be the originally fitted and homologated parts with no modifications allowed.
- b. The fuel pressure must be as homologated.
- c. Fuel lines from the fuel tank up to the delivery pipe assembly (delivery pipe excluded) may be replaced and must be located in such a way that they are protected from crash damage.
- d. Quick connectors or dry break quick connectors may be used.
- e. Fuel vent lines may be replaced.
- f. Fuel filters may be added.

TR 1.8.19 Exhaust system

- a. Exhaust pipes and silencers may be modified or changed. Catalytic converters must be removed.
- b. The number of the final exhaust silencer(s) must remain as homologated. The silencer(s) must be on the same side(s) as on the homologated motorcycle.
- c. For safety reasons, the exposed edges of the exhausts pipe(s) outlet must be rounded to avoid any sharp edges.
- d. Wrapping of exhaust systems is not allowed except in the area of the rider's foot or an area in contact with the fairing for protection from heat.
- e. The noise limit for **EUROPEAN SUPERSPORT 300 CUP** is 107 dB/A (with a 3 dB/A tolerance after the race only).
- f. The test RPM for noise control will be as follows:
 - Honda CBR 500R: 5000 RPM
 - Kawasaki Ninja 300 (EX300A/D/F): 6500 RPM
 - **Kawasaki Ninja 400 (EX400G/H/J): 6500 RPM**
 - Yamaha YZF-R3: 7500 RPM
 - **Yamaha YZF-R3A: 7500 RPM**
 - KTM RC 390: 5500 RPM
 - **KTM RC 390R 5500 RPM**

TR 1.9 ELECTRICS AND ELECTRONICS

TR 1.9.1 Ignition / Engine Control System (ECU)

- a. The engine control unit (ECU) must be either:
 - i. The original system with the production ECU as homologated, with no change of software or with a manufacturer approved software.
 - ii. The original system (with the production ECU and no change of software or with a manufacturer approved software - option i) with an FIM approved external fuel injection module added.

For 2019: There will be an FIM/DWO approved ECU and electronics package.

- b. **The software and the firmware must be supplied and approved by the motorcycle manufacturer. The FIM Europe Chief Technical Steward must be supplied with the software/firmware and it must be added to the approved parts list before it can be used.**
- c. **The manufacturer must provide the FIM Europe with the tools/software to perform software checks.**
- d. **Throughout the season the manufacturer may update the software and the updates must be made available simultaneously to all users of the system with no charge. Updating by a team is not compulsory.**
- e. Central unit (ECU) may be relocated.

- f. Optional equipment sold by the motorcycle manufacturer for the homologated motorcycle is considered not homologated with the motorcycle and must follow the requirements for approved electronics / data loggers.
- g. At any time during an event, the Chief Technical Steward has the right to make a team substitute their ECU or external modules with the FIM sample.
- h. Sensors may not be replaced, modified or substituted unless noted, and the allowed OEM ECU sensors / channels are:
1. Throttle position (multiple allowed)
 2. Map sensor, map sync (pressure sensor on the intake port used to synchronize the engine during the start)
 3. Air box pressure
 4. Engine pick-ups (cam, crank)
 5. Twist grip position
 6. Rear wheel speed sensor (from ABS sensor); no front wheel speed sensor permitted
 7. Gearbox output shaft speed
 8. Gear position
 9. Air pressure
 10. Water temperature
 11. Air temperature
 12. Tip-over-switch (no lean angle)
 13. Gear shift load cell / switch
 14. Lambda sensor (may be OEM or a replacement sensor see TR 1.9.1.g may be connected to the original harness / ECU or to the FIM approved lambda control module).
- i. No extra sensors may be added for control strategies except the shift rod sensor of the FIM approved revlimiter / quick shifter.
- j. The FIM approved external fuel injection modules may not alter any sensor signal relating to the ride by wire system or control / actuate any part of the machine except the fuel injectors. No fuel module may add traction control strategies. The modules may only connect to the fuel injectors, lambda sensor, power supply and “piggyback” the throttle position, gear and RPM signals. Lambda closed loop / auto tuning is permitted. Only FIM Europe approved auto tuning units may be used.
- k. A compulsory FIM approved rev limiter / quick shift unit must be fitted, it is the team’s decision whether to use the quick shift function. This unit must remain fitted **and active** all times. **It must only be installed as detailed in the supplied instructions.**
- l. **The FIM quick shift unit is € 500 + taxes + delivery.**
- m. Contact: info@hmquickshifter.com +44 (0) 1795 429168

