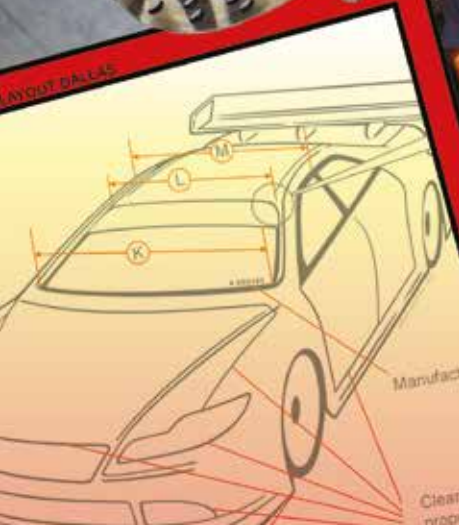




HANDBOOK 2017

EUROPEAN FEDERATION OF RADIO OPERATED MODEL AUTOMOBILES



APPENDIX 5 LARGE SCALE I.C. RULES

1. RACE FORMAT

- 1.1 There will be two annual European Championships to determine the European Champion in:
- a.) 1:5 Scale Touring Cars + Formula 1
 - b.) 1:6 Scale Off Road Cars 2WD + 4WD + Short Course
- Drivers can only enter one class at a European Championship. There will not be a 1:5 touring car European Championship event held in the same year as an IFMAR World Championship event held in Europe, the 4 EFRA GP's will determine the European Champion in Touring car and Formula 1 with the 3 best results counting.
- 1.2 The results of the EFRA-GP's will give the EFRA ranking list.
The Ranking list will be a continually updated one, for every new EFRA GP, the oldest one will be deleted.
- 1.3 The number of drivers per event is limited for GP's to 110 and for EC's to 150. There are 2 classes at a GP (TC and F1), in case of more than 110 attendees wants to subscribe the numbers must be limited for each section to 76 TC and 34 F1 = 110 drivers in total. With permission from the Chairman, the track and facilities being suitable, the maximum number of drivers at a GP can be increased.
- A minimum number of 25 participants from 3 different countries in a class at an EC is required for that class to be officially classified as a European Championship and a European Champion title given to 1st place.
If 2 weeks before an EFRA GP one class is oversubscribed and the second class does not reach the allowed number, these places can be given to the drivers on the waiting list in the other class.
- 1.4 Qualification for the European championships and World championships 1:5th Touring Cars and F1:
20 places for the European championships and 7 places for the World Championships for the following year's meeting/s will be offered to the highest ranked drivers competing in the large scale EFRA gp series. The remainder will be split as per normal between countries as outlined in general rule 3.6.
- Only the EFRA GP Meetings will count for the points system, with the drivers best 3 meetings out of the 4 to count. Points will only be awarded to a driver if they compete in their final/s. If there are less than 4 EFRA GPs then they will all count.
- Points system to use: 1 = 150, 2 = 147, 3 = 145, 4 = 144, 5 = 143, ... 10 = 138, 11 = 135, 12 = 134 ... TQ = 1 extra point.
- If a concourse competition is held at an EC, only cars and bodies that are used in the race are eligible.
- ### 2. RACE PROCEDURE
- 2.1. Duration of the races:
- | | |
|---------------|---|
| Free practice | max. 8 minutes Heats 10 minutes
(plus the last lap and time of the last lap) |
| Sub-finals | min. 15 minutes, max. 20 minutes up from the
1/32 final and 30 minutes for semi finals |
| Final Saloon | 30 minutes
(plus the last lap and time of the last lap) |

Semi Final Formula 1	30 minutes, 1 single fuel stop (plus the last lap and time of the last lap)
Final Formula 1	50 minutes, 1 single fuel stop (plus the last lap and time of the last lap)

- 2.2. a) The EFRA Christmas Tree will be used.
 b) All other drivers are allowed to race a sub-final.
 c) Sub-Finals: The first 3 drivers from each sub-final progress up to the next final.
 Semi-final: The first 5 drivers from each semi final will progress up to the main final
 d) It is not allowed to drive a model car on any other place than the track and the marked track pit lane.

- 2.3a Number of drivers:
 Heat: 10 to 15 drivers (only 1:5), track and facilities permitting.
 Sub-finals and finals: Maximum 10 drivers
 Final F1 EC Maximum 10 drivers
 Final F1 EFRA GP's: Maximum 15 drivers, if the team managers agree

- 2.3b The race format will be notified in the event information and invitation material.
 In the event that the transponder loop is before the exit to pit lane any car than should start from pit lane will start from position 11 on the grid.

