



FÉDÉRATION INTERNATIONALE
DE MOTOCYCLISME

**TECHNICAL RULES
MOTOCROSS**
(INCLUDING RULES FOR QUADS, SUPERMOTO & SNOWCROSS)

2016

*RÈGLEMENTS TECHNIQUES
MOTOCROSS*
(RÈGLEMENTS POUR QUADS, SUPERMOTO & MOTONEIGE INCLUS)

Technical Rules Motocross
**(Including Rules for Supermoto, Sidecars,
Quads and Snowcross)**

2016

Règlements Techniques Motocross
**(Règlements pour et Supermoto, Sidecars,
Quads et Motoneige inclus)**

EDITION 2016

TECHNICAL RULES FOR MOTOCROSS (CMS)

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DIAGRAMS

01.01 INTRODUCTION

The term motorcycle covers all vehicles having, in principle, less than four wheels, propelled by an engine and designed essentially for the carriage of one or more persons of which one is the rider of the vehicle. The wheels must normally be in contact with the ground except momentarily or in certain exceptional circumstances. Furthermore, in order to traverse certain surfaces one or all of the wheels can be replaced with skis, rollers or chains.

01.03 FREEDOM OF CONSTRUCTION

A motorcycle must conform to the requirements of the FIM regulations, to the Supplementary Regulations, as well as to a number of specific conditions that the FIM may require for certain competitions. No restriction is placed on the make, construction or type of motorcycle used.

All solo motorcycles (Group A) must be constructed in such a way that they are entirely controlled by a rider. Motorcycles with Sidecars (Group B) must be constructed to carry a passenger.

01.05 CATEGORIES AND GROUPS OF MOTORCYCLES

Motorcycles are divided into categories which must be observed for all meetings and world record attempts.

In principle, it is forbidden for different categories, groups and classes to compete in the same race, unless the Supplementary Regulations state otherwise.

Category I

Motorcycles propelled by the action of one wheel in contact with the ground.

Category II

Special vehicles propelled by the action of one or more wheels in contact with the ground but which are not covered by the conditions of Category I.

Group A1 - Solo Motorcycles

Two-wheel vehicles making only one track on the ground.

Group B1

Vehicles with three wheels, making two tracks on the ground, consisting of a motorcycle making one track and a sidecar for a passenger making the other track.

Group B2

Vehicles with three wheels, making two or three tracks on the ground in the direction of forward travel, with a permanently attached Sidecar forming a complete integral unit. If three tracks are made, the centre-lines of the two tracks made by the motorcycle wheels must not be more than 75 mm apart. A track is determined by the longitudinal centre-line of each of the vehicle's wheels in the direction of forward travel.

Category II

- Group C - Special 2 wheel driven motorcycles
- Group D - Special 3 wheel, 2 wheel driven motorcycles
- Group E - Snowmobiles
- Group F - Sprinters and Dragsters
- Group G - Quad Racers
- Group H --
- Group I --

Category III

- Group J - Electric Vehicles (see Article 01.50)

01.07 CLASSES

Groups are again separated into classes according to cylinder capacities as detailed below. Generally, these classes must be observed for all meetings. (However, see Art. 032.3.2 of the Motocross Rules).

Category I

Group A1 Motorcycles

Class	over (cc)	up to (cc)
50	-	50
65	50	65
85 (2-stroke) (4-stroke)	65	85
	85	150
100	85	100
MX2 (2-stroke) (4-stroke)	100	125
	175	250
175	125	175
MX1 (2-stroke) (4-stroke)	175	250
	290	450
350	250	350
MX3 (2-stroke) (4-stroke)	175	500
	290	650
750	500	750
1000	750	1000
1300	1000	1300

Note: For 125 cc, only single cylinder engines are allowed.

Groups B1, B2 Sidecars

Over 350 cc and up to a maximum of 750 cc for 2-stroke engines or a maximum of 1000 cc for 4-stroke mono and bi-cylinder engines.

Category II

Group E Snowmobiles

Class	over (cc)	up to (cc)
250	-	250
350	250	350
500	350	500
750	500	750
1050	750	1050
1300	1050	1300

Group G Quad racers

Four-wheeled, two-wheel driven, balloon-tyred off-road vehicles having a wheel at each diagonal extremity and consisting of a complete integral unit, having accommodation for a rider only sitting astride, and steered by a handlebar. Same classes as Category I, Group A1.

01.11 MEASUREMENT OF CAPACITY

11.11 Reciprocating movement engine, "Otto" Cycle

The capacity of each engine cylinder is calculated by the geometric formula which gives the volume of a cylinder; the diameter is represented by the bore, and the height by the space swept by the piston from its highest to lowest point:

$$\text{Capacity} = \frac{D^2 \times 3.1416 \times C}{4}$$

where D = bore
and C = stroke

When a cylinder bore is not circular the cross sectional area must be determined by a suitable geometrical method or calculation, then multiplied by the stroke to determine capacity.

When measuring, a tolerance of 1/10 mm is permitted in the bore. If with this tolerance the capacity limit is exceeded for the class in question, a further measurement should be taken with the engine cold, to 1/100 mm limits.

11.13 Rotary engines

The capacity of an engine which determines the class in which the motorcycle shall compete in a meeting shall be calculated by:

$$\text{Capacity} = \frac{2 \times V}{N}$$

where V = total capacity of all the chambers comprising the engine
and N = number of turns of the motor necessary to complete one cycle in a chamber.

Classified as a 4-stroke.

11.15 Wankel system

For Wankel system engines with a triangular piston, the capacity is given by the formula:

$$\text{Capacity} = 2 \times V \times D$$

where V = capacity of a single chamber
and D = number of rotors.

This engine is classified as a 4-stroke. For the main article, refer to the same number in the General Section.

01.17 SUPERCHARGING

Supercharging by means of a device of any kind is forbidden in all meetings.

An engine whether 2-stroke or 4-stroke coming within any one of the recognised classes (determined by the capacity of the working cylinder) shall not be considered as supercharged when in respect of one engine cycle, the total capacity measured geometrically, of the fuel charging device or devices, including the capacity of the working cylinder (if used for injecting the fuel), does not exceed the maximum capacity of the class in question.

01.18 TELEMETRY

Information must not be transmitted in any way to or from a moving motorcycle.
An official signalling device may be required on the machine.
Automatic lap timing devices are not considered as "telemetry".
Automatic lap timing devices must not disrupt any official time keeping methods and equipment.

01.19 MOTORCYCLE WEIGHTS

Weights of motorcycles without fuel

19.01

The minimum weights are:

for the 65 cc class	Up to 65cc – 2T	53 kg
for the 85 cc SW class (small wheels)	65cc up to 85cc - 2T	63 kg
	100cc up to 150cc - 4T	71 kg
for the 85 cc LW class (large wheels)	65cc up to 85cc - 2T	65 kg
	100cc up to 150cc - 4T	73 kg
for MX1 motorcycles	175cc up to 250cc - 2T	98 kg
	290cc up to 450cc - 4T	99 kg
for MX2 motorcycles	100cc up to 125cc - 2T	88 kg
	175cc up to 250cc - 4T	95 kg
for MX3 motorcycles	290cc up to 500cc - 2T	102 kg
	475cc up to 650cc - 4T	102 kg

A 1 % tolerance in the weight of the machine after the race is accepted.

19.03

Seals (in metal or plastic) must be fixed to the front main frame **(with preference to affix the seal on the same side of the frame on all motorcycles checked at the event)**.

19.04

Weighing scales must be certified annually by a National Institute, **or within the last year**.

19.05

For Groups B1 and B2 at all competitions a passenger must be carried.

01.21 DESIGNATION OF MAKE

When two manufacturers are involved in the construction of a motorcycle, the name of both must appear on the machine as follows:

- The name of the chassis manufacturer
- The name of the engine manufacturer

01.23 DEFINITION OF A PROTOTYPE

A prototype motorcycle is a vehicle which must conform to the safety requirements as required by the FIM Sporting Code and Appendices applicable to the type of competition for which it is to be used.

01.25 GENERAL SPECIFICATIONS

The following specifications apply to all vehicles of the groups indicated and to all types of competitions except where otherwise stated in the corresponding section of the FIM Sporting Code.

They should also be applied to all national competitions unless the FMNR (National Motorcycling Federation) has otherwise directed.

Further specifications for some competitions may also be required and these will be detailed in either the appropriate FIM Appendix or in the Supplementary Regulations for the competition in question.

25.01

The use of titanium in the construction of the frame, the front forks, the handlebars, the swinging arms, the swinging arm spindles and the wheel spindles is forbidden.

The use of light alloys for wheel spindles is also forbidden.

The use of titanium alloy nuts and bolts is allowed.

Titanium test to be performed at trackside:

25.01.1 Magnetic test (titanium is not magnetic).

25.01.2 3 % nitric acid test (Titanium does not react. If metal is steel, the drop will leave a black spot).

25.01.3 The specific mass of titanium alloys (4.5 - 5) and of steel (7.5 - 8.7) can be ascertained by weighing the part and measuring its volume in a calibrated glass vessel filled with water (intake valve, rocker, connecting rod, etc.)

25.01.4 In case of doubt, the test should take place at a Materials Testing Laboratory.

25.02 Aluminium

Aluminium alloys can be ascertained visually.

25.03 Carbon fiber

The use of carbon fiber in Track Racing machines is authorised (with the exception of **handlebars and wheel rims** made from carbon-carbon, carbon-kevlar and/or other composite materials).

25.04 Ceramic materials

The use of ceramic parts is forbidden. The use of ceramic coated parts is authorized.

25.05 Other equipment

The use of data recording devices and automatic electronic ignition is authorised. No signal of any kind may pass between a moving motorcycle and anyone connected with the motorcycle's entrant or rider, except for the signal from the time keeping transponder or from the approved on-board cameras (**with prior written approval from the Championship Promoter/Organiser**).

25.06

The number of cylinders in an engine is determined by the number of combustion chambers.

25.07

If separate combustion spaces are used they must be connected by an unrestricted passage of minimum cross sectional area at least 50 % of the total inlet port area.

01.26 DEFINITION OF A FRAME OF A SOLO MOTORCYCLE

The structure or structures used to join any steering mechanism at the front of the machine to the engine/gear box unit and to all components of the rear suspension.

01.27 STARTING DEVICES

Starting devices are compulsory.

01.28 FUEL TANKS

The fuel tank and fuel cap must be leak proof at all times. Fuel tanks shall only be filled in the paddock or pit area.

01.29 OPEN TRANSMISSION GUARDS

29.01

A guard must be fitted to the countershaft sprocket.

If the primary transmission is exposed, it must be fitted with a guard as a safety measure. The guard must be designed so that rider or the passenger cannot under any circumstances come into accidental contact with the transmission parts. It must be designed to protect the rider from injuring his fingers.

29.02

A chain guard must be fitted in such a way to prevent trapping between the lower chain run and the final driven sprocket at the rear wheel.

01.31 EXHAUST PIPES

Exhaust pipes and silencers must fulfill all the requirements concerning sound control (see also Art. 01.79).

31.01

The end of the silencer must be horizontal and parallel (over a minimum distance of 30 mm) to the central axis of the solo motorcycle (with a tolerance of $\pm 10^\circ$) and must not exceed the end of the silencer body by more than 5 mm. All sharp edges must be rounded with a minimum radius of 2 mm (See diagram E).

31.02

Exhaust fumes must be discharged towards the rear but not in a manner as to raise dust, foul the tyres or brakes, or inconvenience a passenger, if there is one, or any other riders.

All possible measures must be taken to prevent the possible loss of waste oil so that it does not inconvenience a following rider.

31.03

The extremities of the exhaust pipes on solo motorcycles must not extend beyond the vertical tangent of the rear tyre.

31.04

On a Sidecar machine the exhaust must discharge horizontally and towards the rear, at a maximum angle of 30° to the axis of the machine.

01.33 HANDLEBARS

33.01

The width of handlebars (solo and Sidecars) must be not less than 600 mm and not more than 850 mm.