Motorcycle	Part Number
Honda CBR 500R	HMGP-HO1016
Kawasaki Ninja 300 (EX 300 A/D/F)	HMGP-KA1016
Kawasaki Ninja 400 (EX400G/H/J)	HMGP-KT1712
Yamaha YZF-R3	HMGP-YA1016
Yamaha YZF-R3A	HMGP-YA1016
KTM RC 390	HMGP-KT1016
KTM RC 390R	HMGP-KT1016

Fitting instructions are separately detailed with the units.

- n. **HM Quickshifter wheel speed kits may be fitted as noted on the FIM approved parts list.**
- o. The following strategies are not allowed:
1. Traction control (including anti-spin / rate of change of RPM)
 2. Launch control

3. Anti-wheelie control
 4. Closed loop engine brake control
 5. Corner by corner / distance based adjustments
 6. Rider adjusted trims
 7. Telemetry
 8. Remote or wireless connection to the bike for any data exchange or setting whilst the engine is running or the bike is moving.
- p. The initial rev-limiter setting for each motorcycle is as follows:
- | | |
|--|------------------------|
| • Honda CBR 500R | max. 9.500 RPM |
| • Kawasaki Ninja 300 (EX300A/D/F) | max. 13.000 RPM |
| • Kawasaki Ninja 400 (EX400G/H/J) | max. 12.000 RPM |
| • Yamaha YZF-R3 | max. 12.850 RPM |
| • Yamaha YZF-R3A | max. 12.850 RPM |
| • KTM RC 390 | max. 11.000 RPM |
| • KTM RC 390R | max. 11.000 RPM |
- q. Other additional hardware equipment not on the original homologated motorcycle cannot be added with the exceptions noted below.
- r. **Resistors/load may only be added to replace the parts of the electrical system that have been removed (including lights and lambda sensors) to prevent ECU errors.**
- s. The characteristics of FIM approved EUROPEAN SUPERSPORT 300 CUP complete data logging systems must be the following:
- i. Must be from FIM approved EUROPEAN SUPERSPORT 300 CUP Logging Kit list. The firmware / software of any data logging units must be an FIM approved version. **A copy of the software and documentation must be submitted to the FIM Europe Chief Technical Steward before it can be used.**
 - ii. Maximum retail price of the complete kit (hardware, software, sensors and wiring harness) cannot exceed € 1.500,- (VAT excluded). The sum price of the components individually cannot exceed € 1.650,- (VAT excluded).
 - iii. If any sensors or other kit parts are supplied as options, then the total price including all options cannot exceed € 1.650,- (VAT excluded).
 - iv. The **Data Logger system** must be available for sale to the public. The **Data Logger system** supplier must apply to the FIM for approval.
 - v. The **Data Logger system** may only include following sensors:
 1. Fork position
 2. Shock position
 3. Front brake pressure switch (not pressure sensor)
 4. Transponder / lap time signal
 5. GPS unit (Lap timing and track position)
 6. Rear wheel speed (if not fitted to OEM motorcycle)
 - vi. The **Data Logger system** may only log the following data (by connecting to or “piggybacking” in the case of the original sensors unless noted otherwise):
 1. Fork position
 2. Shock position
 3. Front brake pressure switch (not pressure sensor)
 4. Lap time
 5. Rear wheel speed (allowed from K-Line)
 6. Engine RPM (allowed from K-Line)
 7. Throttle position (allowed from K-Line)