2.4 TIME SCHEDULE for EC

EC Tracks must be closed for Large Scale Racing, two weeks prior of the event. No cars are allowed on the track before Monday morning.

General qualification format for EC's:

There will be a Minimum of 4 and a Maximum of 6 series of 10 minutes heats depending on the number of drivers. The number of series, time schedule and heat order to be announced prior to the first round of qualification.

If there are 60 drivers or less, 6 rounds.

If there are >60 - <80 drivers, 5 rounds.

If there are more than 80 drivers, 4 rounds.

The event starts on Monday morning.

Approximate time schedule:-

Monday	09:00-18:00	Free practice (in full heats made by the organiser)
Tuesday	09:00-18:00	Free practice (in full heats made by the organiser)
Wednesday	09:00-18:00	Timed practice /tech inspection/qualification heats (a minimum of the car/body checked and marked, engine marking is optional)
Thursday	09:00-18:00	Qualification heats
Friday	09:00-18:00	Qualification heats, lower finals
Saturday	09:00-17:00	Sub-finals and final. Prize giving ceremony

2.5 STARTS

(see also General Race Procedures Chapter 8).

The arrangement of the free practise heats will be created from drivers previous meeting results, known ability and common sense by the organiser. The arrangement of the heats and numbering will be done using common sense and a drivers

best 3 consecutive laps. The drivers must stand adjacent to their numbers on the rostrum, the mechanics must remain in their boxes along the pit lane. For all finals, drivers with the lowest starting numbers may choose their position on the rostrum and the mechanics must stand under the driver where this is possible.

- 1 There must be a 3 min. gap between the end of one heat and the start of the next heat. Also a minimum of 2 minutes must be allowed between the issuance of the transmitters and the start of the heat.
- 2 During qualifying an audible warning will be given at 1 minute and again at 30 seconds prior to the official start, in English and other languages as appropriate.
- 3 For all sub finals and main finals, a "Formula 1" type grid start will be used with each grid start position spaced a minimum of 5 meters apart.
- 4 For all finals, the track will be opened 5 minutes prior to the start of the final. At 2 minutes to go all cars will be called back into the pit lane and re-fueling is allowed. At 45 seconds to go the cars are called to the start line, all cars will leave the pits in number order and drive round the track to their respective starting positions. The 10 second count-down will commence within 5 seconds of all cars being stationary in their correct grid position. If a car has not left the pit lane at 30 seconds due to unforeseen problems, the car may start from the pitlane after the other cars have officially started. The race director and referees will monitor the pitlane for the abuse of this facility.
- 5 From 10 seconds until 3 seconds prior to the start a second by second count-down will be made in English.
- 6 From 3 seconds the verbal count down stops and the actual start-signal will be given by the Starter after a period of between 0 and 5 seconds has elapsed. If the grid is not to the satisfaction of the Starter, he may require a re-start, re-commencing the count down.
- 7 The official start signal will be audible by means of a hooter, operated by the Starter. This signal will also start the Timing Systems.
- 8 Early starts (i.e. any part of the car touching the starting line), will be penalised. (10 sec. up to 1lap) This penalty is issued by the Starting Official or the Time- keeping official and must be announced immediately after the start. The penalty will be marked on the resultsheet.
- 9 Under no circumstances will the race be stopped due to a jump start.
- 10 The Starter may only interrupt the race and make a re-start in the event that he considers the starting procedure or the start was not carried out correctly.
- 11 Delayed start. As long as the starter has not called the cars to the start line, any participant of the semi-finals and final may request a delay of 10 minutes to carry out repairs on his car. This delay can be granted only once for each semi final and final. - the track is closed, if the delay is requested as a result of frequency or radio problems - the track is open, if the delay is requested for mechanical repairs or problems. If a driver is asking for a delay on frequency problems, the mechanics are only allowed to turn off engine and receiver. They are not allowed to make any repairs including change of tyres. At the end of the 10 minute delay period, a complete new warm up time and start procedure will begin.
- 12 When the starter calls the main final to the start line, the mechanics are not allowed to refuel the cars.
- 13 The driver asking for the delay for what ever reason, except an error in frequencies of the race control, must start from the pit lane.

2.5.1 **STARTING PROCEDURE OF HEATS**

For qualifying heats no stop between practice time (warming up) and start of the heat. Just start the clock when practice time is over. (Flying start.)

- 1 If the number of heats differ from 10, or if the event is planned with more/less rounds, a sequence following this general scheme has to be used.

Round 1: 1,2,3,4,5,6,7,8,9,10

Round 2: 4,5,6,7,8,9,10,1,2,3

Round 3: 7,8,9,10,1,2,3,4,5,6

Round 4: 10,9,8,7,6,5,4,3,2,1

Starting for Sub Finals and Final will be on a Formula 1 grid depending on the track layout, with the faster Qualifier starting in front of the slower.

