

## DMSB Technical Regulations 2025 for the Superbike class

As at: 27.01.2025 – changes are shown in *italic type*

In case of any contradiction regarding interpretation of the regulations, the official German text will prevail.

The following rules are intended to give freedom to modify a homologated model in the interest of safety and improved competition between various motorcycle concepts.

Everything that is not authorized and prescribed in this rule, *or the IDM Eligible Parts List*, is strictly forbidden.

Superbike motorcycles require an FIM homologation or a DMSB *authorisation* for classes Superstock 1000 or Superbike. For Motorcycles homologated in Superbike class only, additional restrictions can be mandated. All motorcycles must comply in every respect with the following Technical Regulations and the Technical Regulations for road racing (see DMSB Motorcycle Yearbook, orange section), unless they are already equipped as such on the homologated model.

The appearance from the front, rear and the profile of Superbike 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.*

The DMSB reserves the right to approve parts subsequently submitted by the manufacturers and/or released by the FIM for the following year only, or by bulletin.

The following reference parts must be submitted *by the individual manufacturers* until 30 days before the first event to the DMSB (*shipping address upon request: [idm@actionteam.de](mailto:idm@actionteam.de)*):

- Cylinder head
- Intake and exhaust camshaft(s)
- Bucket tappet and/or rocker arm, finger rocker arm
- Intake and exhaust valves including valve springs, valve discs and valve keys
- Pistons including piston rings, pins and clips
- Connecting rods
- ECU-Kit
- Kit Software and access

If the reference parts are not available by the deadline, the motorcycles in question will be approved with reservations.

If an inspection cannot be carried out due to missing reference parts, the components in question can be secured by the technical stewards and the inspection will be carried out when the required reference parts are available.

### 1. Motorcycle specification

*All parts and systems not specifically mentioned in the following articles, or included in the IDM Eligible Parts List, must remain as originally produced by the manufacturer for the homologated motorcycle.*

### 2. Engine configurations and displacement capacities

Over 750 cm<sup>3</sup> up to 1000 cm<sup>3</sup>    4 stroke    3 and 4 cylinder

Over 850 cm<sup>3</sup> up to 1200 cm<sup>3</sup>    4 stroke    2 cylinder

All machines must be normally aspirated.

### 3. Balancing various motorcycle concepts

In order to equalize the performance of motorcycles with different engine configurations, amendments, *for example*, of the maximum rev may be applied according to their respective racing performances.

*In addition, the DMSB may authorise the use of concession parts for certain motorcycle models and, depending on the corresponding competition performance, prohibit their use again. The current status of usable concession parts can be found in the IDM Eligible Parts List.*

*The decision to apply these performance factors may be taken by the DMSB at any time deemed necessary to ensure fair competition.*

### 3.1. Rev limit

The manufacturer specific maximum permitted revs are following:

Make/Model	Model code	Rev.
Aprilia RSV4 1000 RR/RF	ZD4RK	14.700 rpm
BMW S 1000 RR (2019)	K67 (OE21)	14.900 rpm
BMW M 1000 RR (2021)	K66 (OE71)	15.500 rpm
BMW M 1000 RR (2023)	K66-MÜ (OP01)	15.500 rpm
Ducati Panigale V4R (2019)	DA	16.100 rpm
Ducati Panigale V4R (2023)	3D	16.100 rpm
Honda CBR 1000 RR [SP] (2020)	SC82	15.600 rpm
Honda CBR 1000 RR [SP] (2022)	SC82	15.600 rpm
Honda CBR 1000 RR [SP] (2024)	SC82	15.600 rpm
Kawasaki ZX-10 RR (2021)	ZXT02N	14.600 rpm
Kawasaki ZX-10 RR (2023)	ZXT02T	15.100 rpm
Suzuki GSX-R 1000 (R)	L7-L9	14.900 rpm
Yamaha YZF-R1 [M] (2017)	BX4 /2KS	14.700 rpm
Yamaha YZF-R1 [M] (2020)	B3L / B4S	15.200 rpm

### 4. Minimum weight

motorcycles with FIM homologation in Superstock 1000 class	170 kg
motorcycles with FIM homologation in Superbike class	175 kg

At no time during the event may the weight of the whole motorcycle (including the tank and its contents) be less than the minimum weight.

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

During the final technical inspection at the end of each race, the selected motorcycles will be weighed in the condition in which they finished the race. 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.

The ballast must be made of solid metallic pieces, firmly and securely connected, either through an adapter or directly to the main frame or engine, with a minimum of 2 steel bolts (min. 8 mm diameter, 8.8 grade or over). Other equivalent technical solutions must be submitted to the Chief Technical Steward for his approval.