8. Water temperature (allowed from K-Line)
 9. Transponder / lap time signal
 10. GPS position / time / speed
- Info: K-Line is the method of communication to the dashboard.
- t. 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.
 - u. Harness:
 - i. The key / ignition lock may be relocated, replaced or removed.
 - ii. Cutting and removing of excess and unused wiring in the original wiring harness is allowed. All connectors must remain as originally fitted. No wires may be added.
 - iii. FIM approved manufacturer Kit-Harness is allowed.
 - v. Data Logger harness:
 - i. The Data Logger wire harness cannot connect any other sensors than those specified. The harness may connect to or “piggyback” the OEM sensors that it is allowed to log. The only function of the approved data logging wiring harness is to connect the specified sensors to the Data Logger, to transmit the data and supply the power. It CANNOT be connected to the motorcycles’ CAN bus, but may be connected to the K-Line only to receive signals noted in TR 1.9.1.s.vi.
 - w. To be approved, samples of external modules with their tuning tools must be sent by the manufacturers to the **SBK** Technical Director at least 3 weeks before the beginning of the Championship, with technical data and selling price. The manufacturer must provide the FIM with the tool to control the modules.
 - x. Dashboard is free; **however, it may only replace the functions of the original dashboard (including switch, logic and display) and may not perform any other logic function on the bike. It may incorporate the Data Logger then it is part of the logging system, and the EUROPEAN SUPERSPORT 300 CUP kit price limit will be applied to the whole system – not just to the logging option / upgrade in the dash, the complete unit price will be considered. The dashboard may only display those channels noted in TR 1.9.1.s.vi. There must remain a working tachometer display.**
 - y. A lap timer may be fitted from the FIM approved lap timer list.
 - z. Spark plugs may be replaced.
 - aa. Battery is free.

TR 1.9.2 Generator, alternator, electric starter

- a. Generator, alternator and electric starter must be the originally fitted and homologated parts with no modifications 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 ferme the starter must crank the engine at a suitable speed for starting for a minimum of 2 seconds without the use of a boost battery. No boost battery may be connected to the motorcycle after the end of the race.

TR 2.0 MAIN FRAME

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

The pre-assembled spare part frame must be presented to the Chief Technical Steward for the permission of rebuilding. The pre-assembly is strictly limited to:

- Main frame
- Bearings (steering pipe, swing arm, etc.)

- Swing arm
- Rear suspension linkage and shock absorber
- Upper and lower clamps (triple clamp, fork bridges)
- Wire harness

The spare frame will not be allowed in the pit box before the rider / team has received authorization from the Chief Technical Steward.

The rebuilt motorcycle must be inspected before its use by the Technical Stewards for safety checks and a new seal will be placed on the motorcycle frame.

No other spare motorcycle is allowed at the track. If found, penalties will be applied. For the remainder of the event, this motorcycle will be impounded and no part of that motorcycle can be used for spare parts.

For a full explanation of the procedures see article 2.5.10 of the **2018** FIM Superbike, Supersport & Supersport 300 World Championship Regulations.

TR 2.0.1 Frame body and rear sub frame

- The frame must be the originally fitted and homologated part with no modifications allowed.
- Holes may be drilled on the frame only to fix approved components (i.e. fairing brackets, steering damper mount, sensors).
- 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.
- Crash protectors may be fitted to the frame, using existing points, or pressed into the ends of the wheel axles. Without exception, the wheel axles cannot be modified.**
- The side stand bracket may be cut or removed.
- Nothing else may be added or removed from the main frame body.
- All motorcycles must display the manufacturer's vehicle identification number (chassis number) on the frame body.
- Engine mounting brackets or plates must remain as originally produced by the manufacturer for the homologated motorcycle.
- Front sub frame / fairing mount may be changed or altered, **but the use of titanium and carbon (or similar composite materials) is forbidden.**
- Rear sub frame:
 - If removable it may be changed or altered, but the type of material must remain as homologated, or be material of a higher specific weight.
 - If part of the main frame assembly then it may not be altered except as noted below.
 - Additional seat support 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.
- The paint scheme is not restricted but polishing the frame body or sub frame is not allowed.
- Thread repair using inserts of different material such as Helicoil® and Timesert® are allowed.

