ALPE ADRIA MOTORCYCLE UNION
ALPE ADRIA CIRCUIT RACING
TECHNICAL REGULATIONS
SPORT BIKE
2024

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AACR 7 SPORT BIKE

AACR 7.0 GENERAL

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

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

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

All motorcycles must comply in every respect with all the requirements for road racing as specified in these technical regulations.

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

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

AACR 7.0.1 PROTECTIVE CLOTHING AND HELMETS

a) Riders must wear a complete leather suit with additional leather padding or other protection on the principal contact points, knees, elbows, shoulders, hips etc.

b) Linings or undergarments must not be of a synthetic material, which might melt and cause damage to the rider´s skin.

c) Riders must also wear leather gloves and boots, which with the suit provide complete coverage from the neck down.

d) Leather substitute materials may be used, provided the Chief Technical Officer has checked them.

e) Riders must wear a helmet, which is in good condition, provides a good fit and is properly fastened.

f) Helmets must be of the full-face type and must comply with one of the recognised international standards:

- Europe: ECE 22-05, ECE 22-06 (only “P” type)
- Japan: JIS T 8133:2015 (only type 2 “Full Face”)
- USA: SNELL M 2015

Helmets with double D-Ring fasteners are mandatory!

New FIM helmet standards FRHPhe-01 is highly recommended.

g) Visors must be made of a shatterproof material.

h) Disposable "tear-offs" are permitted.

i) Only helmets with a valid and identifiable label will be accepted.

j) Use of a chest and back protector is mandatory. (with or without airbag protection in the suit) and must be clearly marked with the following norms:

i. The back protector must comply with EN1621-2, CB ("central back") or FB ("full back") Level 1 or 2.
ii. The chest protector must comply with prEN1621-3 Level 1 or 2..

k) Any question concerning the suitability or condition of the riders clothing and/or helmet should be decided by the Chief Technical Officer, who can, if he wishes so, consult the manufacturers of the product before making a final decision.

l) The use of mechanical Airbag Systems is strictly forbidden. The Chief Technical Officer has the right to refuse any system not satisfying this safety purpose.

AACR 7.1 ELIGIBLE MOTORCYCLES (as of February 2024)

Only the following motorcycles are permitted:

- Aprilia RS 660 Jan 2021 - Present
- Ducati Monster 797 Jan 2017 - Present
- Kawasaki EX 650 Jan 2006 - End
- Kawasaki Ninja 650 Jan 2012 - End
- Kawasaki Ninja 650R Jan 2017 - Present
- Suzuki SV 650 A /SA Jan 2003 – End
- Suzuki SV 650 A Jan 2016 – Present
- Suzuki SFV 650 Gladius Jan 2009 – End
- Yamaha FZ 07 / MT 07 Jan 2013 – Present
- Yamaha XSR 700 Jan 2018 – Present
- Yamaha R 7 July 2021 - Present

AACR 7.1.1 Balancing various motorcycle concepts

To equalize the performance of motorcycles used in the Twins Cup Championship, a system of performance enhancements or restrictions can be developed (such as minimum weight, air restrictors or REV limits can be applied according to their respective racing performances). The decision to apply a balancing system to a motorcycle will be made by the Alpe Adria Road Racing Commission based on decisions made by the Technical Director at any time deemed necessary to ensure fair competition.

The validity of changes will be published with Technical Bulletins.

AACR 7.2 CURRENTLY VALID ENGINE RESTRICTIONS

The following balancing regulations are currently valid:

AACR 7.2.1 Aprilia RS 660 engine restrictions

a) Cylinders: Must be the originally fitted part with no modification allowed.

b) Pistons: Must be the originally fitted part with no modification allowed.

c) Piston rings: Must be the originally fitted part with no modification allowed. All piston rings must be fitted.

d) Piston pins and clips: Must be the originally fitted part with no modification allowed.

e) Connecting rods:

i. Connecting rods can be altered or replaced from those fitted to the original motorcycle. The weight must be the same or greater than the original part.

ii. The material must be the same as the original connecting rod.

iii. The centre to centre (small end to big end) length of the connecting rod must be the same as the original connecting rod.

iv. Connecting rod bolts and nuts are free.

Remark: Cylinder liner is free.

AACR 7.3 MINIMUM WEIGHT

The minimum weight is 153 kg.

a) There is no tolerance on the minimum weight.

b) During the final technical 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 can be added to the motorcycle. This includes all fluids.

c) During the practice and qualifying sessions, riders can be asked to come to a weight control with their motorcycles. In all cases, the rider must comply with this request.

d) The use of ballast is allowed to stay over the minimum weight limit.

e) The ballast must be made from solid metal piece(s), firmly and securely connected, either through an adapter or directly to the main frame or engine, with minimum 2 steel bolts (min. 8 mm diameter, 8.8 grade or higher). Other equivalent technical solutions must be submitted to the Chief Technical Officer for his approval.