2.5.2.

- 1 When the time is over, an audible signal is given. A car finishes when it passes the finish line after the finish-signal is given. The car must immediately return to the pits and may not hinder other cars still racing.

- 2 In case of doubt (on the finish-line when time is over), a car may race one more lap and finish. Whether he finishes or not when time was completed, is up to the Time-keepers and cannot be disputed.

- 3 After returning to the pits, the engine must be stopped immediately and the transmitter turned off and impounded.

2.5.3. Qualification Order and Finals.

- 1 After all series have been completed the Qualification order is established, by taking the best result of each driver.

- 2 In case of more than one driver recording identical best results of qualifications the next best result is taken.

- 3 In the case of more than one driver recording identical results in a final, the driver starting with the higher start number is classified as the faster, e.g. if number 5 and 2 have equal times, 5 is deemed to have higher final placing.

- 4 The sub-finals and final are run according to the schedule printed in the official race program, which may only be changed by teammanagers majority vote.

- 5 Starting order for the drivers who moved up to the final is based on number of laps and time.

In different circumstances it will be number 1 from the A-final who gets the number 1 and the number 1 from the B-final who gets the number 2 etc.

2.5.4

During the warm-up period, or at any other time of a race in progress, deliberate stopping a car on the race track will lead to be penalised with a 10 second "stop and go" after the start of the race. Consecutive stopping on the race track will lead to immediate disqualification.

2.6. RAIN SITUATION

In case of different weather conditions during subfinals the final classification will be as follows: Place 4 of subfinal A and Place 4 of subfinal B will both be awarded place 11th equal in the general classification. Place 5 of subfinal A and place 5 of subfinal B will both be awarded place 13th equal in the general classification and so on.

2.7. RACE INTERRUPTIONS

- 1 In the case of a race which is interrupted for more than 60 minutes for reasons beyond the control of the organisers, the jury will decide whether to cancel or continue the meeting.

- 2 In the case of an interruption of a heat the entire heat will be re-run.

- 3 In the case of an interruption of sub-final or a final the following procedure will be used:

- A. If less than 10 minutes of a final has been run, the results will be cancelled and a new start given for the total time of the final. Vehicles may be repaired before the new start.
- B. If more than 10 minutes of the final have been run, the results at the moment of the interruption will be kept. The new start will be given for the time which remains to complete the final. The two results will be added to give the final and definitive placing. If the second start cannot be made for any reason, the results from the first part will be used as the final and definitive placing.
- C. When the interruption takes place after 75% or more of the race is past, the results as at the time of the interruption becomes the final result. At the moment of the interruption of the race, the drivers will leave their vehicles on the start-line under the control of the Race Director. They may switch off the radio and stop the engine. There will be no repairs carried out to the vehicle or changing of tyres. Any driver who does not observe this rule will be immediately disqualified.

2.8.1. RAIN PROCEDURE DURING QUALIFYING

- 1 The Race Director and the Referees are jointly responsible for the decision to stop a race in the event of rain.
- 2 On the result sheets the Race Director or the appointed official must mark a heat "WET" when the heat was raced under wet conditions. On the corresponding record sheets, this must also be marked. The Race Director together with the Referees will decide in case of doubt. Heats are generally considered to be "WET2" when average lap times are approximately 20% slower than before, due to rain or moisture on the track.
- 3 When all drivers have had at least one dry heat, all results will be counted.
- 4 When weather and time permits, the Race Director may decide to offer an extra heat to those drivers who did not have a chance to drive a heat dry (i.e. when most drivers had 2 resp. 3 dry runs, a 2nd. resp. 3rd. run may be offered to those who had only 1 resp. 2 dry runs).
- 5 When not all drivers have had a chance to run a dry heat, only the wet results will be counted.
- 6 When continuation is judged to be senseless, or when other drivers should be offered a fair chance to drive under dry conditions, the Race Director together with the Referees may decide to end a heat or cancel a complete heat (2.7.-1.)

2.9. ACCIDENTS/CRASHES

- a) A yellow flag situation will be announced, if an accident occurs. (This must be a yellow flashlight combined with an audible signal, that can be operated by the referees and the race-director) During the yellow period overtaking other cars is not allowed. Cars are required to slow down so that they can stop immediately.
Disregarding this rule will be penalised by deducting one lap from the result of the driver concerned in that particular heat, sub-final or final. An official warning has also to be issued. Racing will recommence at racing speed following display of a green flag or the official announcement "track is clear". Signals given by flags have to be visible for all drivers.
- b) Mechanics are allowed to enter the track to save the car of their driver. The mechanic may restart the engine (3x) beside the track, but not repair the car. The mechanic may not disturb the progress of other cars in the race. Mechanics or Spectators entering the track from outside the pit lane to save

a car will produce a penalty for that particular car. (Penalties can be given as stop and go or one lap penalty. The referees will inform the Team Managers about the sort of penalties given.)