TR 2.0.2 Suspension - General

- a. Only the approved and listed suspension units can be used. The price limits are:
 - i. Fork: For the fork kit, including all parts such as - but not limited to - cartridge, springs (1 set), fork caps, blanking inserts, seals, bushes but excepting oil and fitting, the price limit is € **700,-** excluding tax.
 - ii. Shock Absorber/RCU: For the complete shock absorber/RCU including - but not limited to - spring (1 piece), pre-load adjuster and length/ride height adjuster, the price limit is € **850,-** excluding tax.
- b. The approved products from the suspension manufacturers must be available to all participants at least one month before the first event and remain available all season. The products must be available within 6 weeks of a confirmed order.
- c. Setting parts and tuning parts must be provided by the suspension manufacturers to all customers/teams/participants using the manufacturer's products. These parts can be used by all participants during the season. These parts shall be available for immediate delivery to all participants.
- d. Teams may not modify any part of the forks or shock absorbers; all setting parts must be supplied by the suspension manufacturer and must be available to all participants.
- e. No type of electronic suspension can be used, even when fitted to the homologated motorcycle.
- f. Electronic controlled steering damper cannot be used if not installed in the homologated model for road use. However, it must be completely standard (any mechanical or electronic part must remain as homologated).

TR 2.0.3 Front forks

- a. Outer and inner fork tubes, steering stem and nut(s), upper and lower triple clamps must be the originally fitted and homologated parts with no modifications allowed.
- b. The original surface finish of the fork tubes may be changed. Additional surface treatments are allowed.
- c. Original internal parts of the homologated forks may be modified or changed. **Approved** aftermarket damper kits or valves may be installed.
- d. Steering stem pivot position must remain in the homologated position (as supplied on the homologated motorcycle). If the homologated motorcycle has inserts, then the orientation/position of the original insert may be changed, but the insert cannot be replaced or modified.
- e. A steering damper may be added or the original damper may be replaced with an aftermarket damper.
- f. The steering damper cannot act as a steering lock limiting device.
- g. Fork caps on the mechanical forks may only be modified or replaced to allow external adjustment. (this does not include the mechanical fork leg that is part of the homologated electronic fork set).
- h. Electronic forks must have their complete internal parts (including all electronic control) replaced with a conventional damping system.
- i. Dust seals may be modified, changed or removed if the fork remains totally oil-sealed.
- j. Any quality and quantity of oil may be used in the front forks.

TR 2.0.4 Rear fork (Swing arm)

- a. The rear fork must be the originally fitted and homologated part with no modifications allowed.
- b. The rear fork pivot bolt must be the originally fitted and homologated part with no modifications allowed.
- c. The rear axle adjuster (chain tensioner) must be the originally fitted and homologated part with no modifications allowed.
- d. Rear swing arm pivot position must remain in the homologated position (as supplied on the homologated motorcycle). If the homologated motorcycle has inserts, then the orientation/position of the original insert may be changed, but the insert cannot be replaced or modified.

- e. **A solid protective cover (shark fin) must be fixed to the swing arm and must always cover the opening between the lower chain run, swing arm and the rear wheel sprocket, irrespective of the position of the rear wheel.**
- f. 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 calliper 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.

TR 2.0.5 Rear suspension unit

- a. Rear suspension unit (shock absorber) may be replaced **with an approved unit**, but the attachments to the frame and to the rear fork (swing arm) or linkage must be as homologated.
- b. All the rear suspension linkage parts must be the originally fitted and homologated parts with no modifications allowed.
- c. Removable top shock mounts must be the originally fitted and homologated parts with no modifications allowed. A nut may be made captive on the top shock mount and shim spacers may be fitted behind it to adjust ride height.
- d. Rear suspension unit and spring may be changed.
- e. No aftermarket or prototype electronically-controlled suspension unit maybe used. If the original electronic unit is used, it must be completely standard (any mechanical or electronic part must remain as homologated). The original electronic system must work properly in the event of an electric/electronic failure.
- f. An electronic shock absorber can be replaced with a mechanical one.