AACR 7.4 STARTING NUMBERS & BACKGROUND COLOURS

Blue background with white numbers. The numbers must be clearly visible and in a good shape.

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

a) One on the front, either in the centre of the fairing or slightly off to one side. The number must be centred on the background with no advertising within 25 mm in all directions.

b) One, on each side on the lower rear portion of the lower fairing; see Appendix A. The number must be centred on the background.

c) Numbers must be easily legible in a clear simple font and contrast strongly with the background colour.

d) Backgrounds must be of one single colour and must be clearly visible around all edges of the number (including outline). Backgrounds must protrude the numbers within 15 mm in all directions.

e) Any outlines must be of a contrasting colour and the maximum width of the outline is 3 mm.

f) Reflective or mirror type numbers are not permitted.

g) Numbers cannot overlap.

In case of a dispute concerning the legibility of numbers, the decision of the Chief Technical Officer is final.

The sizes for all the front numbers are:	Minimum height Minimum width	120 mm 60 mm

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

AACR 7.5 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, see FIM Superbike, Supersport & Supersport 300 World Championship Regulations 2022, Art. 2.8.

b) At least 1/2 litre fuel must remain in the fuel tank of all the motorcycles that finished the race to take samples if needed.

AACR 7.6 TIRES

a) Maximum number of tires for each event:
   i. There is no maximum number of tires.

b) Tire brand and compound are free.

c) Tires must be a fully moulded type carrying all size and sidewall markings of the tires and must be available for commercial sale to the public.

d) Slick tires are allowed.

e) The tires must have a DOT and/or E-Mark, the DOT and/or E-mark must be on the tire sidewall.

f) Any modification or treatment of the tires (cutting, grooving) is forbidden.

g) Wet tires can be used only when the Race Direction has declared the race or practice "WET".

h) Wet tires must be a fully moulded tyre.

i) Wet tires do not need to carry a DOT and/or E-marks; however, these tires must be marked "not for highway use" or "NHS".

AACR 7.7 ENGINE

The number of engines is free.

AACR 7.7.1 Cylinder Head & Valves

The cylinder head must be the originally fitted part. The following modifications are allowed:

a) Porting and polishing of the cylinder head normally associated with individual tuning such as gas flowing of the cylinder head, including the combustion chamber is allowed.

b) Welding is not allowed.

c) No machining or modification is allowed in the cam box/valve mechanism area.

d) The throttle body intake insulators can be modified.

e) Modifications of the inlet and exhaust ports by taking off or adding material (welding is forbidden). Epoxy can be used to shape the ports.

f) It is forbidden to add any material to the cylinder head unless as described above.

g) Surface grinding of the cylinder head surface on the head gasket side.

h) Original valves guides can be replaced.

i) Polishing of the combustion chamber.

j) Original valve seats must be used, but modifications are allowed to the shape.

k) Compression ratio is free, but the combustion chamber can be modified only by taking material off.

l) Valves can be modified or replaced, but the valve head diameter must not be larger than the original one.

m) Valve clearance adjusting shims are free.

n) Valve springs can be changed but the number must remain original.

o) Valve spring retainers and valve cotters can be modified or replaced.

p) Valve spring seats (spring base) can be modified or replaced. Valve spring shims can be added.

q) Valve stem seals can be modified or replaced.

r) Gaskets can be modified or replaced.

The parts listed below must be the originally fitted parts with no modifications allowed:

s) Cam followers / valve lifters (bucket tappets, finger followers, rocker arms) must remain original.

t) Valve clearance adjusting screws and nuts must remain original.

The modification(s) listed below are mandatory:

u) The exhaust air bleed system must be blocked and the external fittings on the cam cover(s) can be replaced by plates.

AACR 7.7.2 Camshafts

a) Camshafts can be modified or replaced.

AACR 7.7.3 Camshaft drive

a) Camshaft sprockets or gears can be modified or replaced to allow the degreeing of the camshafts.

b) Pressed on cam sprockets or gears can be replaced with an adjustable boss and cam sprocket or gear.

c) The cam drive system (chain drive, belt drive or gears) must remain original.

d) Cam chain(s), cam belt(s) and cam drive gears must remain original.

e) Cam chain / cam belt tensioner(s) can be modified or replaced.

AACR 7.7.4 Cylinders

a) Cylinders can be bored to a maximum of 2mm over standard bore or up to a maximum total displacement of 700 ccm, whichever is less. Motorcycles with a standard displacement greater than 700cc must remain as original.

b) The surface finish of the cylinder bore must remain as original or being replaced with a steel sleeve.

AACR 7.7.5 Pistons

a) Can be modified or replaced.

AACR 7.7.6 Piston Rings

a) Can be modified or replaced.

AACR 7.7.7 Piston Pins and Clips

a) Can be modified or replaced.