33.02

The handlebars must be equipped with a protection pad on the cross bar. The handlebars without cross member must be equipped with a protection pad located in the middle of the handlebars, covering widely the handlebars clamps.

33.03

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

33.04

Handlebar clamps must be very carefully radiused and engineered so as to avoid fracture points in the bar.

33.05

When light alloy handlebars are used, the distance between the two extremities of the clamping area (or of the 2 clamps) must not be less than 120 mm.

33.06

If hand protectors are used they must be of a shatter-resistant material.

33.07

The repair by welding of light alloy handlebars is prohibited.

33.08

Handlebars made from carbon-carbon, carbon-kevlar and/or other composite materials are not authorized.

33.09

Solid stops (other than a steering damper) must be fitted in order to assure a minimum space of 30 mm between the handlebars with its levers and the fuel tank when on full lock to prevent trapping the rider's fingers.

01.35 CONTROL LEVERS

35.01

All handlebar levers (clutch, brake, etc.) must be in principle 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.

35.03

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

35.04

The brake lever if pivoted on the footrest axis must work under all circumstances, such as the footrest being bent or deformed.

01.37 THROTTLE CONTROLS

37.01

Throttle controls must be self-closing when not held by the hand. **The throttle operation (opening and closing) shall only be activated by mechanical cable from the twist grip directly attached to the throttle valve. All air intakes into the cylinder must pass through the throttle body. No other means allowing ambient air into the inlet track of the cylinder head are allowed.**

37.02 Ignition cut-out switches

Sidecars, Quads and Snowmobiles must have an ignition cut-out fitted to operate when the rider leaves the machine. This ignition cut-out system must interrupt the primary circuit and must be wired for both the supply and return of the current.

This ignition cut-out must be placed as near to the centre of the handlebar as possible and must be operated by a non-elastic string of adequate length and thickness. Once the rider steps off the vehicle, the lanyard must **disconnect from the cut-off switch and stop the engine from running. The cut-off switch cannot be taped, glued wired or fitted solidly in place. It must be possible to pull it off to stop the engine immediately.**

For Sidecars and Quads, the cut-out switch must be strapped to the rider's right-hand wrist. A spiral cable (similar to that of a telephone wire) of maximum 1 m in length is permitted.

For Snowmobiles, it must be attached to the rider's belt.

01.39 FOOTRESTS

39.01

Footrests may be of a folding type but in this case must be fitted with a device which automatically returns them to the normal position, and an integral protection is to be

provided at the end of the footrest which must have at least an 8 mm radius (see diagrams E and F).

01.41 BRAKES

41.01

All motorcycles must have at least 2 efficient brakes (one on each wheel) operated independently and operating concentrically with the wheel.

41.02

Vehicles in Group B must be fitted with at least 2 efficient brakes operating on at least 2 of the wheels, operated independently and operating concentrically with the wheels.

41.04

Snowmobiles must have at least one functional brake.

01.43 MUDGUARDS AND WHEEL PROTECTION

Motorcycles must be fitted with mudguards.

43.01

Mudguards must project laterally beyond the tyre on each side.

43.02

The front mudguard must cover the circumference of the wheel at an angle sufficient enough to protect the rider from mud.

43.04

The rear mudguard measure described in the figure (see diagram L) must not exceed 130mm at the most extended positions of the front and the rear suspension, at full extension.

43.05

The ends of the mudguards must be rounded. The radius must be at least 3 mm. Mudguards must be made of flexible materials only (e.g. plastic).

43.07

If cast or welded wheels are used, a protection must be provided by enclosing the spokes with solid discs. Any open area between the outer edge of the solid disc and the wheel rim shall be maximum 10 mm (tyre inflation valve excepted).

01.45 STREAMLINING

No type of streamlining is allowed (see diagrams), with the exception of motorcycles in Cross Country Rallies.

Radiator covers (shields) must be made of flexible materials only (i.e. plastic).

01.46 SUSPENSION

Electronically controlled suspension systems may not be used.

01.47 WHEELS, RIMS, TYRES

47.01

All tyres will be measured mounted on the rim at a pressure of 1 kg/cm (14 lb./sq.in.); measurements are taken at a tyre section located 90° from the ground.

47.02

Any modification to the rim or spokes of an integral wheel (cast, moulded, riveted) as supplied by the manufacturer or of a traditional detachable rim (other than for spokes, valve or security bolts) is prohibited. The only exception made is for tyre retention screws, sometimes used to prevent tyre movement relative to the rim. If the rim is modified for these purposes, bolts, screws, etc., must be fitted.

47.03 Restrictions for wheel (rim) dimensions

Capacity	Maximum front wheel (rim) size	Maximum rear wheel (rim) size
65cc	14 inch	12 inch
85cc SW (small wheels)	17 inch	14 inch
85cc LW (large wheels)	19 inch	16 inch
125cc and up	21 inch	19 inch

01.49 TYRES FOR MOTOCROSS

49.01

Scoop or paddle (continuous radial rib) tyres and/or tyres with lugs having a height of over 19.5 mm are forbidden.

49.03

The tyre surface shall not be fitted with subsequently mounted elements such as anti-skid spikes, special chains, etc.

01.50 ADDITIONAL SPECIFICATIONS FOR ELECTRIC POWERED VEHICLES

50.01 INTRODUCTION

The technical concept is reserved for motorcycles propelled by non-thermal energies **with zero** toxic/noxious emissions and by the action of one wheel in contact with the ground.

Amendments to these technical regulations may be made at any time in order to ensure fair competitions.

50.02 GENERAL EPV CLASS REQUIREMENTS

Two and/or three wheeled electric propelled machines, powered solely by stored electricity (battery /accumulator).

The number of electric motors is limited to one.

50.02.1 Race Procedures

(Race procedures to be defined by the Sporting Commission concerned).

50.02.2 Race Format (Guidelines – actual race format depends on the discipline and battery life.)

Minimum race length: 20 minutes

Maximum race length: 30 minutes

50.02.3 Charging the accumulator

The vehicle's accumulators must be charged at the times and locations determined by the organizer of the meeting.

Charging may only be done with the energy supply provided by the race organiser.

The charging system must be separate from the machine and comply with all electrical safety requirements including thermal overload trip, fusing and be equipped with an earth leakage protection breaker.

50.02.4 Pit Stop

Riders will be allowed to define their own method of energy renewal subject to safety and practical considerations subject to the approval of the race organiser.

Riders who wish to have a pit stop must declare the process and technology to the Technical Director/Chief Technical Steward for a safety evaluation. All information will be treated with strict confidentiality.

50.02.5 Transponder timing

All machines must be equipped with an official transponder.

50.02.6 Technical Control

As a condition of entry, a Technical File of the motorcycle entered may be required with a race entry. This document, which must be drawn up using the template provided (ref: FIM Technical File), must provide the basic information listed, as well as the design steps taken to ensure safety for the rider(s), teams, spectators, officials and marshals.

The Technical Steward shall check both the machine and the rider for compliance with the technical specifications, as well as the employment of good engineering construction practice, and the presence of adequate electrical insulation and weatherproofing.

Damaged machines must be returned to the technical control area for examination after race or practice. In such circumstances it is the responsibility of the competitor to ensure both his machine and clothing have been rechecked and approved before further use in the event.

It is the responsibility of the rider to ensure that a machine used in competition is electric, mechanically and structurally in a safe condition.

50.02.7 Conformity

It is the duty of each competitor to show the Technical Stewards of the meeting that his/her vehicle fully complies with these rules and the rules governing the meeting, in their entirety at all times.

50.03 SPECIFICATIONS

50.03.1 Requirements

All motorcycles must comply in every respect with all the requirements for racing as specified in the FIM General Technical Specifications, unless otherwise specified below.

50.03.2 Number Plates and Colours

See art. 01.55.

Colours: Green background – yellow numbers

50.03.3 Handlebars

See art. 01.33.

50.03.4 Control levers

See art. 01.35.

50.03.5 Foot Rest/Foot Controls

See art. 01.39.

50.03.6 Wheel and rims

See article 01.47.

50.03.7 Tyres

See art. 0.49.

50.03.8 Streamlining

See art. 01.45.

50.03.9. Inclination

It must be possible for a motorcycle not being loaded, to be inclined to an angle of 40 degrees from the vertical, without any part of it other than the tyre coming in contact with the ground.

In race conditions, the vehicle must be capable of affecting a standing start on an uphill slope with a gradient of 18%.

Machine Weight

Minimum weight: 75 kg. The maximum weight limit shall not exceed 120 kg.

The machine will be checked for weight in the 'ready-to-race' condition. The verified weight may never fall below the required minimum weight.

50.03.10 Overall Dimensions

The specific dimensions for the vehicles of this discipline apply.

50.04 ELECTRICAL EQUIPMENT

50.04.1 IEC Publications

If no specific rule exists in these Technical Rules, the relevant IEC Standard (International Electro-technical Commission Standard) or Report has to be observed:

(Note: IEC Publications may be replaced by ISO publications, in the future.)

IEC 6060529: Degrees of protection provided by enclosures (IP Code).

IEC 6060783: Wiring and connectors for the road vehicles.

This report is applicable to cabling and connectors used in battery electric road vehicles.

IEC 6060784: Instruments for electric road vehicles.

This report is applicable to the instrumentation of electric road vehicles, excluding those items which are used as instrumentation in vehicles with internal combustion engines.

IEC 6060785: Rotating machines for electric road vehicles.

This report is applicable to rotating electrical machines [traction motors and auxiliary motors] of electric road vehicles including hybrids, which are fed from the main traction batteries).

IEC60 60786: Controllers for electric road vehicles.

This report is applicable to the equipment on electric vehicles that control the rate of energy transfer between the traction battery or batteries and the motor or motors).

50.04.2 Accumulator (storage battery)

The accumulator is defined as any equipment used for the intermediate storage of electrical energy supplied by the charging unit. Any on-board accumulator is considered as an integral part of the vehicle's accumulator.

The type, dimensions and weight of accumulator/s cannot be changed between official practices and race.

All on-board electrical equipment, unless consisting of items originally powered by dry batteries, small accumulators or their own solar cells, must receive its energy supply from the vehicle's official accumulators.

IMPORTANT: As a condition of entry, a Material Data Safety Sheet must be supplied with the race entry for the machine, including all relevant details as to the accumulator chemistry, human and environmental hazards, handling and specific fire risks and precautions.

50.04.3 Energy recovery

Recovering energy generated by the kinetic energy of the vehicle is permitted.

50.04.4 Use of outside energy sources

The use of any carbon based source of energy in any form whatsoever with the aim of improving the performance of the vehicle is strictly prohibited. This includes the energy used to drive the vehicle's cooling system.

50.04.5 Propulsion system failure

The vehicle must be able to freewheel in the event that the propulsion system has stopped (i.e. fuel/charge exhausted or system failure).

50.04.6 Electrical safety

In no part of the vehicle's electrical equipment may there be voltages of more than 500 volt referred to chassis and system ground respectively (system ground is the ground of the electrical equipment). Between system ground and chassis or body of the vehicle no more than 50 volts are allowed.

The voltage is limited to 500 volts between any two points. In cases where the voltage of the power circuit exceeds 42 volts, this power circuit must be separated from the onboard circuit by an appropriate insulator.

Symbols warning of 'HIGH VOLTAGE' must be displayed on or near the electrical equipment protective covers; all symbols must comprise a black flash of lightning inside a yellow triangle with a black border. The sides of the triangle must measure at least 12 cm, but may be larger if practical.

The power circuit consists of all those parts of the electrical equipment which are used to propel the motorcycle. The on-board circuit consists of all those parts of the electrical equipment which are used for signaling, lighting or communication.

All parts of the electrical equipment must be protected to at least the equivalent of IP 44 type protection (dust proof and splash proof).

50.04.7 General circuit breaker – 'Emergency Stop'

Two emergency stop switches (circuit breakers) are required as a stop has to be easily accessible both to the rider and to marshals.