TR 2.0.6 Wheels

- a. Wheels must be the originally fitted and homologated parts with no modifications allowed.
- b. Wheels may be overpainted but the original finish cannot be removed.**
- c. Wheel bearings may be replaced with aftermarket bearings but the dimensions must be the same as the original bearings.
- d. Bearing spacers must be the homologated parts with no modification allowed.**
- e. Wheel spacers may be modified or replaced.
- f. Wheel axles and retaining nuts (or bolts) must remain as homologated.
- g. A non-slip coating/treatment may be applied to the bed area of the rim.
- h. If the original design includes a cushion drive for the rear wheel, it must remain as originally produced for the homologated motorcycle.
- i. Wheel balance weights may be discarded, changed or added to.
- j. Any inflation valves may be used.

TR 2.0.7 Brakes

- a. Brake discs may be replaced by aftermarket discs which comply with the following requirements:
 - i. Brake discs and carrier must retain the same material as the homologated disc **or be steel (max. carbon content 2.1 wt%)**.
 - ii. Non-floating or single piece disks may be replaced with floating discs. The disc carrier must be the same material as the homologated carrier, steel or aluminium.
 - iii. The outside diameters of the brake discs must not be larger than the homologated discs.
 - iv. The thickness of the brake disc may be increased but the disc must fit into the homologated brake calliper without any modification of the calliper. The number of floaters is free.
 - v. The fixing of the carrier on the wheel must remain the same as on the homologated disc.
- b. The front and rear brake calliper (mount, carrier, hanger) must be the originally fitted and homologated parts with no modifications allowed.

- c. In order to reduce the transfer of heat to the hydraulic fluid it is allowed to add metallic shims to the callipers, between the pads and the callipers, and/or to replace light alloy pistons with steel pistons made by the same manufacturer of the calliper.
- d. The rear brake calliper bracket may be mounted fixed on the swing arm, but the bracket must maintain the same mounting (fixing) points for the calliper as used on the homologated motorcycle.
- e. The swing arm may be modified for this reason to aid the location of the rear brake calliper bracket, by welding, drilling or by using inserts such as Helicoil® and Timesert®.
- f. The front and rear brake master cylinder must be the originally fitted and homologated parts with no modifications allowed.
- g. Front and rear brake fluid reservoir may be changed but **using a hose / flexible tube instead of a reservoir is not allowed.**
- h. Front and rear hydraulic brake lines may be changed.
- i. The split of the front brake lines for both front brake callipers must be made above the lower fork bridge (lower triple clamp).
- j. "Quick" (or "dry-brake") connectors in the brake lines are not allowed.
- k. Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type.
- l. Additional air scoops or ducts are not allowed.
- m. The Antilock Brake System (ABS) must be removed. The ABS units electronic board may remain fitted to stop/avoid ECU errors.
- 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. FIM approved guards will be permitted without regard of the material. The Chief Technical Steward has the right to refuse any guard not satisfying this safety purpose.

TR 2.0.8 Handle bars and hand controls

- a. Handle bars may be replaced (except for the brake master cylinder).
- b. Handle bars and hand controls may be relocated.
- c. Throttle controls must be self-closing when not held by the hand.
- d. Throttle assembly and associated cables may be modified or replaced but the connection to the throttle body and to the throttle controls must remain as on the homologated motorcycle. Cable operated throttles (grip assembly) must be equipped with both an opening and a closing cable including when actuating a remote drive by wire grip/demand sensor.
- e. Clutch and brake lever may be exchanged by an aftermarket model. An adjuster to the brake lever is allowed.
- f. Switches may be changed but electric starter switch and engine stop switch must be located on the handle bars.
- g. Motorcycles must be equipped with a functional ignition kill switch or button mounted on the right hand handlebar (within the reach of the hand while on the hand grips) that is capable of stopping a running engine. The button or switch must be RED.
- h. The repair by welding of light alloy handlebars is prohibited.
- i. Exposed handlebar ends must be plugged with a solid material or rubber covered.
- j. The minimum angle of rotation of the handlebar on each side of the centre line must be of 15°.
- k. Solid stops, (other than steering dampers) must be fitted to ensure a minimum clearance of 30 mm between the handlebar with levers and the tank/fairing when on full lock to prevent trapping the rider's fingers.
- l. All handlebar levers (clutch, brake, etc.) must be ball ended (diameter of this ball to be at least 16 mm). This ball can also be flattened, but in any case, the edges must be rounded (minimum thickness

of this flattened part 14 mm). These ends must be permanently fixed and form an integral part of the lever.