If served by a spectator then this car should remain stationary until touched by the mechanic to save a penalty given.

The duration of a stop and go penalty given must be always as long as decided by the Referees and announced during the Team Managers meeting prior to the race-meeting. It is not allowed for any of the race officials to change the time of the stop and go penalties during the race meeting.

The driver have three laps time to come in.

Three stop and go penalties for one car during one race will lead to disqualification (black flag).

3. TRACKS

3.1.1 Tracks for Large Scale racing will be inspected by EFRA Officials with regard to safety provisions for drivers, mechanics, race officials and spectators. EFRA Officials have the authority to ask for improvements to be carried out before racing starts.

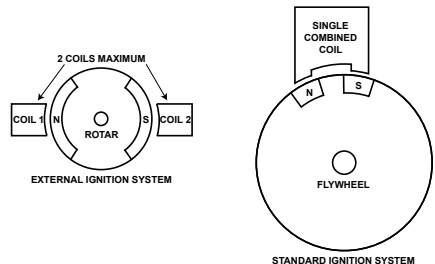
3.1.2 A monitor must be placed in the pit area or under the rostrum during all international races. (WC/EC/GP)

4. GENERAL Technical Specifications

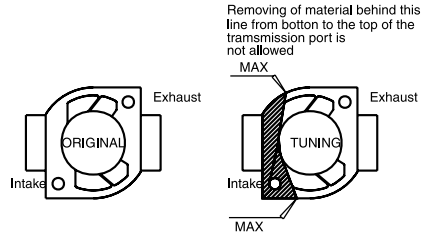
4.1. ENGINE and FUEL

For Formula 1, Off Road and Fifth Scale Saloon:

1. Only one marked engine allowed. In exceptional circumstances the race director may allow a second engine during the time of a wet track. The marked engine maybe repaired/serviced and parts replaced except for the cylinder. If a second engine or a cylinder is replaced, the originals will be kept in race control until the end of the event. A driver changing engine will receive an automatic stop and go in his first final unless the first engine/ cylinder is shown to be beyond repair and outside the drivers control to Technical inspection. Each driver is only allowed to use a maximum of 2 engines per event.
2. The engine to be a single cylinder, 2 or 4 stroke, maximum 23 ccm, maximum 26 ccm for F1, ,2wd, 4wd and maximum 30 ccm for short course pull starter or external electric starter. Electric starters can only be used in the pitlane and under no circumstances to be used on the race-track. There must be a secure protection on the flywheel cover to prevent people touching the flywheel or moving parts.
3. No Turbo charging, Fuel injection, Supercharging, Wankel or rotary valve/ distribution engines are allowed.
4. All ignition must be mechanically fixed, only manual static adjustment is allowed. The flywheel can only have 1(one) pair of magnetic poles (ie one north and one south). There can only be a maximum of 2 coils (either a single combined LT and HT coil with the standard type ignition or two LT coils with the external ignition systems) working with the flywheel/rotor.
5. No Battery operated ignition allowed. Only a passive ignition system using R.P.M. as the single input parameter is allowed.



6. Only open deck admission ports are allowed. The removal of material is free as long as the modified shape of the transfer/admission port walls are in the direction of the cylinder bore at all times.
7. The Cylinder block must be of a single casting. no independent liners or slipping liners are allowed.
8. The maximum numbers of admission ports is limited to 4.
9. Engine must be air cooled. The air being driven directly by the flywheel.
10. The crankshaft must be of split shaft configuration, with enclosed big end. No half crankshafts allowed.
11. An air filter must be fitted to the carburettor.
12. The maximum venturi diameter of the carburettor is limited to 13 mm.
13. Only fuel admitted will be petrol normally available at street petrol stations. The fuel must be bought at a fuel Station within the vicinity of the event. Details of the fuel station location and opening times should be provided by the race organiser prior to the event commencement, Fuel testing should begin prior to the start of qualification. Special fuel's like Avgas, race fuel etc. are strictly forbidden. The only additive allowed is mass production two stroke oil.



Technical inspection may ask for a sealed bottle of that oil, to check it. If a fuel is found suspect, the driver will be asked to mix his fuel at technical inspection, so it can be verified.