When seated in a normal riding position, the rider must be capable of interrupting all electrical transmission between the accumulators and the energy consumers by means of a spark-proof general circuit breaker situated in front of him. This breaker must be located in such a way that it can be also operated from outside the vehicle. This breaker must be clearly identified as such.

The use of a lanyard attached to the rider to operate this breaker as an alternative to a button is recommended.

The general circuit must also include a second general circuit breaker which shall be located behind the rider, positioned and easily recognised taking into account that the vehicle may be on one side following an incident. This circuit breaker must be

operated by a red button and identified with a yellow disc (minimum 8 cm in diameter) reading 'Emergency' in red or black letters.

The options suggested below are acceptable, as are other solutions that meet the stated requirements. Teams will be required to demonstrate the operation of the Emergency Stops during technical inspection.

1. A low voltage switch (e.g. push button) as a control for a contactor relay in which the contactor can be mounted down near the motor and keep the power voltages and currents away from the rider and top side of the vehicle.
2. A relay with an integrated “breaker” switch, which requires running the full battery voltage to wherever this breaker is mounted.

Operation of the general circuit breaker must also isolate any pre-charge resistors, if installed.

In order to prevent contact melting of the general circuit breaker its ampere square seconds characteristics, representing heat energy dissipated on the breaker contacts during switching, must be sufficient to guarantee proper operation of the circuit breaker, even under surge current conditions, in particular those occurring during the connection of the accumulator to the power plug.

Low power accumulators provided for low voltage circuits, e.g. auxiliary circuits, do not have to be isolated by the general circuit breaker (Emergency Stop) provided that they are completely isolated from the main power accumulators.

50.04.8 Power Indicator

When the vehicle is in a powered on state, there must be two clearly visible indicators, one light on the instrument panel and one light on the rear of the vehicle.

The rear light must be red and visible from at least 10m away, from the side or rear, and must flash between 1 – 2 times / second on a 50% duty cycle.

50.04.9 Fuses (over-current trip switches)

An over-current trip is a device which automatically interrupts the electrical current in which it is installed if the level of this current exceeds a defined limit value for a specific period of time.

Fuses and circuit breakers (but never the motor circuit breaker) count as over-current trips. Extra fast electronic circuit fuses and fast fuses are appropriate. The fuses must be in an easily accessible location and as close as possible to the accumulator at both polarities.

All electrical cables inside the motorcycle must be protected by means of over-current trips rated according to the diameter of the individual conductors. Over-current trips must under no circumstances replace the general circuit breaker (Emergency Stop Button).

50.04.10 General electric safety

It must be ensured that the components used cannot cause injury under any circumstances, either during normal operation or in foreseeable cases of malfunction. It must be ensured that the components used for protecting persons or objects can reliably fulfill their function for an appropriate length of time.

50.04.11 Insulation resistance

Every part of the electrical equipment must have a minimum insulation resistance between all live components and earth.

For equipment with up to 300 volts to earth, the insulation resistance must reach the following value: 250 k Ohms.

For equipment with more than 300 volts to earth, the insulation resistance must reach the following value: 500 k Ohms.

The measurement of the insulation resistance must be carried out using a dc Voltage of at least 100 volts.

50.04.12 Dielectric strength

All electrical equipment of the vehicle conducting electric must fulfil the following conditions:

With regard to the dielectric strength, a distinction must be made between materials with light, normal or reinforced insulation.

Normal insulation is insulation which can withstand a test voltage of at least 2000 volts at 50 hertz for a period of one minute. It must only be used for electrical circuits with a nominal voltage not exceeding 500 volts.

Light insulation must not be used (except for the on-board circuit).

All electrically live parts must be protected against accidental contact. Insulating material not having sufficient mechanical resistance, i.e. paint coating, enamel, oxides, fibre coatings (soaked or not) or insulating tapes are not accepted.

All electrically conducting non-live parts must be connected with the motorcycle ground.

50.04.13 Capacitors

Voltage across capacitors belonging to the power circuit should fall below 65 volts within 5 seconds after the general circuit breaker is opened or the over current trips of the accumulator are blown.

50.04.14 Accumulator fastening

The accumulator must be installed securely inside the vehicle and be protected against short-circuits and leakage. The accumulator must be attached to the frame or chassis using metal clamps with an insulating covering.

The fixing method must be designed in such a way that neither the accumulator nor the fastening device itself nor its anchorage points can come loose, even when subjected to a crash. A solid partitioning bulkhead must separate the location of the accumulator from the rider. Each accumulator box must include an air intake with its exit.

The accumulator installation must ensure that in the event of accumulator cell leakage or explosion, the contents are kept away from the rider and do not interfere in any way with the rider's vision or the safe handling of the machine.

50.04.15 Power control

A 'self-closing' throttle (power control) must be applied.

01.51 ADDITIONAL SPECIFICATIONS FOR SUPERMOTO

The following specifications will apply for motorcycles entering the SuperMoto World Championship:

- There must be a clear colour distinction between the colour of the background and the colour of the number. Reflecting numbers are forbidden. Thus, with exception of a red front number plate with white numbers, riders have the free choice of colour for number plates and colours. The front red number plate with white numbers is compulsory for, and must be displayed by the current leader in each class of the Championship.
- A safety device (pin or lock nut) should be installed on the brake pad fixture.
- The safety wire used on the bolts of the brake callipers, must be visible.
- On 4-stroke engines, an oil catch tank of 0.5 litres minimum properly fastened, or a closed breather system must be installed.
- Motorcycles must be equipped with a protective shield, installed under the engine, designed to act simultaneously as a protection and as a reservoir to collect losses of oil or coolants which may occur in case of an engine breakdown.
- One or several leak-proof catch tanks must be provided for the radiator water and the breather system of the fuel tank. These catch tanks must be emptied before each start.
- The only authorised cooling liquid is water.
- The safety wire used on oil and water filter caps, as well on drain plugs, must be

visible.

- Motocross, enduro or trial tyres are prohibited.
- The maximum tread depth on the front and/or back tyres used must be 10 mm in the middle.
- Additional tread grooves, cuts, etc. are allowed on the front and/or back tyres.

01.53 ADDITIONAL SPECIFICATIONS FOR SIDECARS

53.02

The drive shall be transmitted to the ground only through the rear wheel of the motorcycle.

53.06

Handlebars must be firmly secured to the forks. They must be at a height above the mid point in the seat.

A steering head must be fitted which like the handlebar must not be attached to the non-suspended part of the front wheel suspension.

53.07

To reduce the torque in the steering it is allowed to displace the front wheel and the rear wheel leaving a maximum width of 75 mm between them.

53.08

The fuel tank must be sufficiently and independently protected from the ground.

53.09

Articulated Sidecars are strictly forbidden.

53.10

The Sidecar must be fixed to the motorcycle in at least three points, if it is not an integral part of the chassis.

The fixing points must not allow movement at the joints. If the angle of the inclination is changeable, it must be locked in such a way that it is completely secured and not only clamped on.

53.13

A structure of crossed belts or a metallic grid must be fitted to fill the opening between the wheels and the sidecar, to prevent the rider's foot from accidentally touching the ground.

53.14

The minimum dimensions of a Sidecar available for passenger accommodation are:

Length:	1000 mm
Width:	400 mm

Height of the screen protecting the passenger: 300 mm minimum (see diagram F).

53.15

The ground clearance of a machine measured when the machine is loaded must not be less than 175 mm.

53.16

For Sidecars, the rear wheel and the Sidecar wheel must be covered or protected with a solid material.

53.20

The distance between the tracks left by the centre lines of the rear motorcycle wheel and the Sidecar wheel must be at least: 800 mm and not more than 1150 mm.

53.21

On the opposite side of the Sidecar, the exhaust pipe must not extend more than 330 mm from the centre of the machine. On the other side, the exhaust pipe must not extend beyond the width of the Sidecar (see diagram N).

The furthest extremity of the exhaust pipe must not exceed the vertical line drawn at a tangent to the rear edge of the rear motorcycle tyre or the rear edge of the Sidecar platform whichever is shorter.

01.55 NUMBER PLATES

They must be fitted as follows:

55.03

Number plates must be made of flexible materials only (e.g. plastic). The shape of the front number plate is free and may be part of the general design of the motorcycle.

However, the front number plate must have the minimum size necessary to carry a three-digit number as described in Art. 55.07 and the Motocross World Championship logo.

Team publicity is allowed on the front number plate within a space 50mm from the top or bottom section of the number plate.

55.04

The plates curved not more than 50 mm out of a true plane must not be covered or bent.

55.05 Front number plates

The front number plates curved not more than 50 mm out of a true plane must not be covered or bent.

One plate must be fixed to the front inclined not more than 30° towards the rear from the vertical plane. Holes can be perforated between the numbers on the number plate. However, under no circumstances must the actual numbers be perforated.

For the solo classes of the Individual Motocross World Championship events, the front number plate must always display (See Appendix "O"):

- a) The background colour,
- b) The number of the rider,
- c) The FIM Motocross World Championship logo as shown on the diagram (5 cm x 5 cm).

The numbers must be clearly legible. Reflecting numbers are forbidden. The following minimum dimensions must be respected on the front number plate:

- | | |
|---|--------|
| - Height of the number | 140 mm |
| - Width of each number | 70 mm |
| - Width of the stroke | 25 mm |
| - Space between two numbers | 15 mm |
| - Space between the FIM logo and the number | 10 mm |

55.06 Side number plates

The side number plates must be positioned above a horizontal line drawn through the rear wheel spindle and the front edge of the plate must be behind a vertical line drawn at 200 mm to the rear of the rider's footrest.

They must be fixed in such a manner as to be clearly visible and they must not be masked by any part of the motorcycle or by the rider when seated in the driving position.

In place of separate plates, a space of equivalent size in matt colours can be painted or fixed on the bodywork.

For the solo classes of the Individual Motocross World Championship events, the side number plate must always display (See Appendix "E"):

- a) The number of the rider,
- b) The FIM Motocross World Championship logo (5 cm x 5 cm),
and
- c) Optionally, publicity of the rider's/team's sponsor(s).

There is freedom of design and publicity, but incorporation of the rider's number and the FIM Motocross World Championship logo into the graphics is compulsory.

The color scheme for the background of the side number plates and the numbers is free. However, there must be a clear colour distinction between the colour of the number and the color of the background. The FIM logo must be in black or white.

55.07

The figures must be clearly legible and like the background must be painted in matt colours to avoid reflection from sunlight. In general, the following minimum dimensions must be respected on front number plates:

Height of figure:	140 mm
Width of figure:	70 mm
Width of stroke:	25 mm
Space between 2 figures:	15 mm

However, the following minimum dimensions must be respected on the side number plates:

Height of figure:	100 mm
Width of figure:	70 mm
Width of stroke:	25 mm
Space between 2 figures:	15 mm

55.08

The English form for numbers must be used. That is single vertical line for the "one" and a simple sloping line without a horizontal line for the "seven" (see diagram O).

55.09

All other number plates or markings on a motorcycle liable to cause confusion with the number must be removed before the start of a competition.

Whenever official time keeping methods (transponders) are being used in the FIM World Championships and Motocross of Nations events, competitors will be allowed to put publicity on:

- the front number plate (for dimensions, see Art. 55.03). Publicity may be put within a space, 50 mm from the top or bottom section of the number plate, (See diagram O, the shaded area is reserved for publicity).
- the side number plates : the entire number plate may be used for publicity space. For Motocross des Nations, the FMN's national flag must be displayed on the side number plates, whereby the specified dimensions must be respected.

55.12 Number plate colours

The background colours and figures vary according to the class of motorcycle and the type of competition; the main rules are indicated in the Supplementary Regulations for each meeting.