Fuel in the fuel tank can be used as ballast. Nevertheless, the verified weight may never fall below the required minimum weight.

### 5. Start numbers

All start numbers must be visibly displayed on the front (1 x in the centre or 1 x on each side) and at least once on each side of the motorcycle.

Figures may only consist of one or two figures (#1-99).

The start numbers design is free, provided the following requirements are met:

- white background
- height of the front figures: 140 mm
- height of the side figures at wedge/fairing pan 120 mm  
(free 1 x tail unit from rear view in driving direction 120 mm)
- contrast and legibility must be guaranteed

The final decision on the admissibility of the start numbers design is made by the Chief Technical Steward.

## 6. Fuel

See DMSB Yearbook, blue section, FIM fuel regulations.

Each participant/team must declare the make and exact type of fuel to be used, the source of supply and the manufacturer in the scrutineering certificate at the preliminary checks and declare any changes before the event to the Chief Technical Steward.

Fuel samples may be taken by the DMSB at any time during an event for checking purposes.

## 7. Tyres

Standard tyres according to IDM championship regulations are mandatory.

The depth of the tyre tread over the whole pattern at pre-event scrutineering must be at least 2.0 mm.

For slick tyres, the wear indicator must show at least 2.0 mm.

All tyres must comply with the general safety standards of the manufacturer. The use of tyre warmers is permitted.

## 8. Engine

A limited number of engines may be used per season, whereby the calculated number shall always be rounded off:

$$\text{Number of allocated engines} = \frac{\text{Number of events}}{2}$$

### 8.1. Engine sealing

Engine sealing:

The engines must be prepared in advance (*for example drill holes*) so that the sealing *may take place without any problems* on the right in direction of travel.

The total number of engines that a rider may use during the entire championship is limited the "allocated number". When a permanent rider changes teams during the championship, his engine limit should not change, but in extra-ordinary circumstances will be reviewed by the Chairman of the Stewards.

The total number of engines that a team may use during the entire championship is limited to the "permitted number" per permanent registration. When a permanent rider is replaced during the championship, the total engine allocation for the teams' entry will not change. Should a new team enter the championship part way through the season, the permitted number of engines will be proportional to the season remaining.

Wild card riders (and one event riders) will be allowed to use two sealed engines during the event in which they take part. Should the same rider choose to enter a second event as a wildcard, one extra engine will be added. For any further entry, the rider and/or team will be considered a permanent registration.

The technical stewards must be notified of all engine changes and therefore always know which engine is in current use.

The number of engines that may be used during each event is only limited by the "permitted number". Each engine must be sealed by the technical stewards before it may be used during an event.

An engine is considered in use or active from the moment it crosses the line at the pit exit.

Seals will bear a serial number, which will be recorded.

Any attempt made to remove the seal will damage it irreparably. Seals may only be removed under the supervision (*or written permission*) of the technical stewards.

A broken or damaged seal will be considered as if the engine has been used and will be counted as part of the rider's allocation for the season. Moreover, the engine will be considered as not complied within the rules and all imposed penalties will be applied retrospectives for all races this engine was used with this seal.

A team must request sealing of an engine/engines before its/their use.

A previously sealed engine may be resealed following repair or revision; this will be considered a new engine and count towards the total number of engines allowed.

All seals including the seals on an engine that has completed its life cycle or needs repair may only be broken in front of a technical steward, *or with the written authorisation of the Chief Technical*

**Steward.** At the time of the breaking of the seals the technical steward may ask for this engine to be disassembled to check for compliance of the technical rules.

The crankcases will be sealed in such a way not to allow the disassembly for repair, replacement or adjustment of the crankshaft, connecting rods and/or associated bearings, pistons, piston pins or piston rings.

The cylinder, cylinder head(s) and head cover/cam cover will be sealed to prevent repairs, replacement or adjustment on the cylinder head, valves, valve seats or any other repairs or service work on the valve train.

Valve clearance adjustments may be made after approval of the Chief Technical Steward and under the supervision of a technical steward. Approval must be requested in advance to the Chief Technical Steward. A new seal will subsequently be applied.

The cassette gearbox door and/or crankcases will be sealed to control the gearbox use.

The right and left hand engine side covers will not be sealed as to allow repair or adjustment to the generator, clutch system, water pump or other accessory systems located behind these covers. If an engine is found not to be in compliance with the regulations, any penalties imposed will apply retrospectively to each race this engine was used in.