If an organiser is able to provide fuel at the track, all competitors have to use this fuel. The price of this fuel must not exceed the normal street price by more than 5%. Fuel tests may be made at random during the race. If a fuel is found illegal, the driver will be disqualified from the particular event and they will not be allowed to enter an EFRA Large Scale event for the remainder of the the current year and the full 12 months of the following year. The fuel tester must be available to the competitors during the event. If a driver want's to protest that decision, he has to make a written protest to EFRA with a deposit of 500.- EUR.

14. All drivers that qualify for the semi finals will have their fuel tank capacity tested prior to the semi finals. After testing the fuel tank will be emptied, the drivers fuel container will be marked and remain in technical inspection (facilities permitting) until the driver/car is preparing to go out on track for their semi final and main final warm up. Only fuel from the drivers own marked fuel container is allowed to be used.

4.2. EXHAUST/NOISE REDUCTION

4.2.1 Maximum noise level is 81dB (A) measured at 10 metres, 1 metre above the track. The race director has the authority to decide a different method of measuring (using the EFRA noise trap) as long, as the result will be the same.

If a cars average over 10 or more laps exceeds +1dB (A) for On Road cars and +4dB(A) for Off Road cars higher than the limit during the qualifying then the driver will loose their best qualifying result. If this level is exceeded during a final then the penalty is a 1 lap deduction at the end of that final. Under exceptional circumstances common sense will be used.

Both the Race Director and Referee's can decide if any car producing excessive noise is allowed to race.

Exhausts have to be of minimum three chamber type. No open exhausts or pipes are allowed.

The total exhaust must be inside the body, with the exception of the tailend of the pipe, which may protrude the body by no more than 10 mm.

No adjustable or moving parts are allowed in the manifold or muffler. The body may be cut out at that point max. 20 mm more than the tailend diameter.

Max. inside diameter tail end 13 mm.

- 4.2.2 All cars to be equipped with an air - box to reduce the intake noise of the carburettor. The air box must change the direction of air entering the carburettor by 90 degrees(or more) and be made of a rigid material. The exhaust must have a second muffler (if a two chamber exhaust is used) or be a three chamber type muffler. All three chambers must be designed so that the exhaust fumes will pass through and have to change direction twice to get the maximum possible noise reduction.

The design of that additional silencer is free, but with both systems together, the max. noise level must not be over 81 dB (A).

- 4.2.3 No refuelling allowed during racing for all cars in 1:5 Touring Cars and Off Road. Refueling is allowed only in Formula 1.

- 4.2.4 The Engines adjustments and warming are strictly forbidden in pits and working areas. They are allowed only on protected tables supplied by the Organisers, and in the proximity of pit lane, and of the Rostrum.

4.3. CAR

- a. The car has to have a functioning brake, which has to be capable of keeping the car stationary whilst the engine is running.
- b. A mechanical failsafe has to be fitted to the carburettor which returns the throttle to a closed position in case of breaking of the throttle linkage.
- c. Variable ratio transmission is not allowed.
- d. Only 2WD (rear-wheel drive) In class Offroad 4WD only fourwheel-drive cars are allowed.
- e. No other function than steering and throttle/brake are allowed to operate with radio control by the driver. Any other electronic or hydraulic systems are not allowed in the car, with the acceptance of electronic failsave to stop the car in case of radio failure and the hydraulic brake system. Movable upper formula1 wing (DRS) can be operated together with brake or throttle function. A separate radio channel to operate DRS is not allowed.
- f. The use of an electronic failsafe system is highly recommended.
- g. The ignition kill switch must be on his original place on the engine and the window on this side must be cut. The position must be market with an E (size 20 mm) on the bodyshell. To create more safety, it is allowed to have a second kill switch fixed near the rear window to allow easy access. This kill switch should be away from hot or moving parts.



4.4 TYRES

Tyres have to be black. The design of the tyre profile is free. It is not allowed to treat the tyres in the pit area. This means it is clearly forbidden. But if someone use it at home, it is recommended that the chemical components of these products must be harmless for people and environment. Liability at the use of tyre additives

lies at the user and manufacturer. Oil of wintergreen, paragon and other strong smelling products are prohibited.

5. SPECIAL TECHNICAL SPECIFICATIONS

5.2. LARGE SCALE FORMULA

Only Formula one cars following the FIA 2000/1 (or younger) Formula One Regulations are allowed. Bodies must be the model of a existing car from the season 2000/1 or younger. Paintwork and colour is free. The design of the visible suspension parts must have the same appearance than the original F1 cars.