The following colours shall be used; and they must be matt colours, following the RAL colour table, i.e.:

Black	9005
Yellow	1003
Green	6002
White	9010
Blue	5005

The following colour schemes shall be used:

MX1	White background	Black Numbers / Logo FIM
MX2	Black background	White Numbers / Logo FIM
Women's MX	Blue background	White Numbers / Logo FIM
World Champion (1st event)	Red background	White Numbers / Logo FIM
Points leader	Red background	White Numbers / Logo FIM
MX des Nations	According to class	
MXN - Winning Team	Red background	White Numbers / Logo FIM
Sidecar	Yellow background	Black Numbers
Veteran World Cup	Yellow background	Black Numbers / Logo FIM
Supercross	White background	Black Numbers / Logo FIM

55.13 For all other events:

85 cc	white background	black numbers
125 cc	black background	white numbers
250 cc	green background	white numbers
500 cc (open)	yellow background	black numbers
Sidecars	yellow background	black numbers
Supercross	white background	black numbers

01.63 FUEL, OIL AND COOLANTS

All motorcycles must be fuelled with unleaded petrol, as this term is generally understood.

All riders/teams must declare to the FIM Technical Steward the make and type of fuel to be used during practices and race(s), upon presentation of the riders' motorcycle(s) at the initial technical control.

See also: Art.63.04.2 Race fuels

63.01 Physical properties for unleaded fuel

63.01.1 Unleaded petrol must comply with the FIM specification.

63.01.2 Unleaded petrol (incl. E10) will comply with the FIM specification if:

(a) It has the following characteristics:

Property	Units	Min.	Max.	Test Method
RON		95.0	102.0	ISO 5164
MON		85.0	90.0	ISO 5163
Oxygen	% (m/m)		2.7	ISO 22854 or EN 13132
Oxygen (E10 Fuels)	% (m/m)		3.7	ISO 22854 or EN 13132
Nitrogen	% (m/m)		0.20	ASTM D 4629
Benzene	% (V/V)		1.00	ISO 22854 or EN 238
Vapour pressure (DVPE)	kPa		95.0	EN 13016-1
Lead	mg/L		5.0	ICP-OES or AAS
Manganese	mg/L		2.0	ICP-OES or AAS
Density at 15°C	kg/m ³	720.0	775.0	EN ISO 12185
Oxidation stability	minutes	360		EN ISO 7536
Existent gum	mg/100 mL		5.0	EN ISO 6246
Sulphur	mg/kg		10.0	EN ISO 20846 or 20884
Copper corrosion	rating		Class 1	EN ISO 2160
Distillation:				EN ISO 3405
E at 70°C	% (V/V)	20.0	52.0	
E at 100°C	% (V/V)	46.0	72.0	
E at 150°C	% (V/V)	75.0		
Final Boiling Point	°C		210	
Residue	% (V/V)		2.0	
Appearance	Clear and bright			Visual inspection
Olefins	% (V/V)		18.0	EN ISO 22854
Aromatics	% (V/V)		35.0	EN ISO 22854
Total diolefins	% (V/V)		1.0	GC-MS or HPLC
Oxygenates:				EN ISO 22854* or

				EN 13132
Methanol	% (V/V)		3.0	
Ethanol (1)	% (V/V)		5.0	
Ethanol (E10) (1)	% (V/V)	5.0	10.0	
Isopropanol	% (V/V)		12.0	
Isobutanol	% (V/V)		15.0	
<i>tert</i> -Butanol	% (V/V)		15.0	
Ethers (C5 or higher)	% (V/V)		22.0	
Others (2)	% (V/V)		15.0	
*Preferred method				
(1) Ethanol must be blended according to EN 15376				
(2) Only the following compounds are allowed:...				

Notes:* Preferred method.

(1) Ethanol must be blended according to EN 15376.

(2) GC-MS methods may also be applied to fully deconvolute GC trace.

- (b) The total of individual hydrocarbon components present at concentrations of less than 5% m/m must constitute at least 30% m/m of the fuel. The test method will be gas chromatography and/or GC/MS.
- (c) The total concentration of naphthenes, olefins and aromatics classified by carbon number must not exceed the values given in the following table:

% (m/m)	C4	C5	C6	C7	C8	C9+
Naphthenes	0	5	10	10	10	10
Olefins	5	20	20	15	10	10
Aromatics	-	-	1.2	35	35	30

The total concentration of bicyclic naphthenes and bicyclic olefins may not be higher than 1% (m/m). The test method used will be gas chromatography.

- (d) Only the following oxygenates are permitted:

Methanol, Ethanol, n-Propyl alcohol, Isopropyl alcohol, n-Butyl alcohol, sec-Butyl alcohol, Isobutyl alcohol, tert-Butyl alcohol; Methyl tertiary butyl ether, Ethyl tertiary butyl ether, Tertiary amyl methyl ether, Diisopropyl ether.

- (e) Manganese is not permitted in concentrations above. 2.0 mg/L For the present this is solely to cover possible minor contamination by other fuels.

Lead replacement petrols, although basically free of lead, are not an alternative to the use of unleaded petrol. Such petrols may contain unacceptable additives not consistent with the FIM Fuel Regulations.

63.01.3 Ethanol E85 will comply with the FIM specification if:

(a) It has the following characteristics:

Property	Units	Min.	Max.	Test Method
RON		95.0	110	ISO 5164
MON		85.0	100	ISO 5163
Vapour pressure (DVPE)	kPa	35.0	95.0	EN 13016-1
Lead	g/L		0.001	ICP-OES
Manganese	g/L		0.001	ICP-OES
Oxidation stability	Minutes	360		ISO 7536
Existent gum	mg/100 mL		5.0	ISO 6246
Sulphur	mg/kg		10.0	ISO 20846 or 20884
Copper corrosion	Rating		class 1	ISO 2160
Distillation:				
Final Boiling Point	°C		210	ISO 3405
Residue	% (V/V)		2	ISO 3405
Appearance	Clear and bright			Visual inspection
Ethanol + higher alcohols	% (V/V)	75		EN 13132 or 14517
Higher alcohols (C3-C8)	% (V/V)		2.0	EN 13132 or 14517
Methanol	% (V/V)		1.0	EN 13132 or 14517
Ethers (5 or more C atoms)	% (V/V)		5.2	EN 13132 or 14517
Unleaded petrol as specified in 2.10.1.2	% (V/V)	14	25	
Water	% (V/V)		0.3	EN 12937
Inorganic chloride	mg/L		1	EN 15484
Acidity (as acetic acid)	% (m/m) (mg/L)		0.005 (40)	EN 15491

63.02 Oil

For oil used in two stroke mixtures, the following tolerances on the fuel specifications will be allowed:

• Density at 15°C	Plus/minus 30 kg/m ³
• Distillation residue	Not controlled

Any infringement of the fuel specifications will automatically result in the exclusion of the competitor from the entire meeting (see also Sporting Code Art. 140.1). The result of the competitors' fuel sample analysis (A or B Sample) more favourable to the competitor will be taken into account (See also Art. 63.05.3).

If the fuel available locally for the event is not of a sufficient quality for use by competitors, the FMN of the organising country must ask the FIM for a waiver in order to enable the use of fuel not corresponding to the characteristics defined above.

63.03 Air

Only ambient air may be mixed with the fuel as an oxidant.

63.04 Primary Tests

63.04.1 The FIM may require tests of fuels to be administered before, or at the time of delivery to, an event at which such fuels are to be used.

63.04.2 **Fuel companies supplying 'race' fuels (fuels other than those obtained at public fuel stations) to participating teams must submit ten litres (2 x 5 L) to the laboratory appointed by the FIM for analysis in accordance with the specification. Providing the fuel is within the specification, a certificate containing a test report number will be issued to the fuel company. The fuel company must provide a copy of the test report number to their client rider/teams before they take part in a race.**
Contact for fuel analysis : fimfuels@intertek.com.

63.05 Fuel Sampling and Testing

1) The FIM-appointed Official has the sole responsibility for the management and supervision during the taking of fuel samples.

2) The preferred fuel test method is Gas chromatography or GC Fingerprint method.

Gas chromatography (GC) is an analytical technique for separating compounds based primarily on their volatility and polarity. Gas chromatography provides both qualitative and quantitative information for individual compounds present in a sample. Gas chromatography is widely used for the analysis of fuels.

The GC Fingerprint is a comparison between the given reference and the fuel drawn from the competitor. With the fingerprint method any changes in composition and concentration of the fuel against the reference is detected. The separation is done with a non polar column suitable for fuel analysis. The detection of the components is done with a flame ionisation detector.

3) If other test methods are required, fuel samples are transported to the appointed laboratory by a nominated courier, using the appropriate containers.

4) Riders selected for fuel controls are directed with their motorcycles to the inspection area.

5) Only new sample bottles are used for the fuel samples.

6) The fuel to be tested is transferred directly from the selected fuel tank into three vials (3 small sample containers), marked A, B and C, and identified by reference to the motorcycle from which the sample was taken. The bottles are closed, sealed and labeled by the FIM appointed Official.

7) The Fuel Sample Declaration form is filled out immediately, containing all information as shown on the sample sheet, including the riders' name and race number, date and place of fuel sampling. A responsible team member signs this declaration, after verifying that all the information is correct.

8) Samples A and B are given to the appointed laboratory staff, present at the event for analysis or be sent to the respective laboratory by the organiser if no trackside laboratory is available. Sample B will be kept by the laboratory staff as a reserve sample, to be used for a second analysis if required. All samples are accompanied by a copy of the Fuel Sample Declaration form. Costs for the analyses of sample A and B are paid by FIM.

9) Sample C is handed over to the FIM, accompanied by a copy of the Fuel Sample Declaration form, for safeguarding in case of protests and/or a request for a counter-expertise by the FIM appointed laboratory. Costs for the analyses of sample C are paid by the team concerned.

10) As soon as possible after completing the testing, the Fuel Analyst/FIM appointed laboratory will report the results of the fuel sample analyses directly to the FIM appointed Official, with a copy to the rider, the relevant Commission Director and CTI Secretariat (via cms@fim.ch and cti@fim.ch).

11) In the case of non-conformity of the fuel, the FIM appointed Official must notify the results to the FIM, the Race Direction (or the International Jury) and the rider/team representative concerned. Failure of the sample to conform to the FIM fuel specifications results in the disqualification of the competitor. The result of the competitor's fuel sample analysis ("A" or "B" sample) more favourable to the competitor is taken into account.

12) Within 48 hours of the receipt of the notification of the results from the analysis of sample A and/or B, the team must notify the FIM and the FIM-appointed Official if a counter-expertise of sample C is requested.

13) The Race Direction (or the International Jury) takes a decision, immediately following the notification of the results of the final expertise. Any appeal against the decision of the Race Direction (or the International Jury) is heard by the FIM. Stewards appointed for the event at which the decision is taken. This takes place after the C sample has been analyzed. For events without a Panel of Stewards, the appeal is lodged before the CDI.



FIM WORLD CHAMPIONSHIPS AND PRIZE EVENTS

Fuel Sample Declaration Form

FUEL SAMPLES TAKEN ON /..... / FOR LABORATORY ANALYSIS

Tech inspection,
practice or

Race N°:

Sample "A"

Can Label N°

Can Seal N°

Rider :

Sample "B"

Can Label N°

Can Label N°

Rider # :

Sample "C"

Can Label N°

Can Label N°

MOTORCYCLE
MAKE: _____

TEAM: _____

The above listed details refer to fuel samples taken from the fuel tank of the motorcycle specified after the race whilst in the Check Area for a period of 30 minutes.

Sample "A" and "B" will go to the laboratory appointed by the FIM for analysis. Sample "C" will be safeguarded by the FIM in case a counter-expertise is required.

As a responsible member of the team named on this sheet,

(print name): _____

I have controlled the serial numbers of can seals and serial numbers of can labels and hereby certify the accuracy of the listed information.

Time: _____

(Signature)

Position in team: _____

(OWNER/MANAGER/MECHANIC)

01.65 EQUIPMENT AND PROTECTIVE CLOTHING

Clothing and footwear

During practising and racing, the riders and passengers must wear the following clothing and footwear:

65.01

For Motocross

The rider and passenger must wear trousers and gloves of durable material. Riders only must wear knee-length boots of leather or an equivalent material must be worn. In order to prevent abrasions in an accident, the arms of riders and passengers must be entirely covered by a protective garment of a suitable material.