AACR 7.7.8 Connecting Rods

a) Connecting rods can be altered or replaced from those fitted to the otiginal motorcycle.

b) The material must be the same type as the original item (e.g. steel, titanium, alloy) or steel

c) If the original connecting rod is not fitted with a small end insert, then the replacement connecting rods can be fitted with an insert of any material.

d) The centre to centre (small end to big end) length of the rod must be the same as the original item.

e) Connecting rod bolts and nuts are free.

AACR 7.7.9 Crankshaft

a) Must be the original fitted part with only the modifications allowed:

b) Bearing surfaces can be polished.

c) Surface treatments can be applied to the crankshaft.

d) Balancing is allowed but only by the same method as the original crankshaft. For example, heavy metal (e.g. Mallory metal inserts) is not permitted unless originally specified in the crankshaft.

e) The balancing must be performed by the original method (e.g. drilling or machining) and in the same position (e.g. edge of counter weights).

f) The reduction in weight of the crankshaft can be no higher than 5% of the original weight.

g) There is no limit to the addition of crankshaft weight.

h) Polishing of the crankshaft is not allowed.

i) The balance shaft (if existing) must remain as original. No modifications are allowed.

AACR 7.7.10 Crankcase / Gearbox Housing

a) Crankcases must remain original. No modifications are allowed (including painting, polishing and lightening).

b) Repairing the crankcase by welding or using Epoxy is allowed.

c) It is not allowed to add a pump or any other device to create a vacuum in the crankcase. If a vacuum pump is installed on the original motorcycle then it can be used only as original.

d) One thread can be altered or created to allow for oil pressure/ oil temperature measurement. The sensor must be positioned in such a way that it cannot be damaged in the case of a crash.

e) All drain plugs, oil filler caps and oil dip sticks must be safety wired. External oil filter(s) screws and bolts that enter an oil cavity must be safety wired (i.e. on crankcase, oil radiator).

f) Bolt-on brackets and/or bracing can be added internally to the crankcase to increase strength, however welding on the crankcase and external bracing is not allowed.

AACR 7.7.11 Lateral Covers and Protection

a) Lateral (side) covers can be altered, modified or replaced. If altered or modified, the cover must have at least the same resistance to impact as the original one. When replacing, the cover must be made of material with the same or higher specific weight and the total weight of the cover must not be less than the original weight.

b) Titanium bolts can be used to fasten lateral covers.

c) All lateral covers/engine cases containing oil and which could be in contact with the ground during a crash, must be protected by a secondary cover made from metal, such as aluminium alloy, stainless steel, steel or titanium. Covers made of composite materials are not permitted.

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

e) FIM approved covers will be permitted without regard of the material or its dimensions.

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

g) Covers listed in the FIM Eligible Parts for Competition-List in the current version (published on www.fim-moto.com) will be permitted without regard of the material or dimensions.

h) These covers must be fixed properly and securely with a minimum of three (3) case cover screws that also mount the original covers/engine cases to the crankcases.

i) Oil containing engine covers must be secured with steel or titanium bolts.

j) No damaged or repaired covers will be permitted unless approved by the Chief Technical Officer.

k) The Chief Technical Officer has the right to refuse and forbid any cover not satisfying this safety purpose.

AACR 7.7.12 Transmission / Gearbox

a) Only the original transmission shafts and gear sets are permitted,

b) Undercutting, and re-shimming are allowed.

c) Polishing, surface treatment, and heat treatment of all gearbox components is allowed.

d) The positive neutral selector mechanism can be removed.

e) Shift star/indexer, spring, roller and detent can be replaced or modified but must function as originally designed.

f) Countershaft sprocket, rear wheel sprocket, chain pitch and size can be changed.

g) The front sprocket cover can be modified, changed or removed.

h) The chain tensioner is free.

i) Chain guard can be modified or removed.

j) Transmission gear shifter shaft supporting brackets can be added.

k) Add on quick shift modules / additional modules are allowed to enable upshifts and downshifts. "Downshift blipping" is allowed.

l) No power source (i.e. hydraulic or electric) can be used for gear selection, if not installed in the original motorcycle.

AACR 7.7.13 Clutch

a) Clutch system (wet or dry type) and the method of operation (by cable or hydraulic) must remain as original.

b) Friction and drive discs can be changed, the number of discs is free.

c) Clutch springs can be changed, the number of springs is fee.

d) Clutch outer basket must be the originally fitted part but can be reinforced.

e) Primary driven gear can be modified or replaced.

f) The original clutch inner assembly can be modified or replaced by an aftermarket clutch, also including back torque limiting capabilities (slipper type).

g) Clutch fluid reservoir can be replaced.

h) Clutch lines/cables can be replaced.

i) No power source (i.e. hydraulic or electric) can be used for clutch operation, if not installed in the original motorcycle.

AACR 7.7.14 Engine Water Cooling System

a) The only permitted liquid engine coolant for the water-cooling system is water without additives.

b) The radiator filler cap must ensure a proper seal and must be secured in a way that prevents accidental opening.

c) Water radiators are free.

d) Water hoses / pipes and catch tanks are free.

e) The catch tank must made of a suitable material, securely mounted and easily accessible.

f) All radiators must be mounted below the lower fork bridge (triple clamp) and inside the fairing.