## **8.2. Engine inspection**

When any engine is unsealed and stripped for inspection following a protest or at the discretion of the Chief Technical Steward and found to be fully compliant with the rule(s) which is (are) the subject of the inspection, then the team will be given one additional seal allocation to reseal the rebuilt engine.

When an engine has reached the “end of life” then the Chief Technical Steward may at his discretion choose to have that engine stripped to check for compliance.

## **8.3. Fuel injection system**

Fuel injection systems refers to throttle bodies, fuel injectors, fuel-pump and fuel pressure regulator and may not be modified.

Variable intake tract devices may not be added if they are not present on the homologated motorcycle. The intake trumpets may be replaced.

Air and air/fuel mixture must go to the combustion chamber exclusively through the throttle body valves.

Electronically controlled throttle valves, known as “ride-by-wire”, may be only used if the homologated model is equipped with the same system. Software may be changed, all the safety systems and procedures as originally provided by the manufacturer must however be retained.

## **8.4. Cylinder head**

The gaskets may be replaced.

Only normal maintenance interventions as prescribed by the manufacturer in the service manual of the motorcycle are authorised.

## **8.5. Camshaft**

Kit-Camshafts available from accessory parts of the concerned motorcycle manufacturer Aftermarket programme may be used, including valve springs, spring plates and valve spring retainers.

## **8.6. Cam sprockets or cam gears**

Cam Sprockets and timing chain tensioner are free.

## **8.7. Crankcase/ Gearbox housing**

It is not allowed to add a pump used to create a vacuum in the crankcase. If a vacuum pump is installed on the homologated motorcycle, then it may be used only as homologated.

### **8.7.1. Lateral (*engine-*) covers and protection**

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.

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, composite covers are not permitted.

The secondary cover must cover a minimum of 1/3 of the original cover. It must have no sharp edges to damage the track surface.

Plates or crash bars made from aluminium or steel also are permitted in addition to these covers. All of these devices must be designed to be resistant against sudden shocks, abrasions and crash damage.

FIM approved covers and [covers included in the IDM Eligible Parts List](#) are permitted without regard of the material or the dimensions.

These covers must be screwed properly and securely with a minimum of three case cover screws that also mount the original covers/engine cases to the crankcases.

Oil containing engine covers must be secured with steel bolts. The Chief Technical Steward has the right to refuse any cover not satisfying this safety purpose.

## 8.8. Transmission/Gearbox

Electronic quick-shift systems and shift indicator for upshifting as well as quick-shift systems to downshifting (blipper) are allowed.

Countershaft sprocket, rear wheel sprocket, chain pitch and size may be changed.

The chain tensioner is free.

The sprocket cover may be modified or eliminated.

Chain guard as long as it is not incorporated in the rear fender may be removed.

## 8.9. Clutch

Only friction and drive discs may be changed, but their number must remain as original.

Clutch springs may be changed.

Alternatively, the anti hopping clutch from IDM series partners may be used, the outer clutch basket must remain as homologated.

## 8.10. Oil pumps and oil lines

Oil lines may be modified or replaced. Oil lines containing positive pressure, if replaced, must be of metal reinforced construction with swaged or threaded connectors. [All oil related connections must be lockwired.](#)

## 8.11. Radiator, cooling system and oil cooler

Only water without any additives may be used as the liquid for cooling the engine.

Protective meshes may be added in front of the oil and/or water radiator(s).

The cooling system hoses and catch tanks may be changed.

Radiator fan and wiring may be removed. Thermal switches, water temperature sensor and thermostat may be removed inside the cooling system.

Water and oil cooler may be altered or replaced. In addition, one water and one oil cooler may be fitted. All coolers must be inside the fairing and the appearance of the front, the rear and the profile of the motorcycle must not be changed as a consequence.

Oil lines must be pressed and/or bolted [and lockwired](#). Extra mountings to attach the additional radiators are permitted.

## 8.12. Airbox

The air filter element may be modified or replaced but must be mounted in the original position.

The air box drains must be sealed.

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 airbox.

No heat protection may be attached to the airbox.

## 8.13. Fuel supply

Fuel lines from the fuel tank to the delivery pipe assembly (excluded) may be replaced.

Quick connectors may be used. Fuel air supply and vent lines may be replaced. Fuel filters may be added. [An unpressurised drain line may be installed under the same conditions.](#)

## 8.14. Exhaust system

Exhaust pipes and silencers may be modified or changed. Catalytic converters must be removed. The number of the final exhaust silencer(s) must remain as homologated. The silencer(s) must be on the same side(s) of the homologated model.

For safety reasons, the exposed edges of the exhausts pipe(s) outlet must be rounded to avoid any sharp edges.

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.