For Snowmobiles

The rider must wear suitable clothing to afford protection against the cold and against injury in case of a fall, and padded knee-length boots or other solid footwear.

For Supermoto

Riders must wear a complete leather suit in one piece, with a minimum thickness of 1.2 mm, and, with additional leather padding or other protection on the principal contact points (elbows, shoulders, fore-arms, hips, knees, etc.)

Sections of the leather suit not directly subject to 'crash' damage may use a small limited area or strip made of a material that has the same protective properties as leather (see Art. 65.07 in the General Section).

Linings or undergarments must not be made of a synthetic material which might melt and cause damage to the rider's skin.

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

From 01.01.2016:

As a minimum, a certified chest and back protector of composite material should be worn at all time and is highly recommended. The standard norm for chest, shoulder and back protectors is EN1621.

Additional body protection must be worn either incorporated within the clothing or worn separately over appropriate undergarments.

65.01.1 If incorporated within the clothing it must include the use of padding made of leather, or enclosed plastic foam of at least 8mm thickness covering the following areas: shoulders, elbows, both side of the torso (chest & back), hip joints and knees.

65.01.2 If not incorporated within the clothing, alternatively 'body armour' approved for use in trial competitions, may be used.

This body armour should comprise as a minimum of ribbed panels of moulded plastic, not necessarily in conformity with article 65.07, with a minimum thickness of 2mm. covering the following areas: shoulders, elbows, both sides of the torso (chest & back), hip joints and knees.

65.07 Material equivalent to leather

The following characteristics of the material must be at least equivalent to 1.5 mm of cowhide (not split leather):

- 65.07.1** Fire retardant quality
- 65.07.2** Resistance to abrasion
- 65.07.3** Coefficient of friction against all types of asphalt
- 65.07.4** Perspiration absorbing qualities
- 65.07.5** Medical test - non toxic and non-allergenic
- 65.07.6** Fabric of a quality that does not melt.
- 65.07.7** Clothing in material other than leather must bear a sticker or label which says "in conformity with the FIM rules". This label must be sewn or attached to the clothing in a permanent way.

65.08 Approval

The clothing manufacturer is responsible for ensuring that the products and materials that carry his name conform to these rules. The FIM cannot be held liable for any injuries that a rider or passenger may sustain from their use.

FMNs (National Motorcycling Federations) which approve protective clothing must present the certificate of a testing institute to the FIM for their records. The FMN approval mark must be displayed if the FMN so requires.

01.67 WEARING OF HELMETS

It is compulsory for all participants taking part in practice and races to wear a protective helmet. The helmet must be properly fastened, be of a good fit, and be in good condition. The helmet must have a chin strap type 'retention system'.

Helmets constructed with an outer shell of more than one piece are permitted, provided that, in case of emergency; they can be quickly and easily removed from the rider's head by releasing or cutting the chin strap only.

All helmets must be marked with one of the official international standard marks mentioned in Art. 01.70 or the Approval Mark (stamp) of the FMN of the rider. Helmets marked by an FMN must comply with one of the International Standards listed in Art. 01.70 , before approval by an FMN.

A helmet is made to provide protection. A helmet is not a platform to attach foreign objects. Cameras or other accessories are NOT permitted nor shall be attached to the rider's helmet.

Failure to observe the above rules will entail exclusion.

01.69 HELMET OPERATIVE INSTRUCTIONS

69.01

Scrutineers, under the supervision of the Chief Technical Steward, may check prior to practice and the races that all helmets meet the technical requirements.

69.02

If a helmet does not meet the technical requirements and is found to be defective, the Technical Steward must remove all approval marks and retain the helmet until the end of the event. The rider must submit another helmet for approval by the Technical Steward. After an accident involving impact, the helmet must be presented to the Technical Steward for examination (see also Art. 77.02.14).

69.03

All helmets must be intact and no alteration must have been made to their construction. After an accident involving impact the helmet must be presented to the Technical Steward for examination.

69.04

The Chief Technical Steward/Technical Steward may ask a rider for the following checks before the rider is permitted to take part in practice or race:

69.04.1 That the helmet fits well on the rider's head,

69.04.2 That it is not possible to slip the retention system over the chin, when fully fastened,

69.04.3 That it is not possible to pull the helmet over the rider's head by pulling it from the back of the helmet.

01.70 RECOGNISED INTERNATIONAL HELMET APPROVAL MARKS

- EUROPE ECE 22-05 (P, NP or J)

- JAPAN JIS T 8133:2007 (**valid until 31.12.2019**)
JIS T 8133:2015

- USA

SNELL M 2010 (valid until 32.12.2019)
SNELL M 2015

01.71 EYE PROTECTION

The use of glasses, protective goggles as well as helmet visors and 'tear off's' is permitted. The material used for eye protectors and glasses must be made of shatter-proof material. Helmet visors must not be an integral part of the helmet.

Eye protectors which cause visual disturbance (scratched etc.) must not be used.

01.73 NATIONAL COLOURS FOR HELMETS

In competitions between national teams, it is recommended that helmets be of the same colour for each team member and that their national flag colours, presented in stripes, bands or other design be included in the overall helmet colour scheme.

In addition to this, for the holders of World or National championships, a central band 50 mm wide from front to back across the top carrying the national colours or a rainbow is admitted.

The following National colours are approved:

Andorra	FMA	White with vertical blue, yellow and red bands
Argentina	CAMOD	White with blue horizontal band
Australia	MA	Green and yellow sides, red, white & blue representation of the Australian flag across the top
Austria	OeAMTC	Bright red with a 60 mm wide black band and the label of the OeAMTC in a white field on the front side
Belgium	FMB	Yellow
Brazil	CBM	Yellow and green
Bulgaria	BMF	Green and red
Canada	CMA	White and 3 Red Maple leaves, one on front and one on each side
Chile	FMC	Red with blue band and yellow stars
China	CMSA	Red and yellow
Czech Republic	ACCR	Blue with red, white and blue border
Denmark	DMU	Red and white
Finland	SML	White with blue cross
France	FFM	Blue
Germany	DMSB	White with black border
Great Britain	ACU	Green
Greece	ELPA	White with blue border
Hungary	MAMS	Red and green
Ireland	MCUI	Green and orange

Italy	FMI	Red with one green and one white horizontal band
Japan	MFJ	White with red circle on top
Kenya	KMSF	Black, Red, Green, with white bands and the country name KENYA on both sides.
Luxembourg	MUL	Purple
Mexico	FMM	White with green and red border
Monaco	MCM	Blue and white
Netherlands	KNMV	Orange
New Zealand	MNZ	White with black kiwi on front
Norway	NMF	Red and blue
Peru	FPEM	Red with 75 mm wide white strips and blue and yellow chequered border
Poland	PZM	White with red band
Portugal	FNM	White
Rumania	FRM	Black with vertical blue, yellow and red bands with national emblem.
Russia	MFR	White with a red border and a vertical red band with star
San Marino	FSM	White with the San Marino National emblem
Slovakia	SMF	Blue, red and white
South Africa	MSA	Black, green, blue and red with yellow and white bands
Spain	RFME	Yellow and red
Sweden	SVEMO	Blue and yellow
Switzerland	FMS	Red with white cross
Uruguay	FUM	Light blue
USA	AMA	Blue with 2 white bands

01.75 BADGE OF THE FIM

Under certain circumstances the FIM may permit the use of the FIM badge on certain equipment in order to show that the latter conforms with the standards laid down by the FIM. When this authorisation is granted and provided the equipment on which it appears is in good condition, the badge is then the guarantee of the conformity with the standard set by the FIM.

01.76 NUMBER SASHES (BIBS)

Starting numbers to be worn on sashes (bibs) or printed on the riders' jersey must be conforming to the following:

76.01

The colour of the number must be in strong contrast with the colour of the background.

76.02

Distance between the numbers: 1.5 cm

76.03

Height of number: minimum 20 cm

76.04

Width of number: minimum 10 cm for one-digit numbers
minimum 20 cm for two-digit numbers
minimum 25 cm for three-digit numbers

76.05

Width of stroke: 3 cm

76.06

Minimum free space around the number without publicity: 5 cm

76.07

Bibs if manufactured from plastic material must be perforated to provide adequate ventilation.

76.08

Starting numbers used by riders on number sashes or tee-shirts must be in compliance with the starting number of the race in question. Furthermore the numbers must be worn during the practices as well as during the races.

01.77 CONTROL

77.01 Verification

General

A rider remains at all times responsible that his/**her** machine is in conformity with the Technical Rules for Motocross.'

77.01.1 The Chief Technical Steward must be in attendance at an event 1 hour before technical verifications are due to begin. He must inform the Clerk of the Course, Jury President and CTI Delegate, if present, of his arrival.

77.01.2 He must ensure that all technical stewards appointed for the event carry out their duties in a proper manner.

77.01.3 He shall appoint the technical stewards to individual posts for the race, practices and final control.

77.01.4 Technical inspections will only be carried out when the technical **control form** of the motorcycle has been presented by the ~~Organiser~~ **rider (or his mechanic)**.

77.01.5 The rider, or his mechanic, must be present with the machine for technical control within the time limits stated in the Supplementary Regulations. On request of the Technical Steward, the riders must present themselves to the technical verification.

77.01.6 The Chief Technical Steward must inform the Clerk of the Course/ Jury President of the results of the technical control. The Chief Technical Steward will then draw up a list of accepted machines and submit this list to the Clerk of the Course.

77.01.7 The Chief Technical Steward has the right to look/ inspect any part of the motorcycle at any time of the event.

77.02

Any rider failing to report to the technical inspection as required by the provisions below and the planned time schedule may be excluded from the meeting.

The Clerk of the Course may forbid any person who does not comply or any rider who could be a danger to other participants or to spectators, to take part in the practice sessions or in the races.

77.02.1 The technical control must be carried out in accordance with the procedure and times fixed in the Discipline's Rules and the Supplementary Regulations of the event.

A maximum number of three (3) persons are permitted to be present at the technical verification, namely the rider plus two others. For Team events, the Team Manager is also allowed to be present.

77.02.2 The rider must personally present a clean motorcycle, without old verification marks from previous events, the prescribed helmet and the technical **control form** duly filled in and confirmed.

The fuel tank shall contain a maximum of 0.5 litre fuel. In case of doubt, the Chief Technical Steward will measure the weight with an empty tank.

77.02.3 The rider must present his equipment. The helmet must be marked.

77.02.5 The sound test must be carried out first and the sound level reached will be recorded on the technical card. The exhaust silencer will be marked with paint.

77.02.6 The motorcycle(s) must be weighed and the weight recorded on the technical **control form**.

77.02.7 An overall inspection of the motorcycle(s) must be carried out in conformity with the FIM rules and the motorcycle(s) will be sealed (seal on the front main frame).

77.02.8 Each rider must present one motorcycle for technical inspection under his name and number. As for the second motorcycle, there are two possibilities:

- 1) A rider can present a second motorcycle for technical inspection under his name and number;
- 2) A team or a group of riders can present a second motorcycle for technical inspection. It can then be used by several riders, on condition that the motorcycle has been marked under each rider's name and number. In this case, the team presenting the motorcycle must indicate at the moment of technical inspection the names and numbers of the riders eligible to use it.

77.02.9 The rider may change the motorcycle between races. The final choice must be made a minimum of 10 minutes before the start of each race.

77.02.10 Ten minutes before each start and in the waiting area, the technical steward will carry out the control of the seals and marks on the exhaust systems and the riders' equipment.

77.02.11 During the event the technical steward will control the seals, marks on the exhaust systems and the riders' equipment in the repair zone. He must follow the work being carried out on the machines in order to ensure that no motorcycle becomes a source of danger.

77.02.12 Immediately after the last race the first three motorcycles will be placed in a closed park for technical control. The machines must remain in the closed park for 30 minutes after the arrival of the winner, in case of a protest or should further examination be required.

Competitors must retrieve their machines within 30 minutes after the opening of the closed park area, except for the machines which are chosen for disassembly. After this time limit, the closed park officials will no longer be responsible for the machines left behind.