AACR 7.7.15 Engine Oil System

a) External flexible oil lines must be of braided reinforced construction with swaged or threaded connectors.

b) Oil flanges outside the engine must be tightened with steel bolts (min. 6 mm diameter, 8.8 grade or higher) or titanium bolts (min. 6 mm diameter, Grade 5 or equivalent).

c) Fasteners for oil flanges outside the engine must be safety wired.

d) Oil coolers are free.

e) All oil coolers must be mounted in a way, so that any oil leakage is collected by the recovery pan (belly pan).

AACR 7.7.16 Air Box

a) The construction of the air box is free.

b) Air box drains must be sealed.

c) Ram air tubes or ducts running from the fairing to the air box can be modified, replaced, or removed.

d) The engine intake air has to pass through an air filter element.

e) Motorcycles must have a closed breather system. The engine oil breather line(s) must be connected, can pass through an oil catch tank and must exclusively discharge in the air box.

f) The catch tank must made of a suitable material, securely mounted and easily accessible.

g) The air box can have a heat protection shield/mat attached to its bottom and engine side.

AACR 7.8 FUEL SYSTEM

AACR 7.8.1 Fuel Tank

a) The construction of the fuel tank is free, but the use of titanium, carbon, carbon/Kevlar® (or similar composite materials) in the construction of the fuel tank is forbidden.

b) Only single tanks are permitted.

c) Fuel tanks must be completely filled with fire-retardant material (open-celled mesh, i.e. “Explosafe®”).

d) Fuel tanks with tank breather pipes must be equipped with non-return valves that discharge into a catch tank with a minimum volume of 250cc made of a suitable material. The catch tank must be securely mounted and easily accessible.

e) Fuel cap when closed must be leak proof. Additionally, they must be securely locked to prevent accidental opening at any time.

f) Fuel petcocks can be altered, replaced or removed.

g) Fuel vent lines are free.

h) A rider spacer/pad can be fitted to the rear of the tank with permanent or non-permanent adhesive. The material is free.

i) The tank can have a cover fitted over it. This cover must fit the shape of the fuel tank.

j) The sides of the fuel tank can be protected with a cover made of a composite material. These protectors must fit the shape of the fuel tank.

k) A fuel tank drain valve can be installed and must be located in such a way that it is protected from crash damage.

l) A spacer between fuel tank and fuel pump can be installed.

m) The fuel tank can have a heat protection shield/mat attached to its bottom and engine side.

AACR 7.8.2 Fuel Injection System / Fuel Supply

Fuel injection system / fuel supply refer to throttle bodies, fuel injectors, fuel lines and pipes, fuel pump, fuel pressure regulator and intake tract devices (static or variable length).

a) The original fuel injector system must be used without any modification with the following exceptions allowed:
   i. Air funnels can be modified or changed.
   ii. Throttle bores can be modified.
   iii. Butterfly valves can be modified to fit increased throttle size but must include the same safety features as original.
   iv. Secondary throttle valves and shafts can be removed or fixed in the open position and the electronics can be disconnected or removed.

b) The fuel injectors must be stock and unaltered from the original specification and manufacture and in the same position as on the original motorcycle.

c) Variable intake tract devices cannot be added if they are not present on the original motorcycle and they must remain identical and operate in the same way as the original system. All parts of the variable intake tract device must remain exactly as original.

d) Existing variable intake tract devices can be deactivated or removed.

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

f) Secondary throttle valves and shafts can be removed or fixed in the open position and the electronics can be disconnected or removed.

g) Electronically controlled throttle valves, known as “ride-by-wire”, can be only used if the original model is equipped with the same system. Software can be modified but all the safety systems and procedures designed by the original manufacturer must be maintained.

h) Fuel pumps must remain as original.

i) Fuel pressure regulator can be modified or replaced.

j) Fuel lines from the fuel tank to the delivery pipe assembly(s) can be modified or replaced and must be located in such a way that they are protected from crash damage.

k) Fuel lines from the fuel tank up to the injectors (fuel hoses, delivery pipe assembly, joints, clamps) can be modified or replaced.

l) Quick connectors or dry break quick connectors can be used.

m) Fuel filters can be added.

AACR 7.9 EXHAUST SYSTEM

a) Exhaust pipes, silencers and mounting brackets can be modified or replaced.

b) Catalytic converters must be removed.

c) The number of the final exhaust silencer(s) is free.

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

e) Wrapping of the exhaust system is not allowed except in the area of the rider's foot or an area in contact with the fairing for protection from heat.

f) Titanium and carbon exhausts and silencers are allowed.

g) The basic noise limit is 107 dB/A (with a 3 dB/A tolerance after the race only). **Some circuits can have a lower noise limit. This will be published in the Supplementary Regulations of the respective event.**

h) The test RPM for noise control will be 5.000 RPM.

i) Sound level control: See AACR 0.7.