The noise limit is 107 dB/A (with a 3 dB/A tolerance after the race only).

## 9. Electrics and electronics

### 9.1. Ignition / Engine Control Unit (ECU)

The engine control unit (ECU) must be either:

- a) An FIM/DWO/DMSB approved "Superstock Kit" model (produced and/or approved by the motorcycle manufacturer) may be used. A special connector/adaptor may be used to connect the ECU(s) and the original wiring harness.
- b) Wild card riders (and one event riders) will be allowed to use the original homologated system, in this case the Software may be modified.
- c) It is permitted to add commercially available external modules for the ignition and/or fuel injection to the original system, *with a retail price limit in Germany of €1000 excluding tax*. A special connecting part may be used to connect the module/s and the ECU.
- d) Central unit (ECU) may be relocated.

Corner-by-corner or distance/position based adjustments are not allowed.

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.

During an event the technical stewards or their delegates have the right to ask a team to substitute their ECU. The change has to be done before warm up.

No extra sensors for engine control may be added except sensors on the shift rod, wheel speed sensors and lambda sensors. Wheel speed sensors must be included in the Kit ECU and wiring harness package if required.

Other additional electronic hardware equipment not on the original homologated motorcycle may not be added with the exceptions listed below.

The characteristics of approved data logging systems must be the following:

- a) The Data Logger unit must be available for sale to the public and on the list of FIM/DWO/DMSB "Superstock 1000" approved data loggers, or on the IDM Eligible Parts List.
- b) A maximum of 9 simultaneous working sensors (connected to the additional data logger) may be added to the original sensors on the motorcycle. The sensors must be from the following list:
  1. Lambda (must be supplied in the kit if used for engine control)
  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)
  11. Wheel speed front
  12. Wheel speed rear
  13. Rear Tyre Pressure Monitoring System (temperature and pressure)
  14. Front Tyre Pressure Monitoring System (temperature and pressure)
- c) The sensors must be simple-function. Inertial sensors/control units are only permitted, if they are part of the FIM homologation of the motorcycle.
- d) CAN communication (or other data protocol, k-line, LIN) from the ECU to an approved data logger is allowed without any limitation in relation to the CAN channel logger number.

Other active/control/calculation units such as lambda driver modules, quick shifter and analogue to CAN must be approved by FIM/DWO or the DMSB.

Telemetry is not allowed.

No remote or wireless connection to the bike for any data exchange or setting is generally allowed whilst the engine is running or the bike is moving. For the sole purpose of TV transmission, the following information may, however, be transmitted to the motorcycle: camera pictures, speed, revs and inclination angle.

Harness:

- a) The main wiring harness may be replaced by the kit wire harness as supplied for the Kit ECU model, produced and/or approved by the manufacturer of the motorcycle and by FIM/DWO/DMSB.
- b) The data logging harness may be incorporated in the kit wiring harness.
- c) A kit harness that incorporates the data logging harness may only accommodate 9 additional sensors.
- d) The key/ignition lock may be relocated, replaced or removed.
- e) Changes of the original main wiring harness are allowed.

Data logger Harness:

The Data Logger wire harness may not include any other sensors with the exception of the 9 sensors that are allowed. The only permitted function of the approved Data Logger wire harness is to connect the 9 sensors to the Data Logger, to transmit the data and supply the power.

External modules may not alter any sensor signal relating to the ride by wire system or control/actuate any part of the machine with the exception of the ignition coils, the fuel injectors and the blipper (see Article 8.8). Changes of firmware and software are allowed for wild card riders (and one event riders) only, provided that all the above regulations are respected.

The original speedometer and tachometer may be altered or replaced (see also Article 12).

Spark plugs may be replaced.

The battery is free, but the use of lithium polymer batteries is prohibited.

An automatic switch-off device for the event of a crash, e.g. tilt sensor, must be active and capable of being checked at all times.

*The rain light must be powered either by the ECU (as detailed in the harness schematics), or through an external power source.*

## 9.2. Generator, alternator, electric starter

The generator must remain as originally installed and homologated. No modifications are permitted.

The stator must be fitted in its original position and without offsetting.

The electric starter must operate normally and always be able to start the engine during the event without the use of a boost battery.

## 10. 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 needs to be replaced, the rider or the team must make a request to the Chief Technical Steward to use the spare frame.*

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

- Main frame
- Bearings (steering pipe, swing-arm, etc)
- Swing-arm
- Rear suspension linkage and shock absorber
- Upper and lower triple clamps
- Wiring harness

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

*The rebuilt motorcycle must be inspected before its use by the technical stewards for safety checks and a new marking/identification will be placed on the motorcycle frame.*

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

## **EXPLANATION OF THE PROCEDURES**

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

The frame of this motorcycle will be officially marked/identified by the technical stewards. Any attempt made to remove the marking/identification will damage it irreparably.