77.02.13 After the technical control has been completed the Chief Technical Steward will submit to the Clerk of the Course a list stating the names of the accepted riders and machines, the sound levels and weights of machines.

77.02.14 If a motorcycle is involved in an accident, the Technical Steward must check the machine to ensure that no defect of a serious nature has occurred. However, it is the responsibility of the rider to present his machine for this re-examination together with the helmet and clothing worn.

77.02.15 If the helmet is clearly defective, the Technical Steward must retain it. The organiser must send this helmet, together with the accident and medical report

(and pictures and video, if available) to the Federation of the rider. If there are head injuries stated in the medical report, the helmet then must be sent to a neutral institute for examination.

77.05 Dangerous machines

If, during practice or the race, a Technical Steward finds that a machine is defective and might constitute a danger to other riders, he must immediately notify the Clerk of the Course or his deputy. It is their duty to exclude such a machine either from the practice or from the race itself.

01.78 SCRUTINEERING GUIDELINES FOR TECHNICAL STEWARDS

- Make sure all necessary measures and administrative equipment are in place at least 1 hour before the start of the technical control (see separate list) is due to open (time in Supplementary Regulations).
 - Decide prior to the technical control who is doing what and note decisions. "Efficiency" must be the watchword. Always keep cheerful and remember the reasons for scrutineering: SAFETY AND FAIRNESS.
 - Be well informed. Make sure your FMN has supplied you with all technical "updates" that may have been issued subsequent to the printing of the Technical Rule Books. Copies of all homologation documents must be in your possession.
 - Inspection must take place under cover with a large enough area (min. surface 50 sq. metres).
 - Inspection area must be supplied with the necessary equipment, including tables, chairs, electric light and power outlet.
 - Weighing apparatus must be accurate and practical. Certified master weights and their certificate must be available for verifying.
 - Prepare before the START of the competition, a closed and guarded area (closed parc/parc-fermé).
 - Rules regarding sound level and -measurement must be respected.
 - **Procedures**
- | | <u>Minimum number of Scrutineers required</u> |
|---|--|
| • Checking of documentation (entry forms, licence, helmet, clothing, etc.). | 1 person |
| • Sound level test, silencer marking. | 2 person |
| • The machine weight (with empty tank): | 1 persons |

- Machine inspection (with strict check of safety items). Compliance with rules and safety. Items must be marked. 2 persons
- Scrutineers can have different tasks, but the team of scrutineers must have a minimum of 6 persons. At least one (1) person must be a holder of an FIM **SENIOR** Technical Stewards Licence.

Technical control on day before or on the same day of the start of OFFICIAL PRACTICE:

- Minimum time: 1 hour
- Minimum safety checks, marked items and weight. 2 persons
- Free use of the weighing equipment by all teams.

Technical control on day before or on the same day of the start of the RACE:

- Minimum time: 1 hour
- Free use of the weighing equipment by all teams.
- General machine inspection, helmet and clothing.

Technical control after the race:

- After the race, ensure that **the selected machines used in during the race** go directly to the Closed Parc (**Parc Fermé**) and are retained 30 minutes.
- Post-race inspection (machines weighted, sound checked, as they finished the last zone).

Control:

- According to protest or **a decision by the Race Direction**

List of Tools and Documents

Tools :

- Revolution meter
- Sound meter and calibrator
- Durometer for tyre control ('Shore' hardness gauge)
- Slide calliper (for verifying engine capacity, carburettor diameter, etc.)
- Depth gauge
- Steel measuring tape
- Arrangement for measuring ground clearance

- Seals
- Weighing apparatus (to be furnished by the Organiser); set of weights to adjust the scales (100 kg), vertical balance (0 –10 kg)
- Tools for measuring the engine capacity
- Lampoil tester for measuring the cylinder capacity
- Colour for marking parts
- Label, temperature stable, if taken for marking silencer
- Magnet for testing titanium
- Adequate fuel sample bottles
- PC with CD Drive + **'Windows 10' (recommended)**
- Printer, etc. are recommended
- Calculator

Documents :

- Supplementary Regulations
- FIM Technical Rules - current year
- FIM Rules of the discipline concerned, e.g. CCP, CTI
- FIM Sporting Code
- Homologation papers (if applicable)
- Writing material
- Technical Control Forms

01.79 SOUND CONTROL

IMPORTANT

- The surrounding sound should not exceed 90 dB/A within a 5 metres radius from the power source during tests.
- For the initial sound control and technical inspection, a rider (or his mechanic) shall present only one (1) spare silencer per machine.
- Other spare silencers may be presented after all participants have presented their motorcycles, or on the following days of the event.
- During the sound test method, machines not equipped with a gear box neutral must be placed on a stand.
- The sound level for engines with more than one cylinder will be measured on each exhaust end.
- During the sound test, only the rider may sit on the machine in the normal riding position. No other team personnel may influence the sound test.
- A machine that does not comply with the sound limits can be presented several times at pre-race control.

- The silencers will be marked when they are checked and they may not be changed after verification, except for a spare silencer that has also been checked and marked.
- All silencers will be checked and marked, once they have successfully passed the sound check. The end opening of the silencer shall remain unmodified once it has been checked and marked.
- Silencers fitted with adapters aimed to reduce the sound level shall be permanently fitted.

79.01 The '2 metre max' method – Maximum sound levels

In order to pursue the measures taken to reduce the sound level in favour of environment and in the framework of the 'RIDE QUIET' campaign, a new method for measuring the sound level called '2 metre max' is applied as from 2013 in all 'all-terrain' disciplines.

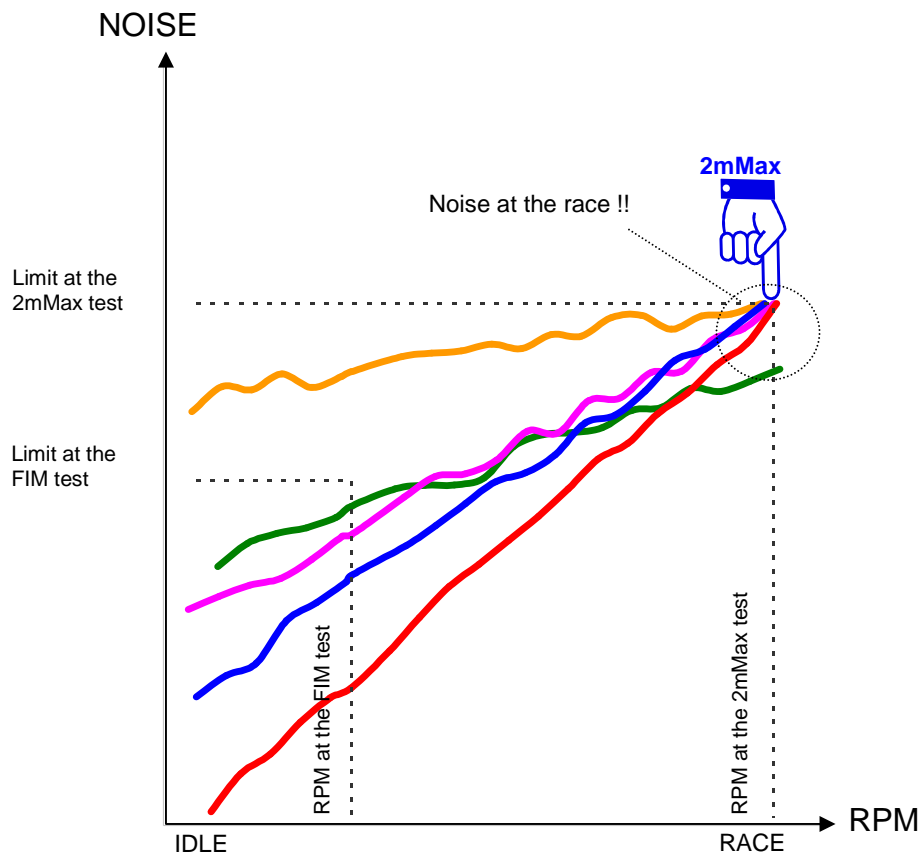
WHAT DOES IT CONSIST OF?

The 2 metre max method shows a very good correlation between the sound power level (LwA) issued by motorcycles in full acceleration, and the maximum sound pressure levels measured at proximity of the same motorcycles, with engines at idle and quickly taken to their maximum rotational speeds.

The technical specifications and the resources to initiate the application of this new method, for the use of the technical stewards and officials are mentioned in Art. 79.01 of these Technical Regulations. This article will detail the "2metre max" method, the sound levels, the indispensable tools.

Only the sound levels measured with the '2 meter max' method will be considered by the technical stewards and by the Race Direction/Jury of the event to decide whether the motorcycle is in conformity with the maximum sound levels authorized.

THE 2 METER MAX METHOD - IN FOCUS



THE OPERATING PROCEDURE

The '2 metre max' method will consist in quantifying not only the sound level produced by the silencer of the exhaust, but the maximum global sound level achieved by the motorcycle when the engine rpm's are raised to the maximum engine speed, limited by

- ⇒ natural regulation for 2T, or
- ⇒ rev limiter for 4T.

For 250cc and 500cc (4 stroke) engines used in Speedway, Long track and Ice Racing, without rev limiter, it would be advisable to limit the full open the throttle for 1 or 2 seconds maximum.

THE PREPARATION OF THE SOUND METER

For all FIM Championship-and Prize events, a sound meter Class 1 (type 1) is required to measure the sound levels. For all other Championships, a sound meter of Class 1 or 2 (type 1 or 2) is required

- Activate the 'A' weighing
- New: Select highest possible dynamic range.

- **FAST** time weighting must be activated
- Select range High **80~130 dB**
- Calibrate the sound meter at 93,5 dB or 113.5 dB to take into account the incidence of the wind foam ball
- Position the wind foam ball on the microphone
- Activate the function MAX MIN – set on **MAX**

THE SET UP OF THE SOUND METER AND THE MOTORCYCLE

- The sound levels will be measured with the sound meter/microphone fixed on a tripod, in the horizontal position, at the rear of the motorcycle.
- For the place and position of the motorcycle, ensure that there are no solid obstacles within 10 meters around the microphone.
- The sound meter will be positioned at a distance of 2 metres behind the motorcycle, at an angle of 45° from the centerline, on the exhaust side and at a height of 1.35 metre above the ground. The sound meter must be level and horizontal. For Snowmobiles, the sound meter will be positioned at an angle of 90° from the centerline, opposite to the silencer exit.
- The 2 metres distance is measured from the point where the centre of rear tyre touches the ground (except for Snowmobiles).
- It is preferred to make the tests on soft ground, not reverberating, i.e. grass or fine gravel.
- In other than moderate wind, machines should face forward against the the wind direction.
- The ambient sound level must remain lower than 100 dB/A.

THE POSITIONING OF THE MOTORCYCLE (see illustrations following)

The reference points:

- For a motorcycle: the contact point of the rear wheel on the ground.
- For motorcycles fitted with 2 exhaust outputs, the measurement will be made on the side of the air intake. If a central positioned air intake is used, both sides will be tested.
- For Side-cars: the contact point of the side wheel on the ground.
- For Quad vehicles: the vertical line to the ground from the centre point of the rear axle.

- For Quad vehicles with exhaust outlet moved from the median axis, the measurement will be made on the offset side.

To make repetitive measurements, all motorcycles can be positioned into a small frame fixed on the ground.

THE NEW 2 METRE MAX METHOD – THE OPERATION – PROTECT YOUR HEARING – USE EAR PROTECTION

- The measurement is made with motorcycle on its wheels, with a hot engine.
- The technical steward takes place besides the motorcycles, opposite to the microphone, not to screen or stand between the bike and the microphone. **A mechanic, placed on the left side of the motorcycle, shall disengage the clutch.**
- If a second steward is permanently attending the sound level checks, it is strongly advised for him to use earplugs, a headset or ear protectors.
- The Inspector shall open throttle as fast as possible until full open throttle (instantly, within 0.3 seconds). He will keep the engine at **max engine 'rpm'** for at least 1 second. To conclude, the inspector will release the throttle quickly.