AACR 7.10 ELECTRICS and ELECTRONICS

AACR 7.10.1 Engine control system / Electronics

a) The engine control system is free.

b) Data logging system is free.

c) Telemetry is not allowed.

d) No remote or wireless connection to the motorcycle for any data exchange or setting is allowed whilst the engine is running or the bike is moving.

e) The wiring harness is free.

f) Quickshifters are allowed.

g) Downshift blipping is allowed. Downshift blip modules are allowed.

h) The addition of an infrared (IR) or GPS based lap timing system is allowed.

i) Dashboard is free. It can incorporate the Data Logger. There must remain a working tachometer display.

j) Motorcycles must be equipped with a red light on the instrument panel that will illuminate in the event of oil pressure drop.

k) Spark plugs are free.

l) Spark plug caps /coil on plug, ignition coils and cables and ignition harness are free.

m) The battery is free. The maximum capacity is 10 Ah.

n) A lap timer can be fitted.

AACR 7.10.2 Generator, Alternator and Electric Starter

a) The generator (ACG) must remain originally, no modifications are allowed.

b) The flywheel can be modified or replaced.

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

d) The electric starter must operate normally and always be able to start the engine during the event.

e) 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 can be connected to the motorcycle at any time of the event.

f) The generator must always charge the battery in a sufficient way when the engine is running.

g) The regulator/rectifier is free.

h) Operating the motorcycle on the battery only (without a functioning generator) is not allowed.

AACR 7.11 MAIN FRAME / CHASSIS

AACR 7.11.1 General

a) During the entire duration of the event each rider can only use one (1) complete motorcycle, as presented for Technical Control, with the frame clearly identified with a seal and a valid frame number / chassis number. In case the frame / chassis will need to be replaced, the rider or team must request the use of a 2nd motorcycle to the Chief Technical Officer.

b) After a crash, the rebuilt motorcycle must be inspected before its use by the Technical Officers for safety checks and a new seal will be placed on the motorcycles frame.

c) No other spare motorcycle can be on the track.

AACR 7.11.2 Frame Body and Sub Frames

a) The main frame must remain as originally produced by the manufacturer for use on the original motorcycle.

b) Gussets or tubes cannot be added or removed; other modifications are allowed within the following section of these rules. Brackets can be welded or bolted to the main frame for the purpose of constructing a detachable front or rear sub-frame or attaching fairings. These brackets cannot be used to change the rigidity of the main frame.

c) Holes can be drilled in the frame only to fix approved components (i.e. fairing brackets, steering damper mount).

d) The engine must be mounted in the original position.

e) Engine mounting brackets or plates are free, but the use of titanium, carbon, carbon/Kevlar® (or similar composite materials) is forbidden.

f) Suspension linkage mounting points on the frame must remain original.

g) If the original motorcycle has exchangeable bearing inserts/ bushes:

   i. The bushings/inserts are free to make adjustments.

h) If the original motorcycle has fixed bearing positions for the steering stem:

   i. Steering angle changes are permitted by fitting inserts onto the bearing seats of the original steering head. The original bearing seats can be modified (ovaled) or increased in diameter to insert special bushings. No part of these special bushings can protrude axially more than three (3) mm from the original steering head pipe location, nor can the bearing be inset.

i) The sides of the frame body can be covered by protective parts made of plastic or composite material. These protectors must fit the form of the frame.

j) No polishing or surface refinishing is allowed but the paint scheme is not restricted.

k) Crash protectors can be fitted to the frame, using existing points (max. length: 50 mm), or fitted into the ends of the wheel axles (max. length: 30 mm).

l) Crash protectors / frame sliders must not protrude outside the fairing for more than 30 mm.

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

n) Engine mounting axles, bolts and nuts are free, but must be made of a steel alloy.

o) Front sub frame / fairing mounts are free. The material is free.

p) The front and rear sub frame can be changed, altered, or removed. If the rear sub frame is integral to the main frame, additional seat brackets can be added and non-stressed protruding brackets can be removed if they do not affect the safety of the construction or assembly. Rear sub frames that are integral to the main frame can be removed and replaced with a detachable sub-frame. Titanium or composites cannot be used for the construction of the rear subframe. Bolt-on accessories to the rear sub-frame can be removed.

AACR 7.11.3 Suspension - General

a) Only mechanical suspensions are allowed. Any kind of electronical suspension device is forbidden.

b) The use of titanium, carbon, carbon/Kevlar® (or similar composite materials) in the construction of suspension parts is forbidden.

AACR 7.11.4 Front Suspension

a) The front fork in whole or part can be changed but must be the same type as originally (leading link, telescopic, etc.).

b) Forks from the Twins Cup approved list, or from any other FIM homologated Supersport or Superstock 1000 motorcycles, can be used.

c) The upper and lower fork clamps (triple clamp, fork bridges) and stem can be changed or modified.

d) A steering damper can be added or replaced with an after-market damper.

e) The steering damper cannot act as a steering lock limiting device.