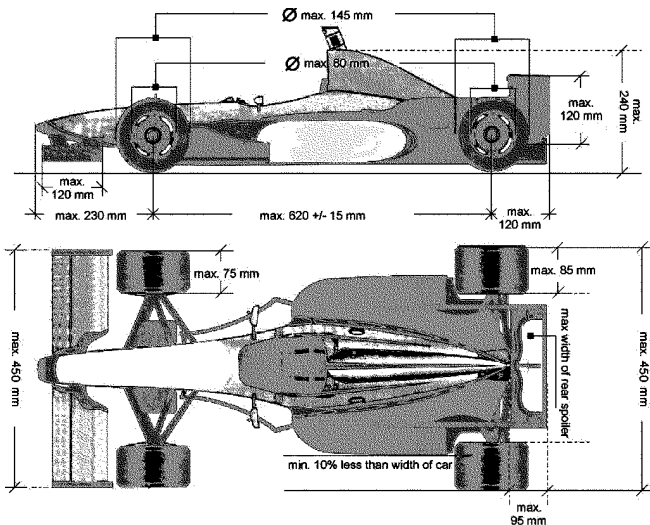
All cut-outs must exist also in the full size car. Cut outs for the engine and fuel tank are allowed in the area of the tank seal, starting device and adjusting screws for carburettor i.e. choke, neutral gear etc.

For Formula cars the side pods have to be used for the starting number. About the design of the Car numbers see 5. General Requirements EFRA Events 5.2.4

5.2.1 TECHNICAL SPECIFICATIONS

Minimum weight dry	10.000 g
Width Formula maximum	450 mm (incl. tyres)
Height maximum	250 mm
Wheel base	620 mm +/-15 mm
Fuel tank - capacity	Maximum 700 cm ³ with the fuel filter, fuel pipe and without any removable pieces inside
Tyres front diameter	142 mm +/- 5% = 134,9-149,1mm
Tyres rear diameter	142 mm +/- 5% = 134,9-149,1mm
Tyre width front minimum	60 mm, max. 75mm
Tyre width rear maximum	85 mm, rear wheels must be min. 5 mm wider than the front wheels
Rims outside diameter	80mm +/-5mm, indicators must be the same on tyres and rims.

No mixture of +/- is allowed on the wheels and tyres. No tire will be measured after the race.



- 5.2.2 **TYRES**
 Tyres must be semi-pneumatic rubber.
 They must be molded in one piece
 In case of rain the use of rain tyre can be allowed by the race director.
- 5.2.3 **FRONT SPOILER**
 Max width 450 mm max. cord 120 mm. The front spoiler must be fixed at the chassis, so that it can bend up or down in case of an accident.
- REAR WING**
 The rear wing must fit into a side profile box of 95x120 mm. The number of added wings inside is free. The rear wing must not be wider than the space between the rear tyres.
 The front part of the car should not overhang the centre of the front wheel by more than 230 mm. The rear wing and a the diffuser should not overhang the car by more than 120 mm.
 The width of the side-pods must be min. 10% less than the overall width. They should not be higher than the tyres.
- 5.2.4 **TANK SIZE, ENGINE RULES, AIR BOX, MUFFLER ETC.**
 Air box, muffler, engine rules, etc have to follow Large Scale General Technical Specifications.
 Exhaust outlet pipes must exit within the body shell side pods and point down to the track.
- 5.2.5 **F1 WINGS**
 Front and rear wing are part of the bodyshell of a F1 car and must be repaired immediately if they get damaged or come off the car.
- 5.3 1:5 Scale TOURING CARS**
 There is one series recognized in accordance to the 1:1 scale series namely the Touring Car Championship Series, following FIA class 2 Super Touring Car, FIA Group N and Touring Cars Super 2000.
 Touring cars raced in national series like Australian V8 Supercars, CTCC ;German Procar, Italian Super Stars will also be allowed with the only restriction that rear wing has to follow 5.3.5.
- 5.3.1 **GENERAL SPECIFICATIONS**
 The carbody has to comply with the calculated scale dimensions 1:5 with the allowance of using the following tolerances.
- | | |
|-------------------------------|--|
| Length: | within scale +/- 5% |
| Width: | max. 395 mm measured at the widest point of the bodyshell |
| Height: | within scale +/- 5% |
| Tank capacity: | 700 cm ³ (including pipes to and from the carburettor and any fittings) |
| Minimum weight, without fuel: | 10.000 g |
| Maximum weight, without fuel | 12.000 g |
- 5.3.2 All 1:5 cars have to be genuine scale in all details and proportions and be a fully detailed model of an existing 1:1 touring race car. If the allowed tolerances are used, then all parts of the model in that particular view have to be within the same sign (wheelbase-, length,- //wheelbase+, lenght+). Mixtures of car design's are not allowed.

The minimum length of a Super Touring Car is 4.200 mm that gives a minimum length of 798 mm in scale including max.-tolerance.