- m. Each hand lever must be mounted on an independent pivot.

TR 2.0.9 Foot rest / Foot controls

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

TR 2.0.10 Fuel tank

- a. Fuel tank must be the originally fitted and homologated part with no modifications allowed.
- b. All fuel tanks must be completely filled with fire retardant material (open-celled mesh, i.e. Explosafe®).
- c. Fuel tanks with tank breather pipes must be fitted with non-return valves that discharge into a catch tank with a minimum volume of 250cc made of a suitable material.
- d. Fuel caps may be changed. Fuel caps when closed must be leak proof. Additionally, they must be securely locked to prevent accidental opening at any time.
- e. A rider spacer/pad may be fitted to the rear of the tank with non-permanent adhesive. It may be constructed of foam padding or composite material.
- f. The tank may not have a cover fitted over it, unless the homologated motorcycle also features a full cover.
- g. The sides of the fuel tank may be protected with a cover made of a composite material. These covers must fit the shape of the fuel tank.

TR 2.0.11 Fairing / Bodywork

- a. Fairing and body work may be replaced with exact cosmetic duplicates of the original parts, but must appear to be as originally produced by the manufacturer for the homologated motorcycle, with slight differences due the racing use (different pieces mix, fixing points, fairing bottom, etc.). The material may be changed. The use of carbon fibre or carbon composite materials is not allowed. Specific reinforcements in Kevlar® or carbon are authorized locally around holes and stressed areas. Headlights must be included even when considered external.
- b. For all bodywork paint and decal design is free.**
- c. Overall size and dimensions must be the same as the original parts, with a tolerance of +/- 5 mm, respecting the design and features of the homologated fairing as far as possible. The overall width of the frontal area may be + 5 mm maximum. In case of a dispute, the decision of the Chief Technical Steward is final.
- d. Wind screen may be replaced with an aftermarket product. The height of the windscreen is free, within a tolerance of +/- 15 mm referred to the vertical distance from/to the upper fork bridge. The screen must conform to the same profile from the front as the original - no double bubble or wide types. From a top view the length of the wind screen may be shortened by 25 mm to allow clearance for the rider. The edge of the screen must have no sharp edges.
- e. Motorcycles that are not originally equipped with streamlining are not allowed to add streamlining in any form, with the exception of a lower fairing device, as described in point (g). This device cannot

exceed above a line drawn horizontally from wheel axle to wheel axle and must follow the specifications described at point (g).

- f. The original combination instrument/fairing brackets may be replaced, but the use of titanium and carbon (or similar composite materials) is forbidden. All other fairing brackets may be altered or replaced, **but the use of titanium and carbon (or similar composite materials) is forbidden.**
- g. The ram air intake must maintain the originally homologated shape and dimensions.
- h. The original air ducts running between the fairing and the air box may be altered or replaced. **Titanium and carbon fibre composites** and other exotic materials are forbidden. Particle grills or “wire-meshes” originally installed in the openings for the air ducts may be removed.
- i. The lower fairing has to be constructed to hold, in case of an engine breakdown, minimum 4 litres. The lower edge of all the openings in the fairing must be positioned at least 70 mm above the bottom of the fairing.
- j. The upper edge of the rear transverse wall of the lower fairing must be at least 70 mm above the bottom. The angle between this wall and the floor must be $\leq 90^\circ$.
- k. Original openings for cooling in the lateral fairing/bodywork sections may be partially closed only to accommodate sponsors' logos/lettering. Such modification shall be made using wire mesh or perforated plate. The material is free but the distance between all opening centres, circle centres and their diameters must be constant. Holes or perforations must have an open area ratio $> 60\%$.
- l. Motorcycles may be equipped with a radiator shroud (inner ducts) to improve the air stream towards the radiator but the appearance of the front, the rear and the profile of the motorcycle must not be changed.
- m. The lower fairing must incorporate an opening of $\varnothing 25$ mm diameter in the front lower area. This hole must remain sealed in dry conditions and must be only opened only in wet race conditions as declared by the Race Director.
- n. Front mudguards may be replaced with a cosmetic duplicate of the original parts and may be spaced upward for increased tyre clearance.
- o. Rear mudguard fixed on the swing arm may be modified, changed or removed. The chain guard may be removed as long as it is not incorporated in the rear fender.