AACR 7.11.5 Swing Arm

a) The swing arm must remain as originally produced by the manufacturer for the motorcycle.

b) The rear swing-arm pivot position can be modified by use of a modified pivot bolt (smaller or elongated) but the frame must remain as original. If the standard bike has inserts, then the orientation/position of the original insert can be changed but the insert cannot be replaced or modified.

c) The swing arm pivot bolt and nut must be made of a steel alloy.

d) Rear wheel stand brackets can 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.

e) An anchorage system or point(s) to keep the original rear brake calliper in place can be added to the rear swing-arm.

f) 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 rear wheel sprocket, irrespective of the rear wheel position.

g) The sides of the swing arm can be protected by protective parts made of plastic or composite material. These protectors must fit the form of the swing arm.

h) The rear axle chain adjuster can be modified or replaced.

i) All motorcycles must be equipped with a chain guard (shark fin) in such a way to reduce the possibility that any part of the rider's body can be trapped between the lower chain run and the final drive sprocket at the rear wheel. The chain guard must be mounted with minimum 2 steel bolts (min. 6 mm diameter). The Chief Technical Officer has the right to refuse any guard not satisfying this safety purpose.

AACR 7.11.6 Rear Suspension Unit

a) The use of titanium, carbon, carbon/Kevlar® (or similar composite materials) in the construction of the rear suspension unit is forbidden.

b) The rear suspension unit can be changed but a similar system must be used (i.e. dual or mono).

c) The rear suspension linkage can be modified or replaced.

d) The original fixing points on the frame (if any) must be used to mount the shock absorber and the suspension linkage.

e) Removable top shock mounts can be modified or replaced.

AACR 7.11.7 Wheels / Rims

a) The mandatory dimensions for the rim sizes are:

- Front: 3,50" x 17"
- Rear: 5,25 - 5,50" x 17""

b) OEM wheels that do not meet the size requirements must be replaced.

c) Aftermarket wheels must be made from aluminum alloys.

d) Coating/painting of the rims is free, but the original surface finish cannot be removed.

e) Wheel axles must be made of a steel alloy.

f) Axle nuts / bolts must be made of a steel alloy.

g) Aluminium or steel inflation valves are mandatory. Angled valves are highly recommended.

h) Wheel spacers can be modified or replaced. Modifications to keep spacers in place are permitted.

i) Bearing spacers can be modified or replaced.

j) Wheel bearings are free.

k) Wheel balance weights are free.

AACR 7.11.8 Brakes

a) Participants in the Twins Cup class can use the following front brake parts:

i. The originally fitted front and rear master cylinder and callipers

ii. The front and rear master cylinder and callipers from an FIM homologated Supersport or Superstock 1000 machine

iii. The front and rear master cylinder and callipers from the FIM Twins Cup or Supersport approved list.

iv. Any combination of the above.

b) Front and rear brake calipers, as well as all the mounting points and mounting hardware (mount, carrier, hanger), must remain in the original position. When using brake systems from other FIM homologated motorcycles you can use the same mounting technique that the systems originated from. (i.e. rear brakes can be converted to underslung if the caliper was made for that purpose and vice versa).

c) Brake discs must be made of steel (max. carbon content 2.1 wt%).

d) Ventilated brake discs are not allowed.

e) Only steel bolts/nuts and steel fasteners (8.8 grade or higher) can be used to fasten the brake callipers.

f) "Quick" (or "dry-brake") connectors in the brake lines are allowed.

g) Front brake calliper additional air scoops or ducts are allowed.

h) Motorcycles must be equipped with a brake lever protection, intended to protect the handlebar brake lever from being accidentally activated in case of collision with another motorcycle. The Chief Technical Officer has the right to refuse any guard not satisfying this safety purpose.

i) The use of thumb or hand brakes is allowed in addition to or instead of the foot operated system. An adaptor can be fitted to the reservoir input of the OEM master cylinder to facilitate this.

j) The ABS system (if existing) must be removed.

AACR 7.11.9 Handlebars and Hand Controls

a) Handlebars and hand controls can be replaced and relocated.

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

c) Throttle assembly and associated cables can be modified or replaced but the connection to the throttle body and the throttle controls must remain originally.

d) Cable operated throttles must be equipped with both an opening and a closing cable.

e) Clutch and brake lever assembly can be exchanged by an after-market model. An adjuster to the brake lever and to the clutch lever is allowed.

f) Switches can be changed but electric starter switch and engine stop switch must be located on the handle bars.

g) Welding of handle bars is not allowed.

h) The use of titanium, carbon fibre, Kevlar® or carbon composite materials for handlebars is forbidden.

i) The use of titanium and aluminium alloys for nuts and screws is allowed.

j) Handlebar ends must be plugged with a solid material or rubber covered.

k) The minimum angle of rotation of the steering stem on each side of the centre line or mid position must be of 15°.

l) In any position of the handlebars /steering stem, the front wheel, tyre and mudguard must maintain a minimum gap of 10 mm to the bodywork and radiator(s).

m) 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, frame or other bodywork when on full lock to prevent trapping the rider's fingers. These stops can be adjustable.

n) All handlebar levers must be ball-ended (diameter of this ball should be at least 16 mm). This ball can also be flattened, the minimum thickness of the flattened part should be 14 mm and the edges must be rounded. These ends must be permanently fixed and form an integral part of the lever.

o) Each control lever must be mounted on an independent pivot.

p) 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.