At any time during the event the technical stewards, under the direction of the Chief Technical Steward, may check the seal and verify that it conforms to the motorcycle and rider it was assigned to. For cross reference, every frame must have a unique number punched on it, preferably on the steering-head. If there is no VIN of the manufacturer on the frame, but a consecutive number of the team (001, 002.....), a declaration of conformity of the manufacturer must be submitted, which certifies the exact vehicle type.

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

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

When a team decides that a crashed or damaged motorcycle requires a change of frame, it must inform the Chief Technical Steward. Only once authorized may the pre-assembled spare frame be brought into the pit box.

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

Once the assembly of the replacement motorcycle is completed, the machine must undergo technical and safety checks and it will be officially marked. The marking on the damaged motorcycle will be destroyed by the technical staff and the chassis of this motorcycle must not be used for the remainder of the event. The new frame number will be recorded by the technical stewards.

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

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

### **10.1. Frame body and rear sub frame**

The use of titanium in the frame construction is prohibited.

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.

Nothing else may be added or removed from the frame body.

All motorcycles must display a vehicle identification number punched on the frame body (chassis number).

Front sub frame / fairing mount may be changed or altered.

Rear sub frame may be changed or altered, but the type of material must remain as homologated, or material of a higher specific weight may be used as an alternative.



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.

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

## 10.2. Front forks

The use of titanium in the construction of the front fork and wheel spindle is prohibited. For wheel spindles, the use of light metal alloy is equally prohibited.

The steering tube, the steering bearings and inserts of the steering bearings are free.

Steering dampers may be added or replaced with after-market dampers. The steering damper may not act as a steering lock limiting device.

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).

Dust seals may be modified, changed or removed if the fork remains totally oil-sealed.

Mechanical forks: Original internal parts of the homologated forks may be modified or changed. After-market damper kits or valves may be installed. The original surface finish of the fork tubes (stanchions, fork pipes) may be changed. Additional surface treatments are allowed.

### Electronic forks:

No after-market or prototype suspension parts with electronic control may be used. Electronic suspensions may be used if installed on the production model of the homologated motorcycle. However, it must be completely standard (any mechanical or electronic part must remain as homologated) with the exception of the discs and springs. The original suspension system must work safely in the event of an electronic failure.

The electronic front suspension may be replaced with a mechanical system from a similar homologated model from the same manufacturer.

Electronic forks may have their complete internal parts (including all electronic control) replaced with a conventional damping system and it will then be considered as a mechanical fork.

Alternatively, front forks from IDM series partners included in the IDM Eligible Parts List may be installed. Fork bridges from IDM series partners may be installed but they must be installed in conjunction with the original offset of the concerned motorcycle (*except for Consession Parts*). *Specifications and deviations are included in the IDM Eligible Parts List.*

## 10.3. Rear fork (Swing-arm)

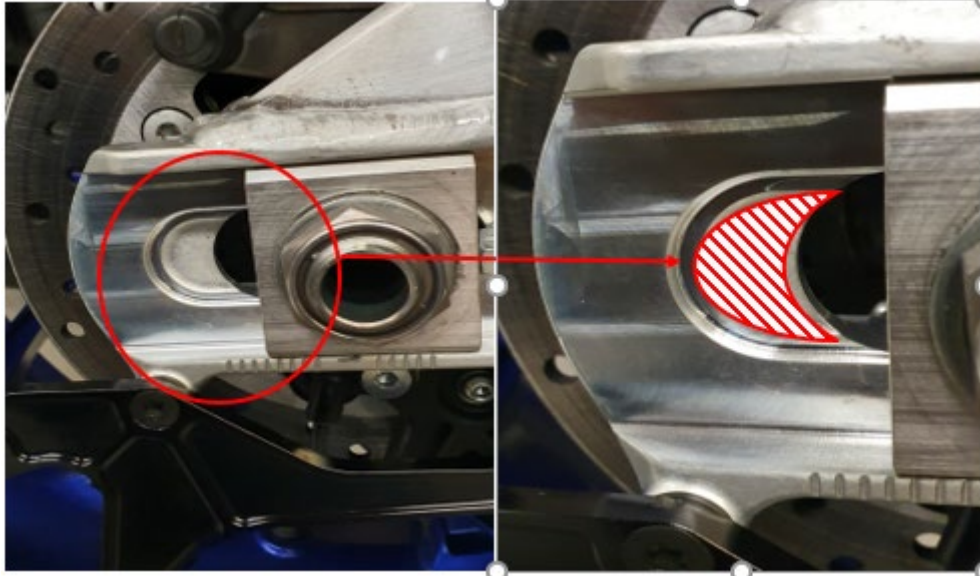
The use of titanium in the construction of the swing-arms, the swing-arm axis and the spindle axis is prohibited. For spindle axis, the use of light metal alloy is equally prohibited.