All recognized cars must have a minimum length of 4,200 mm/165.35 in. All bodies that are produced world-wide, descend from a original touring car racing and are commercially available, under consideration of Paragraph 5.3, will be allowed. Only bodysells that are approved by EFRA will be allowed to race in EFRA sanctioned events. The EFRA-homologation number has to be permanently engraved or moulded in within the space normally used for car-registration numbers at the rear end of the model.

5.3.3 BODY

Bodies have to follow the description in point 5.3.2. They have to be properly fixed to the chassis and must cover the outer edge of the wheels at the centre of the axle when viewed from the top.

It is not permitted to cut the windscreen out. The side and rear windows may be cut out for cooling. It is not allowed to open them by cutting out only some holes. Also it is not allowed to mould air channels into the side windows to guide air into the interior. The body shells have to be painted and all windows to remain clear.

All parts of the car have to be covered by the body. Only the radio antenna is allowed to come outside. All openings in the body have also to be in the existing 1:1 race car.

It is not allowed to modify the car-body by cutting it over the marked trim lines or to widen it by heating it or parts of it.

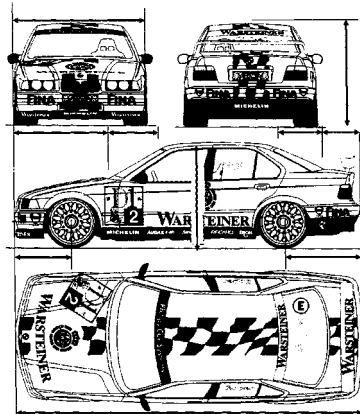
The start numbers must be placed according to the drawing (and the corresponding picture). About the design of the Car numbers see 5. General Requirements EFRA Events 5.2.4.

If the race-meeting has started, a competitor is only allowed to change the body shell in case of damage to a body shell of the same brand and car design.

Only allowed for manufactures:

Aerodynamic modifications at the front, the sides and the rear below the wheel hub centre are free subject to the requirements for ground clearance, overall length and overall width.

The modifications have to correspond to the original. The materials have to be the same as that of the bodysell. The homologation number has to be engraved. A photo of the modification 1:1/1:5 have to be sent to the responsible Homologation Officer.

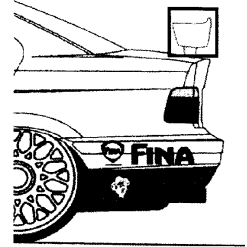


5.3.4 GROUND CLEARANCE

The measurement of the body shell height will be made with 6mm ground clearance.

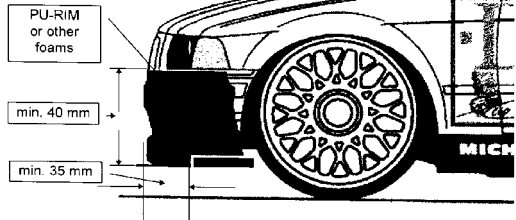
5.3.5 WING/SPOILER

A single rear wing is permitted as long as it does not exceed the front view profile and the length of the car. The wing has to fit in a side "profile box" measuring 60 mm x 60 mm per side and should not overhang the end of the car.



5.3.6 BUMPER

A bumper has to be fitted to the chassis. Bumpers have to be designed in a way that they fill the front of a car body completely and be a minimum height of 40mm. The material used has to be flexible like PU-RIM or other foams, that are used in



1:1 car construction to absorb impact energy.

At no point may any part of inflexible material for body shell mounting protrude from the body more than 10mm.

5.3.7. TYRES

- Rim Diameter max.: 107 mm
- Rim and fitted tyre Diameter: max.: 136 mm
- Rim and fitted tyre width - front max.: 75 mm
- Rim and fitted tyre width - rear max.: 80 mm

Only semi pneumatic rubber is allowed. Foam tires are not allowed.

5.4 Large Scale Off - Road Rules

Technical requirements for Large scale off road racing with 2WD and 4WD.

5.4.1 Technical classes and weight

All cars have to be large scale

Only rear wheel drive allowed in the 2wd class

Minimum weight limit 10kg for 2wd & 4wd, and 14kg for short course.

Weight limits for a race ready car with transponder / PT but no fuel load

Modifying or self builder cars are allowed, as far as those fulfil the technical rules mentioned

[5.4.2 Deleted]

5.4.3 Exhaust: Exhaust as per General Technical Specifications, 4.2 Exhaust/Noise Reduction, except:

The exhaust end pipe may be outside the shell. This pipe must be fitted rearward or to the ground and within the size of the car.