AACR 7.11.10 Footrests and Foot Controls

a) The use of titanium, carbon fibre, Kevlar or carbon composite materials for foot rests and foot controls is forbidden.

b) The use of titanium and aluminium alloys for nuts and screws is allowed.

c) Footrests, hangers/brackets and hardware can be replaced and relocated but the hangers / brackets must be mounted to the frame at the original mounting points.

d) Gearshift (and rear brake if kept on the foot control) must remain operated manually by foot.

e) Footrests can be rigidly mounted or a folding type which must incorporate a device to return them to the normal position.

f) The end of the foot rests must be rounded.

g) Non-folding footrests must have an end (plug) which is permanently fixed, made of plastic, Teflon® or an equivalent type material, and must be rounded. The plug surface must be designed to reach the widest possible area in order to decrease the risk of injuries to the rider in the case of an accident. The Chief Technical Officer has the right to refuse any solution not satisfying this safety purpose.

AACR 7.11.11 Fairing / Body Work

a) The fairing and bodywork can conform in principle to the original shape as originally produced by the manufacturer, or replicate any full fairing type motorcycle within the following limits:

   i. No wings or winglets.
   ii. No excessive aerodynamics that can interfere with the safe operation of the motorcycle.
   iii. The maximum width of the fairing is 600 mm.
   iv. The maximum width of the seat cowling is 450 mm.
   v. The minimum ground clearance of the fairing with the motorcycle in unloaded condition is 100 mm.
   vi. The fairing must not protrude beyond the foremost point of the front wheel in a vertical line.

vii. The fairing must not protrude beyond the rearmost point of the rear wheel in a vertical line.

b) The use of carbon, carbon/Kevlar® (or similar composite materials) for fairings (this also includes the seat cowling) is forbidden.

c) Specific reinforcements made of carbon, carbon/Kevlar® (or similar composite materials) are allowed locally around holes and stressed areas.

d) Fairing brackets and fasteners are free.

e) "Naked" or fairing-less motorcycles are accepted but must have a belly pan designed to hold at least 5 liters in case of an engine breakdown.

f) For all bodywork, paint and decal design is free.

g) The windscreen must not have sharp edges. The material of the windscreen must be transparent.

h) The lower fairing (belly pan) must be designed to hold at least 5 liters in case of an engine breakdown. The lower edges of all the openings in the fairing must be positioned at least 50 mm above the bottom of the fairing.

i) The lower fairing must incorporate a single opening of 20 mm diameter in the front lower area. This hole must remain sealed in dry conditions and must be opened only in wet race conditions as declared by the Race Director.

j) Motorcycles must be equipped with a front fender.

k) The front and rear fender design and material are free but no excessive aerodynamics that can interfere with the safe operation of the motorcycle are permitted. The decision will be made by the Chief Technical Officer and is final.

l) Seat, seat base and associated bodywork can be replaced.

m) The top portion of the rear body work around the seat can be modified to a solo seat.

n) The original seat locking system (with plates, pins, rubber pads, etc.) can be removed.

o) All exposed edges must be rounded.

AACR 7.12 FASTENERS

a) Internal engine bolts, screws and nuts must remain of standard materials or materials of higher specific weight.

b) The requirements for the materials of axles, bolts and nuts for engine mountings, wheels and swingarm are specified in the relevant sections of this regulations.

c) Fasteners can be drilled only for safety wiring, but intentional weight-reduction modifications are not allowed.

d) Thread repairs using inserts of different material such as Helicoil® and Time-Sert® are allowed.

e) Aluminium fasteners can only be used in non-structural (low stressed) locations.

f) Fairing/bodywork fasteners can be a quick disconnect type.

g) In case of a dispute, the decision of the Chief Technical Officer is final.

AACR 7.13 The following items CAN BE altered or replaced

a) Any type of lubrication, brake and suspension fluid can be used.
b) Gaskets, seals and gasket materials.
c) Bearings of any type and brand can be used.
d) Instruments, instrument bracket(s) and associated cables.
e) Painted external surface finishes and decals.
f) Material for brackets connecting non-original parts (fairing, exhaust, instruments, etc.) to the frame (or engine) can be made from titanium or fibre reinforced composites.
g) Protective covers for the frame, chain, footrests can be made in materials like fibre composite material.