The maximum engine rpm value is the rpm value which an engine must be able to reach the threshold rpm and obtain its max KW/PS value (max PS@ rpm). Any vehicle that is checked and unable to reach this threshold value of maximum RPM will be refused.

- If the result exceeds the limit, including 'after fire', the Inspector shall test the motorcycle a maximum of two (2) more chances.
- For motorcycles equipped with an engine rpm limiter, the throttle will be opened - instantly, within 0.3 seconds - and kept open until at least 1 second has passed and/or until there is an audible sign that the engine is over-revving.
- For motorcycles without an engine 'rpm' limiter, the throttle will have to be opened for less than 2 seconds and/or until there is an audible sign of over-revving the engine.
- If the engine starts to misfire close the throttle slightly and re-open the throttle.
- If detonations appear, the measurement must be started again.

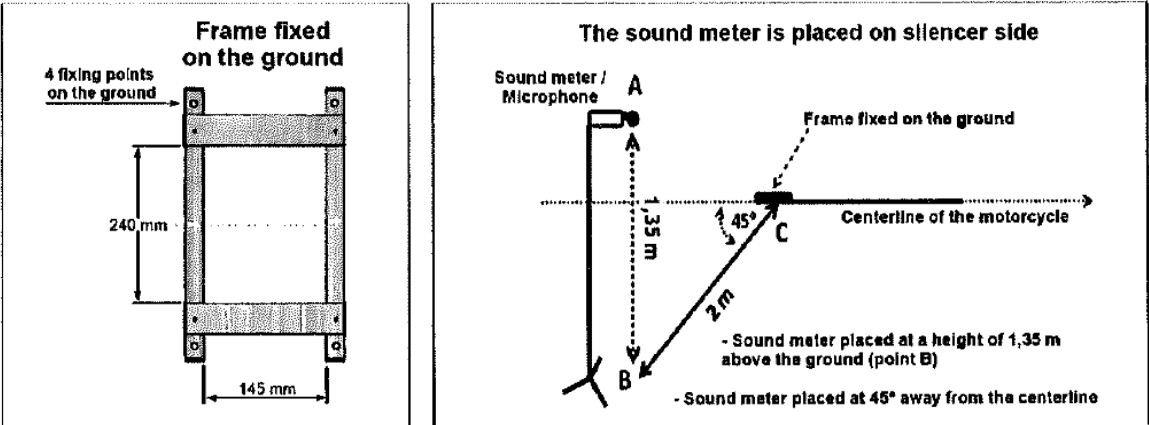
In order to have a valid sound test, a motorcycle must always be able to reach a threshold rpm level to obtain the maximum result of the 2 metre max test.

Threshold rpm values are provided by the manufacturers, typical for their published production models. If no values are provided, FIM will use threshold values obtained from dyno tests.

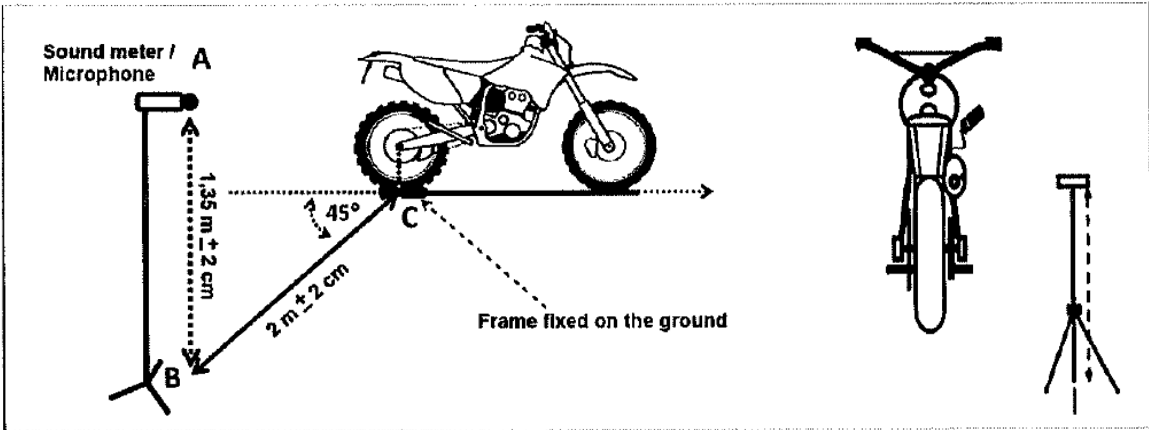
The 'reshold' rpm values for the different motocross models (2014, 2015 and 2015 make and models) are published and updated on: <http://www.fim-live.com/en/library>.

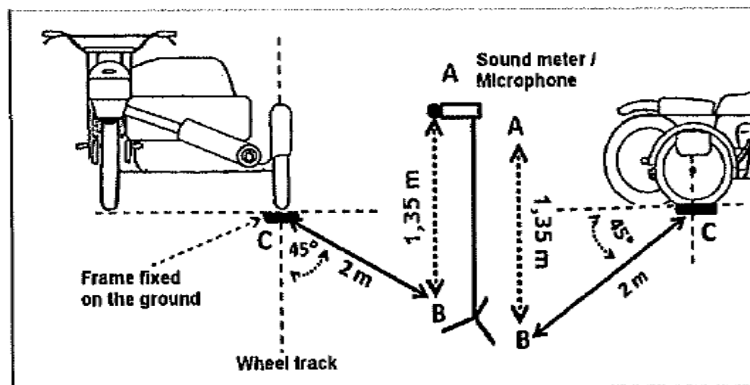
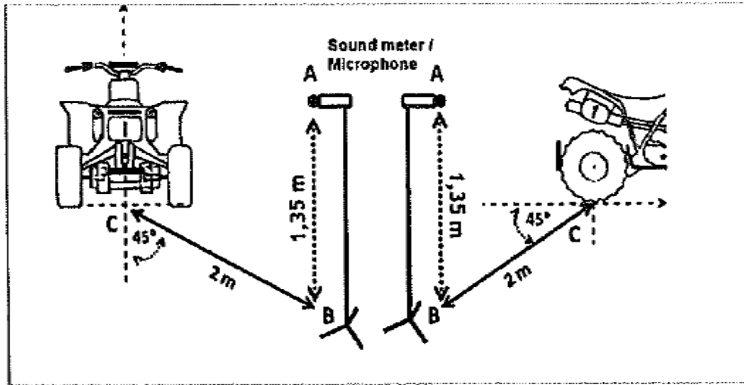
The numbers obtained from the test shall not be rounded down.

For the sound level measurement, only the Inspector shall handle the throttle. He shall open the throttle himself in order to minimize any influence by another operator (it is helpful to have the microphone equipped with an extension cable to the sound meter).

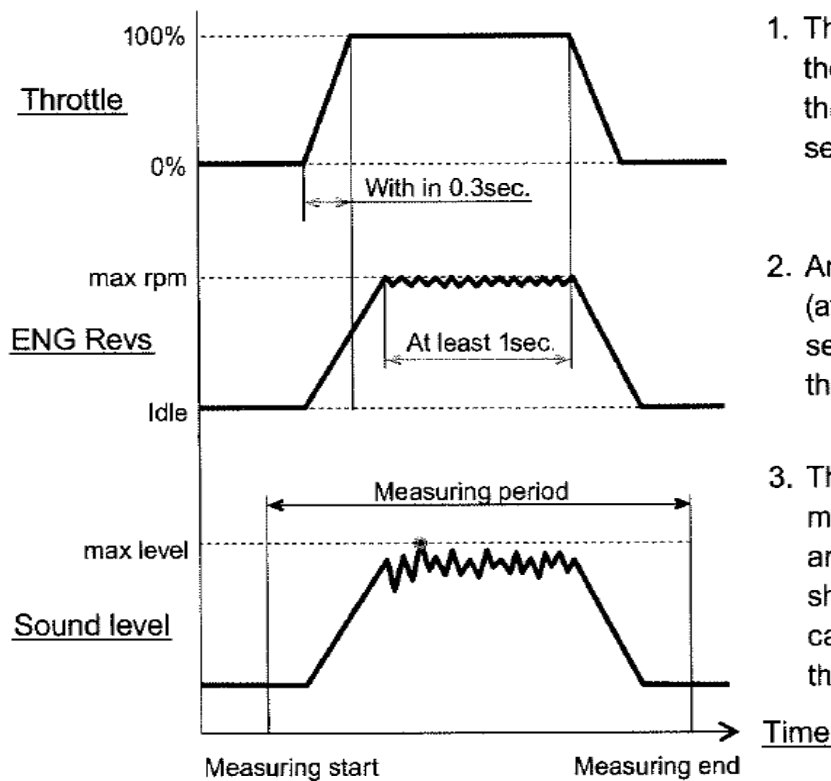


POSITION OF THE SOUND METER IN RELATION TO THE MOTORCYCLE





THE IMAGE OF THE SOUND MEASUREMENT PROCEDURE



1. The Inspector shall open the throttle until full open throttle within 0.3 seconds.
2. And keep at the max rpm (at rpm limiter) at least 1 second. Then, release the throttle quickly.
3. The sound level is measured in the all period and the maximum level shall be recorded in any case. (automatically by the sound meter).

THE MEASUREMENT – RECORDING OF THE SOUND LEVEL

- When the measurement is considered acceptable, write down the result, then reset the meter (push on the sideline) the 'MAX MIN' setting until the previously displayed value disappears.
- Push again on the MAX MIN sideline to arm the sound level meter.
- The sound level meter is then ready for the following measurement.

Any attempt by a participant to prevent his/her engine from reaching the maximum published rpm figure will be considered a breach of the rules.

Even after a motorcycle has passed the sound control, if there is any doubt, it may be checked again.

A noticeably lower engine speed is detected easily by hearing. In case of doubt, check the value of the rpm limiter with a tachometer.

Sound levels will be checked against the limits stated in **Art. 79.11.**

For the initial sound control and technical inspection, a rider (or his mechanic) shall present only one spare silencer per machine.

Other spare silencers may be presented after all participants have presented their motorcycles, or during the following days of the event.

Sound levels in MX1, MX2, MXoN, Sidecars, Junior 125, Supermoto and Supermoto of Nations, Women's, Veteran's, and all other classes will be verified with the '2 metre max' method (Art. 79.01).

- **Before and during practice session and the races: max. 114 dB/A (112 +2 dB/A).**
- **After the races: max. 115 dB/A (112 + 3 dB/A)**
- **For the Sidecars, Juniors 65/85 and Supermoto, see listing at the end of the this section: LISTING – ALL MAX FIM SOUND LEVELS.**

Note: Taking into account the local inhabitants and the environment, the admissible sound levels are:

- For all motocross events: **78 dB/A at 100m.**
- The sound will be measured with a calibrated and homologated sound meter at a distance of 100m, perpendicular to the axis of the race track.
- A tolerance of +5 dB/A will be added to these values.

79.02. Sound control during and after the competition

In a competition that requires a final examination of machines before the results are announced, this examination must include a sound control measurement of at least three machines chosen at the discretion of the Clerk of the Course in co-operation with the Chief Technical Steward

79.11 Sound limits in force

MOTOCROSS		
All sound values: NO ROUNDING DOWN OF THE FIGURES OBTAINED		
MX1, MX2,	Sound limit	2 metre max method (max rpm)
As from 01.01.2013		
For all engine types:	112 dB/A	Target
All checks <u>before</u> the race:	114 dB/A	112 dB/A + 2 dB/A for the precision of the method.
All checks <u>after</u> the race:	115 dB/A	114 dB/A + 1 dB/A for the degradation of the silencer.
SIDECARS		
2 metre max method (max rpm)		
With 2 stroke engines:	110 dB/A	Target
All checks <u>before</u> the race:	112 dB/A	110 dB/A + 2 dB/A for the precision of the method
All checks <u>after</u> the race:	113 dB/A	112 dB/A + 1 dB/A for the degradation of the silencer.
With 4 stroke engines:	115 dB/A	Target
All checks <u>before</u> the race:	116 dB/A	115 dB/A + 1 dB/A for the precision of the method
All checks <u>after</u> the race:	117 dB/A	116 dB/A + 1 dB/A for the degradation of the silencer.
JUNIOR MX (65/85)		
2 metre max method (max rpm)		
With 2 stroke engines:	109 dB/A	Target
Checks <u>before</u> the race:	111 dB/A	109 dB/A + 2 dB/A for the precision of the method
Checks <u>after</u> the race:	112 dB/A	111 dB/A + 1 dB/A for degradation of the silencer.