The suspension strut deflection including tension struts, bearings and screw connections may be modified or replaced. If the parts used are not official kit parts from the manufacturer, proof of the manufacturer and the technical drawing must be submitted to the Chief Technical Steward before use. The position of the front swing arm axis on the rear swing arm may be modified by 3 mm in any direction compared to the standard position but the frame may not be modified for that purpose.

A chain guard must be fitted in such a way to reduce the possibility that any part of the riders' body may become trapped between the lower chain run and the rear wheel sprocket.

Rear wheel stand brackets may be added to the rear fork by welding or by bolts. This device 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.

Model Yamaha YFZ-R1/R1M (RN651/655): The swing-arm may be extended in the rear area of the wheel axle mount from 64mm to a maximum length of 80mm according to the following illustration.



## 10.4. Rear suspension unit

Rear struts may be modified or replaced, but the original attachments must be as homologated. A nut may be made captive on the top shock mount and shim spacers may be fitted behind it to adjust ride height.

Mechanical strut: Rear strut and spring may be changed.

Electronic strut:

No after-market or prototype struts with electronic control may be used. Electronic struts may be used if installed on the production model of the homologated motorcycle. However, it must be completely standard (any mechanical or electronic part must remain as homologated) with the exception of the discs and springs.

If the standard system has no facility for ride height adjustment the standard shock may be modified to allow shock length change if no hydraulic parts are modified. The original strut must work safely in the event of an electronic failure. The electronic shock absorber may be replaced with a mechanical one.

## 10.5. Wheels

- a) Wheels may be replaced and associated parts that are fitted to the homologated motorcycle may be altered or replaced.
- b) Aftermarket wheels must be made from aluminium alloys.
- c) The use of the following alloy materials for the wheels is not allowed: Beryllium ( $\geq 5\%$ ), Scandium ( $\geq 2\%$ ), Lithium ( $\geq 1\%$ ).
- d) *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.*
- e) *Wheel axles may be modified or replaced, but must be made of the same material as the originally homologated part and have at least the same weight. The axle must have the same diameter as the homologated axle, but the thread area may be reduced in diameter.*
- f) *The axles may be protected by permanently attached, non-sharp-edged plastic protectors, with a maximum projection outside the axle of 25 mm on the insertion side and 15 mm on the screw side. Wheel spacers can be modified or replaced.*
- g) *Bearing spacers are free.*
- h) *Wheel balance weights may be discarded, changed or added to. Angled aluminium or steel inflation valves are compulsory.*

Permitted wheel rim diameter size:	17 inches
Permitted front wheel rim width:	3.50 inches
Permitted rear wheel rim width:	6.00 inches

## 10.6. Brakes

Brake discs may be replaced by aftermarket discs.

Brake discs and carriers must be of the same material as the homologated discs and carriers.

The brake callipers on the front brake may be replaced by accessory callipers with a maximum net retail price *in Germany* of € 1500. *Deviations are included in the IDM Eligible Parts List (Consession Parts).*

The brake calliper on the rear brake must remain as produced by the manufacturer for the homologated motorbike. Modifications are not permitted. *Deviations are included in the IDM Eligible Parts List (Consession Parts).*

In order to reduce the transfer of heat to the hydraulic fluid it is permitted to add metallic shims to the callipers, between the pads and the callipers. The brake calliper pistons are free. For the purpose of cooling the brakes, it is permitted to add air baffles that are commercially available.

The mounting of the rear brake calliper is free. The brake calliper may be mounted downwards / hanging and the bracket firmly attached to the swing-arm. The swing-arm may be modified for this reason to aid the location of the rear brake calliper mounting, by welding, drilling or by using a helicoil. The front master cylinder may be replaced. The spare parts must be freely available on the market and *included in the IDM Eligible Parts List.*

Front and rear brake fluid reservoirs may be replaced by after-market parts.

Front and rear hydraulic brake lines may be replaced.

The split of the front brake lines for both front brake callipers must be made above the lower fork bridge (lower triple clamp).

“Quick” (or “dry-break”) connectors in the brake lines are allowed.