AACR 7.14 The following items CAN BE removed

a) Emission control items (anti-pollution) in or around the air box and engine (O2 sensors, air injection devices).
b) Speedometer and related wheel spacers.
c) Bolt on accessories on a rear sub frame.
d) The original left and right handlebar switch, e.g. light switch, horn switch, turn signal switch, etc.

AACR 7.15 The following items MUST BE removed

a) The air injection control system (valve, solenoid, tubes) must be removed. The connections to the cylinder head cover / cylinder head must be plugged.
b) Headlamp, rear lamp and turn signal indicators (when not incorporated in the fairing). Openings must be covered by suitable materials.
c) Rear-view mirrors.
d) Horn.
e) License plate bracket.
f) Tool box.
g) Helmet hooks and luggage carrier hooks.
h) Passenger foot rests.
i) Passenger grabs rails.
j) Safety bars, centre and side stands must be removed (fixed brackets must remain excepting side stand bracket).
k) Catalytic convertors.

AACR 7.16 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 is forbidden. Mounting with hook-and-loop fasteners is allowed when the wiring of the light is connected to the motorcycle.

c) The luminous field should be at least 4cm^2 (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 Officer. In case of dispute over the mounting position or visibility, the decision of the Chief Technical Officer will be final.

f) Power output/luminosity should be equivalent to minimum 10 W (incandescent) or 1 W (LED).

g) The output must be continuous - no flashing safety light whilst the motorcycle is on the track. Flashing is allowed only in the pit lane when the pit limiter is active.

h) The safety light power supply can be separated from the motorcycle.

i) The Chief Technical Officer has the right to refuse any light system not satisfying this safety purpose.

AACR 7.17 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 position will be appointed and controlled by the Chief Technical Officer.

Correct attachment of the transponder bracket consists of a minimum of two tie-wraps, but preferably by screws or rivets. Any transponder-retaining clip must also be secured by a tie-wrap. Hook and loop fasteners (e.g. Velcro®) or adhesive alone will not be accepted.

The transponder must be working at all times during practices and races, also when the engine is switched off.

The Chief Technical Officer has the right to refuse any mounting solution not satisfying these requirements.

AACR 7.18 ONBOARD CAMERAS

a) Onboard cameras can only be used with written permission of the promoter.

b) When a rider/team has obtained this permission, the motorcycle with the camera installed - and the permission sheet - must be presented to the Technical Control.

c) When the promoter asks a rider to install a camera - provided by the promoter - on his motorcycle, then the rider cannot refuse.

d) Cameras must be mounted inside the fairing or on the top / bottom side of the rear seat bodywork.

e) Cameras must be fixed securely to the motorcycle. Adhesives are only accepted when it is originally by the camera manufacturer.

f) Cameras must be secured to the motorcycle with an additional steel cable.

g) The Chief Technical Officer has the right to refuse any solution not satisfying these requirements.

AACR 7.19 TECHNICAL CONTROL

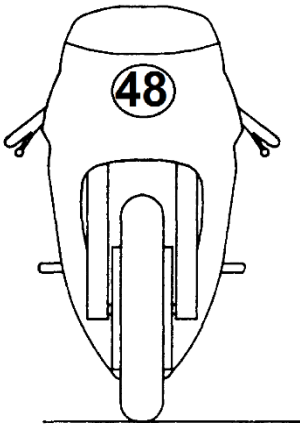
a) All motorcycles must be presented at the technical control with the lower fairing removed. The oil pan, oil drain plug, oil filler cap, oil filter and - if existing - oil radiator and oil lines must be clearly visible.

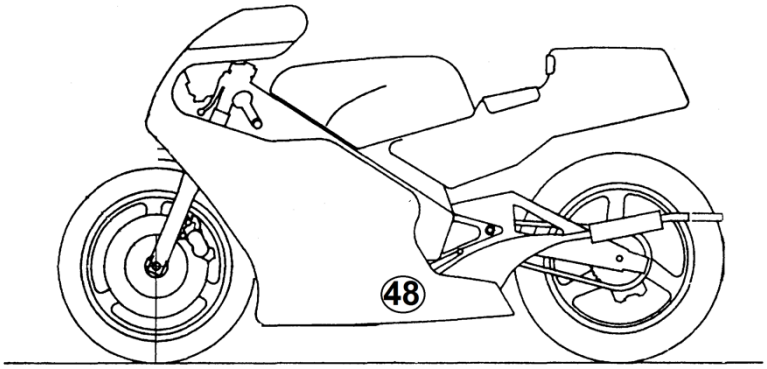
b) All riders / teams must be prepared to disassemble their engines completely at the Parc Ferme inspection. Therefore, all necessary tools and spare parts must be available.

c) After a crash, the rebuilt motorcycle must be inspected before its use by the Technical Officers for safety checks and a new seal will be placed on the motorcycles frame.

d) Helmets, back protectors and chest protectors which are in use during an event must be presented at the Technical Control.

APPENDIX A: STARTING NUMBERS





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