TR 2.0.12 Seat

- a. Seat, seat base and associated bodywork may be replaced.
- b. The appearance from both front rear and profile must conform to the homologated shape.
- c. The top portion of the rear body work around the seat may be modified to a solo seat.
- d. The homologated seat locking system (with plates, pins, rubber pads etc.) may be removed.
- e. All exposed edges must be rounded.
- f. **The use of carbon fibre or carbon composite materials is not allowed. Specific reinforcements in Kevlar® or carbon are authorized locally around holes and stressed areas.**

TR 2.0.13 Fasteners

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

TR 2.1 Rear safety light

All motorcycles must have a functioning red light mounted **at the rear of the motorcycle**. This light must be switched on any time the motorcycle is on the track or is ridden in the pit lane and the Race Direction declares the session WET.

All lights must comply with the following:

- a. **The rear light must be mounted on the motorcycle during the whole time of the event.**
- b. **The rear light must be mounted properly with screws. Mounting the rear light with tape or hook-and-loop fasteners is not allowed.**
- c. **The luminous field must be at least 4cm² (e.g. rectangular 4 cm x 1 cm, circular Ø 2.25 cm).**
- d. Lightning direction must be parallel to the motorcycle centre line (motorcycle running direction), and be clearly visible from the rear at least 15 degrees to both left and right sides of the motorcycle centre line.
- e. The rear light must be mounted near the end of the seat/rear bodywork and approximately on the motorcycle centre line, in a position approved by the Chief Technical Steward. In case of dispute over the mounting position or visibility, the decision of the Chief Technical Steward will be final.
- f. **Power output/luminosity equivalent to minimum 10 W (incandescent) or 1 W (LED).**
- g. The output must be continuous - no flashing safety light allowed. Flashing is allowed **only** in the pit lane when the pit limiter is active.
- h. The safety light power supply may be separated from the motorcycle.
- i. The Chief Technical Steward has the right to refuse any light system not satisfying this safety purpose.

TR 2.2 Timekeeping instruments

All motorcycles must have a correctly positioned timekeeping transponder. The transponder must be supplied or approved by the official Timekeeper and fixed on the side of the motorcycle in the longitudinal centre of the motorcycle (typically close the swing-arm pivot), on either the left or right side, as low as possible and avoiding being shielded by carbon bodywork. The place will be appointed and controlled by the Technical Director.

Correct attachment of the transponder bracket consists of a minimum of tie-wraps, but preferably by screws or rivets. Any transponder retaining clip must also be secured by a tie-wrap. Velcro® - like or adhesive alone will not be accepted.

TR 2.3 The following items MAY BE altered or replaced

- a. Any type of lubrication, brake or suspension fluid may be used.
- b. Gaskets and gasket materials.
- c. Instruments, instrument bracket(s) and associated cables.
- d. Painted external surface finishes and decals.
- e. Material for brackets connecting non-original parts (fairing, exhaust, instruments, etc.) to the frame (or engine) cannot be made from titanium or fibre reinforced composites excepting the exhaust silencer hanger that may be in carbon.
- f. Protective covers for engine, frame, chain and footrests may be made in other materials like fibre composite material if these parts do not replace original parts mounted on the homologated motorcycle.

TR 2.4 The following items MAY BE removed

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

TR 2.5 The following items MUST BE removed

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

TR 2.6 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. All drain plugs, oil filler caps and oil dip sticks must be wired. External oil filter(s) screws and bolts that enter an oil cavity must be safety wired (i.e. on crankcases).
- c. Where breather or overflow pipes are fitted they must discharge via existing outlets. The original closed breather system must be retained. No direct atmospheric emission is permitted.
- d. Motorcycles must be equipped with a red light on the instrument panel that will illuminate in the event of oil pressure drop.