Front and rear brake pads may be changed. Brake pad locking pins may be modified for quick change type.

The Antilock Brake system (ABS) *must* be disconnected, and its ECU may be dismantled, where applicable. The ABS rotor wheel may be removed, modified, or replaced.

An additional *or alternative* manual control of the rear brakes (so-called thumb-brake) is permitted. Both systems must operate independently. If an additional thumb-brake is used on the rear, the rear master brake cylinder is free but, compared to the originally homologated component, it must have no additional function apart from providing a connection for this brake and its control. Moreover, the interior diameter of the foot brake cylinders must comply with the homologated dimensions of the manufacturer.

The brake fluid containers may be modified or replaced.

*The brake lever design is free.*

Handbrake levers must be equipped with a 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 IDM Eligible Parts List will be permitted without regard of the material. The technical stewards have the right to refuse any guard not satisfying this safety purpose.

## 10.7. Handlebars and hand controls

The use of titanium and composite materials in the construction of the handlebars is prohibited.

Exposed handlebar ends must be plugged with a solid material or rubber covered.

The steering lock angle on each side of the centre line or mid position must be at least 15° for all motorcycles.

Whatever the position of the handlebars and the chassis are, the front wheel, tyre and the mudguard must maintain a minimum gap of 10 mm to the adjacent and surrounding parts.

Solid stops, (other than steering dampers) must be fitted to ensure a minimum clearance of 30 mm between the handlebar with hand lever in full lock and the tank, frame or other bodywork to prevent trapping the rider's fingers (see diagram A, DMSB Motorcycle Yearbook, blue section).

Repair by welding of light alloy handlebars is prohibited.

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.

Each control lever (hand and foot levers) must be mounted on an independent pivot.

Handlebars may be replaced.

Handlebars and hand controls may be *replaced and* relocated.

Throttle controls must be self-closing when the rider releases the control.

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. Throttle controls with Bowden cable operation must be equipped with both an opening and a closing cable, including when actuating a remote drive by wire grip/demand sensor.

Clutch and brake lever may be replaced with an after-market model. An adjuster to the brake lever is allowed.

Switches may be changed but the electric starter switch and engine stop switch must be located on the handlebars.

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.

## 10.8. Foot rest / Foot controls

Foot rests/foot controls may be relocated but the hangers/brackets must be mounted to their original frame mounting points.

Foot rests may be rigidly mounted or a folding type but folding types must incorporate a device to return them to the normal position.

The end of the foot rest must have at least an 8 mm solid spherical radius.

Non-folding footrests must be sealed at the end with a plug. The plug must be permanently fixed, made of aluminium, plastic, Teflon® or an equivalent type material (minimum radius 8 mm). 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 aim.

If the foot brake lever is mounted on the axle of the footrest, it must nevertheless remain functional under all circumstances, for example in the event of any deformation of the footrest.

## 10.9. Fuel tank

All fuel tanks must be completely filled with fire retardant material (preferably Explosafe®).

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 and made of a suitable material.

Fuel caps may be replaced. Fuel caps when closed must be leak proof. Additionally, they must be securely locked to prevent accidental opening at any time.

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.

Additional covers may be added to the tank to provide support for the rider, but they do not need to match the standard silhouette.

## 10.10. Fairing / Bodywork

Fairing may be replaced, and the material may be changed, but the silhouette of the fairing must comply with the series production part.

The fairing may be slightly cut at the front, in the area of the radiator, but **only** towards the bottom, to achieve a better air supply to the radiator.

Additional fairing elements, situated at the inside between radiator system and main fairing elements as well in the area of the lower fork bridge, are admitted but only to achieve a better cooling air supply to the cooling system.

The mountings must for this purpose be located within or on the fairing and be fitted so that the vehicle handling is not compromised.

The fairing in the area of generator, the gearbox and the crankshaft may be closed.

The windscreen may be replaced by a duplicate of transparent material, the shape may be changed (so called bubble form).

The suspension / attachment to the fairing must be as homologated.

No fairing may be added to motorcycles which were originally not equipped with a fairing.

The original combined bracket for instrument/ fairing may be replaced. All other fairing brackets may be altered or replaced.

Any motorcycle jack mount must be bolted to either the frame or the engine block and no part (except foot pads) may protrude beyond the fairing.

Modifications on the fairing for the purpose of mounting the motorcycle jack and the foot pads are permitted. The maximum distance between the foot pads and/or supports of a motorcycle jack and the fairing must not represent any kind of danger.

The original air ducts running between the fairing and the air box may be altered or replaced. The outer air inlet openings in the fairing must remain as original and may only be adjusted at the interior or for the air inlet ducts. Additional air inlets are prohibited.