For 150 cc - 4 stroke engines:	112 dB/A	Target
Checks before the race:	114 dB/A	112 dB/A + 2 dB/A for the precision of the method
Checks after the race:	115 dB/A	114 dB/A + 1 dB/A for degradation of the silencer.

SUPERMOTO		2 metre max method (max rpm)
For all engine types:	115 dB/A	Target
All checks <u>before</u> the race:	117 dB/A	115 dB/A + 2 dB/A for the precision of the method.
All checks <u>after</u> the race:	118 dB/A	117 dB/A + 1 dB/A for degradation of the silencer.
SNOWCROSS		2 metre max method (max rpm)
For all engine types :	112 dB/A	Target: 112 dB/A
All checks <u>before</u> the race	114 dB/A	112 dB/A + 2 dB/A for the precision of the method
All checks <u>after</u> the race:	115 dB/A	114 dB/A + 1 dB/A for degradation of the silencer
QUADS		2 metre max method (max rpm)
With 2 stroke engines	112 dB/A	Target: 112 dB/A
All checks <u>before</u> the race:	114 dB/A	112 dB/A + 2 dB/A for the precision of the method
All checks <u>after</u> the race:	115 dB/A	114 dB/A + 1 dB/A for degradation of the silencer
With 4 stroke engines	115 dB/A	Target: 115 dB/A
All checks <u>before</u> the race:	117 dB/A	115 dB/A + 2 dB/A for the precision of the method
All checks <u>after</u> the race:	118 dB/A	117 dB/A + 1 dB/A for degradation of the silencer

01.80 GUIDELINES FOR USE OF SOUND LEVEL METERS

80.01

The Sound Control Officer (SCO) must arrive in sufficient time for discussions with the Clerk of the Course and other Technical Officials in order that a suitable test site and testing procedure can be agreed.

80.02

Sound level measuring equipment must include a compatible calibrator, which must be used immediately before testing begins and always just prior to a re-test if a disciplinary sanction may be imposed.

Two sets of equipment must be available in case of failure of tachometer, sound level meter or calibrator during technical control.

80.03 Corrections

Corrections are presented as the 'precision of the method' (see listing at the end of Art. 01.79).

80.04 Ambient temperature

No deductions.

80.05 Action and decisions will depend on the Sporting Discipline concerned, and decisions taken during prior discussions with the FIM Technical Director and/or the Chief Technical Steward.

01.81 TIMEKEEPING

Since 01.01.1993, the timekeeping has been referred to the Sporting Commission.

81.01 Timekeeping Instruments

All motorcycles must have a correctly positioned transponder support. The transponder must be supplied or approved by the official Timekeeper and fixed to the motorcycle (for off-road models, typically on the front fork), on either the left or right side, avoiding being shielded by carbon pieces.

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

01.82 SPECIFICATIONS FOR SNOWMOBILES

82.01 Introduction

Snowmobiles are vehicles driven on one or more caterpillar tracks steered by skis generally situated at the front or side of the vehicle either permanently or temporarily attached. There are several types of snowmobiles.

82.01.1 Snowmobiles equipped with 2 caterpillar tracks with one or two steering skis in front of the vehicle.

82.01.2 Snowmobiles equipped with one caterpillar track with one or two steering skis in front.

82.01.3 Snowmobiles equipped with one caterpillar track and skis.

For safety reasons, no windscreen of plastic or similar material shall be used.

82.02 General Specifications

82.02.1 The position of the engine is optional, except that it must be positioned in front of the rider.

82.02.2 The rider must be completely visible.

82.02.3 It is forbidden to add air foils or spoilers to the original hood or cowling.

82.02.4 The use of Titanium is strictly forbidden.

82.02.5 The rear tunnel opening must be enclosed with a comparable tunnel material.

82.02.6 Front headlights(s) must be removed or covered.

82.02.7 Machines must be equipped with red rear lamp, minimum power 20 W. Minimum dimensions of rear lamp: 40 mm x 50 mm.

82.02.8 It is forbidden to drive on the track without hood or cowling.

82.03 Starting devices

Snowmobiles must be equipped with **an on-board mounted starting device**.

The stand (support) used to lift the vehicle when on hold behind the start gate can be used for the sound control.

82.04 Open transmission guards

Snowmobiles must be equipped with belt guards. The guards must be separate from the cowl configuration.

82.05 Exhaust pipes

82.05.2 Exhaust fumes must not discharge in a manner as to raise snow, foul the tracks or brakes, or inconvenience a passenger, if there is one, or any other riders. All possible measures must be taken to prevent the possible loss of waste oil so that it does not inconvenience a following rider.

82.06 Handlebars

The width of the handlebars must be no less than 500 mm and no more than 850 mm. No extensions are permitted. Ball ends on levers are not obligatory.

82.07 Control levers

Snowmobiles must be equipped with control levers. Article 01.35 is applicable.

82.08 Throttle controls/ignition cut out switch

Snowmobiles must be equipped with throttle controls.

A snowmobile must also be equipped with an ignition cut out switch.

Article 01.37 is applicable.

82.09 Footrests (See Article 01.39)

If snowmobile footrests are equipped with loops, the footrest must have a stopper which would prevent the riders foot entering by more than 1/3 of its length.

82.10 Brakes

There must be at least one brake.

82.11 Snow Flaps

Snowmobiles must be equipped with snow flaps at the rear. They must be made of an adequate material. There must be at least 30 mm overlap on each side of the machine tunnel and a maximum of 100 mm ground clearance when the machine is unloaded. The use of springs and/or elastic material to hold down the snow flaps is forbidden. (See diagram M.)

82.13 Driving tracks

These must be made of rubber or plastic. No modifications may be made to driving tracks. Anti-slip devices such as studs, spikes etc., cannot be fitted.

82.15 Steering skis

The steering ski shall be designed to push away obstacles sideways and vertically (see diagram M).

The front edge shall be raised in a curve with a diameter of not less than 100 mm which shall continue as far as a vertical line running through the centre point of the circle created by the curve. Material to be used: minimum 12 mm outside diameter.

Any guide rail must be made of material with a circular section and a minimum diameter of 10 mm. If it is equipped with anti-skid rail, the minimum profile angle is 60° and the maximum length 260 mm (see diagram M).

The edges of steering skis must be rounded with a profile of steel or another metal of at least 5 mm (see diagram M).

82.17 Number plates

Number plates are compulsory. Article 01.55 is applicable.

82.18 Number plate colours

Up to 250 cc	green background	white numbers
350 cc	blue background	white numbers
500 cc	yellow background	black numbers
1050 cc	white background	black numbers
1300 cc	red background	white numbers

82.19 Fuel and Oil

Article 01.63 is applicable. Anti-freeze liquid is permitted.

82.20 Equipment and protective clothing

Article 01.65 is applicable.

82.21 Bibs

Article 01.76 is applicable.

82.22 Control/Verification

Article 01.77 is applicable.

82.23 Sound control

Article 01.79 is applicable.

The maximum sound level is: **112 dB/A** (measured with the 2 metre max method)
For details, see Art.01.79

During a snowmobile sound test, the machine must be placed on a bridge 1m off the ground, with a microphone placed at an angle of 90° at a distance of **200** cm from the exhaust pipe. All power train must be released from the engine. Hood and cowling must be installed.

01.83 SPECIFICATIONS FOR QUAD RACERS

83.01 Definition

Refer to Article 01.7/Classes - Group G/Quad Racers, for definition.

83.02 Type of motorcycle

There is no restriction placed on the make, construction of type of motorcycle, other than specified below.

The cylinder capacity must be:

- min. 250 cc and
- max. 350 cc (2 cylinders max.) and 500 cc (1 cylinder).

The drive must be through the rear wheels only via a solid axle.

83.03 Wheels

Wheel rim diameter max.: 12 inches.

There is no restriction for the size of the front wheel. It is forbidden to use wheels with spokes.

Every front wheel must have a functional brake installed on axle and operated by a handlebar mounted lever.

On the rear, the vehicle must have a brake on each wheel or a brake fixed solidly on the rear transmission axle of the wheels, operated by a lever on the handlebar or by a foot-operated pedal.

Wheels must be protected by good mudguards of soft, synthetic materials.

83.04 Tyres

Article 01.49 is applicable.

83.05 Overall width

The maximum overall width cannot exceed 1300 mm.

83.06 Protection

A crash bar must be placed behind the seat. The length and width of the crash bar must end above the rear section of the chain sprocket.

A crash 'bar' or 'guard' must be fixed at the front and the rear of the vehicle. This protective barrier must be fitted in such a way that it is in alignment with the outside flange of the wheels.

A protective barrier (or 'guard') of a round profile (minimum diameter: 25 mm) must be installed on each side of the vehicle. There shall be no prominent (sharp) parts.

A structure of crossed belts or a metallic grid must be fitted to fill the opening between the wheels and the barrier, to prevent the riders' foot from accidentally touching the ground.

83.07 Control levers and handlebars

Articles 01.33 and 01.35 are applicable.

83.08 Throttle controls

Article 01.37 is applicable.

83.09 Sound

Article 01.79 is applicable.

83.10 Number plates

Four number plates are required:

83.10.1 One plate fixed to the front of the machine at the level of the head lamp, facing forward

83.10.2 One plate on each side of the machine placed on the rear mudguard.

83.10.3 One plate attached to the rear bumper.

83.10.4 The plates must have a yellow background with black numbers. They must be placed centrally and as vertical as possible. See Article 01.55 for dimensions.

83.10.5 The rider must display his starting number on his jersey or a bib.

83.11 Helmets and clothing

Articles 01.65 to 01.71 are applicable.

83.12 General

The vehicle must be in perfect technical condition and must satisfy the requirements of the Technical Steward.

Table 6: Valid International Helmet Standards

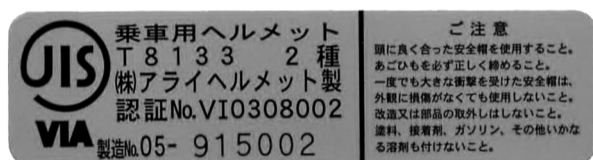
ECE 22 - 05 (P, NP or J)

The ECE mark consists of a circle surrounding the letter E followed by the distinguishing number of the country which has granted approval.



E1 for Germany, E2 for France, E3 for Italy, E4, for Netherlands, E5 for Sweden, E6 for Belgium, E7 for Hungary, E8 for Czeck Republic, E9 for Spain, E10 (- vacant), E11 for UK, E12 for Austria, E13 for Luxembourg, E14 for Switzerland, E15 (- vacant), E16 for Norway, E17 for Finland, E18 for Denmark, E19 for Romania, E20 for Poland, E21 for Portugal, E22 for the Russian Federation, E23 for Greece, E24 for Ireland, E25 for Croatia, E26 for Slovenia, E27 for Slovakia, E28 for Belarus, E29 for Estonia, E30 (-vacant), E31 for Bosnia and Herzegovina, E32 for Latvia, E34 for Bulgaria, E37 for Turkey, E40 for Macedonia, E43 for Japan, E44 (-vacant), E45 for Australia, E46 for Ukraine, E47 for South Africa, E48 for New Zealand.

Below the letter E, the approval number should always begin with 05. Below the approval number is the serial production number. (Label on retention system or comfort interior).



JIS T 8133:2007 (valid until 31.12.2019)

JIS T 8133:2015



SNELL M2010 (valid until 31.12.2019)



SNELL M2015

For more details consult the FIM Technical Rulebook