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 motorcycle (minimum 5 litres).

The lower edge of the openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.

*The lower part of the fairing may have a minimum of one and a maximum of two drainage openings of at least 25 mm diameter each at the lowest point. In dry conditions, the lower part of the fairing must be closed; in wet track conditions, the lower part of the fairing may be opened. Replacement of the lower part of the fairing is permitted.*

The front mudguard may be replaced. The front mudguard may be spaced upwards for increase of tyre clearance. The appearance must comply with the original. The mudguard brackets integrated in the lower fork section may be modified, removed or replaced.

The rear mudguard may be modified, replaced or removed.

Rear mudguards fixed to the swing arm that incorporates the chain guard may be modified / replaced to accommodate larger diameter rear sprockets.

All exposed edges must be rounded.

### 10.11. Seat

Seat, seat base and associated bodywork may be replaced by parts of the same shape as originally produced by the manufacturer for the homologated motorcycle. The appearance from front, rear and profile must conform to the homologated shape.

The top portion of the rear bodywork around the seat may be modified to a solo seat.

The homologated seat locking system (with plates, pins, rubber pads etc.) may be removed.

### 10.12. Fasteners

Standard fasteners may be replaced with fasteners of any material and design but titanium fasteners may not be used. The strength and design must be equal to or exceed the strength of the standard fastener.

Fasteners may be drilled for safety wire, but intentional weight-reduction modifications are not allowed.

Thread repair using inserts of different material such as HeliCoils and timeserts.

Fairing/bodywork fasteners may be replaced with the quick disconnect type.

Aluminium fasteners may only be used in non-structural locations.

### 10.13. Rear Safety Light

*All motorcycles must have a functioning red light mounted at the rear of the machine. All lights must comply with the following:*

- a) Lighting direction must be parallel to the machine centre line (motorcycle running direction), and be clearly visible from the rear at least 15 degrees to both left and right sides of the machine centre line.*
- b) The rear light must be mounted near the end of the seat/rear bodywork and approximately on the machine centre line, in a position approved by the technical stewards. In case of dispute over the mounting position or visibility, the decision of the technical stewards will be final.*
- c) Power output/luminosity equivalent to approximately: 2 W (LED).*
- d) The output must be continuous - no flashing of the safety light whilst on track, flashing is allowed in the pit lane when pit limiter is active.*
- e) Safety light power should be supplied either by the control ECU or the light switch must be connected directly to the battery with an external supply. The wiring harness of the ECU must not be modified.*
- f) The technical stewards have the right to refuse any light system not satisfying this safety purpose.*

## 11. The following items MAY be altered or replaced from those fitted to the homologated motorcycle

- Any type of lubrication, brake or suspension fluid may be used.
- Gaskets and gasket materials.
- Instruments, instrument bracket(s) and associated cables.
- Painted external surface finishes and decals.
- Material for brackets connecting non-original parts (fairing, exhaust, instruments, etc.) to the frame (or engine) cannot be made from titanium.

- Protective covers for the 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 model.

## 12. The following items **MAY** be removed

- Emission control items (anti-pollution) in or around the air box and engine (O2 sensors, air injection devices).
- Tachometer.
- Speedometer.
- Chain guard as long as it is not incorporated in the rear fender.
- Bolt-on accessories on a rear sub frame.

## 13. The following items **MUST** be removed

- Headlamp, rear lamp and turn signal indicators (if not incorporated in the fairing). Openings must be covered by suitable materials.
- Rear-view mirrors.
- Horn.
- License plate bracket.
- Toolkit.
- Helmet hooks and luggage carrier hooks.
- Passenger foot rests.
- Passenger grab rails.
- Safety bars, centre and side stands must be removed (fixed brackets must remain).
- *Catalytic converters.*
- *Rear mudguards affixed to the seat unit.*

## 14. Equipment and protective clothing

Rider clothing / equipment in compliance with FIM Article 1.65 is mandatory.

It is mandatory for the leather suit to be fitted with an Airbag system. Alternatively, commercially available airbag vests will also be permitted. Every rider must start each track session with a functional Airbag system. Once the airbag has been deployed, the responsibility for continuing the practice or race rests with the rider.

The rider's name must appear on the right arm of the rider's clothing near the wrist (embroidered, patch).

## 15. Camera / Camera mounting

The use of cameras is only permitted in free practice. These must have a double attachment and *must be secured* (e.g. pad + wire rope) and have to be presented at the scrutineering *before using on the race track*.

Any use outside the free practice sessions will only be authorised by the series organizer in exceptional cases.