5.4.4 Fuel tank and fuel

The max content of the fuel tank till the carb is 700 cc for 2WD and 800 cc for 4WD.

The allowed fuel may only exist of Lead-free gasoline, oils and additives.

Forbidden are all special fuels and extra's as Avgas, octane boosters and race fuel.

- 5.4.5 Only 2 wheel rear drive is allowed in 2WD-class. Only all-wheel drive is allowed in 4WD-class.
Cars with electric drive, propellers or rocket-fuel drive are not allowed
Cars can only have 1 gearing: no multispeed transmissions allowed
- 5.4.6 Clutch and brake: The model cars must have a working clutch and brake system.
Other than Active ABS systems there are no restrictions for brakes.
- 5.4.7 Bum Bumper: All models must have a front bumper, a rear bumper is allowed but not mandatory. Bumpers must be made from a flexible material. The front bumper must have a minimum width of 100mm, a maximum size of 220 mm width, and 300 mm minimum width for short course. A rear bumper can have a max size of 300 mm width .
- 5.4.8 Tires and wheels
Wheels : maximum diameter 160mm and maximum width 75mm.
Tires: maximum diameter 190mm and maximum width 85mm.
Only wheels and tyres designed and made for large scale off road use are allowed and they must be commercially available .
The tyres have to be on the market a minimum of 4 weeks before the event starts.
The tyres must have been sold to everybody, who wanted to buy them.
- 5.4.9 Chassis, Body measurements
Only large scale lexan body shells are allowed
The body must be fully painted except for the windows
Motorstop access must be easy .
The chassis must be flat underneath and no screws may extend
Car size
2wd & 4wd buggy:
Max length 820 mm
Max with 480 mm with full compressed suspension
Max height 360 mm with full compressed suspension.
Short course truck:
Min length 850 mm
Max length 1000 mm
Min width 480 mm
Max width 530 mm with full compressed suspension#
Min height 300 mm
Max height 350 mm with full compressed suspension
Min wheel base 600 mm
Max wheel base 650 mm.
- 5.4.10 Wing
The wing must be made from a flexible material
2WD Max size 300 mm x 140 mm offroad.
Overhang max 150 mm from the middle of the rear drive shafts
4WD 315 mm x 140 mm
Overhang max 230 mm from the middle of the rear drive shafts
- 5.4.11 Race
The European Championship will be run as a single event (large scale euro rules),
This rule is valid from 2010
Racers with equal points: the racer with the highest single finish will be rewarded
the tie: if still tied, the second best finish position etc. In case of a continue tie
the tie will be rewarded to the highest finish the last race both drivers entered.
- 5.4.12 Marshalls have to be 16 years of age minimum. If not they need to have an experienced substitute.

- 5.4.13 Race procedure's as in EFRA Large scale except;
Semi final duration will be 20 minutes.
The top 5 from each semi final will be promoted to the main final
QUALIFYING SYSTEM: In each round drivers will score points based on laps and times achieved. For all rounds the maximum number of points given to the fastest driver will be equal to the number of drivers participating the the EC + 5 (five). 2nd fastest will score the maximum minus 2 (two) points. 3rd fastest will score the maximum 3 (three) points. Down to the last position one by one. If a driver has not completed a lap, no points will be awarded in that round. In every, round in the event of a tie the points will be equally awarded to each driver and the first driver not tying will get one point less. In the case of two or more drivers having the same overall points score the next best score determines position. If still unable to resolve with the next best rounds then the driver with fastest laps and times will determine position. Out of 5 (five) completed rounds 3 (three) to count. Out of 3 (three) and 4 (four) completed rounds 2(two) to count. Out of 1 (one) and 2 (two) completed round 1 (one) to count.
- 5.4.14 Tracks
- a) Size: Minimum preferred total length: 200 meter.
Minimum preferred width between marking/lanes: 3.5 meter for GP's 4 meter for an EC.
The point most far away from the middle of the drivers rostrum can be 60 meters
 - b) The track design can be made by the organiser. Obstacles as trees, etc cannot be inside the track area. The drivers view to the track must be free without obstacles of any sort.
The track must be made with a reasonable variety of small and large corners, left as well as right handed. The straights must have different lengths.
 - c) Marking
The lanes must be clearly viewable by the competitors on the rostrum and the track markers must be chosen in such way the cars will not be damaged if they hit the track markers. The track markers must be solid enough not to be moved by a single contact.
 - d) Track markings
The organiser must make sure a car can never come into the public. Safety of the public, drivers, mechanics and race directors / assistants must be maintained all time by a save and functional track surrounding.
The track markers must be situated so that corner cutting is highly impossible and cars cannot enter another lane easily. Track markers can be made of wood, fire hoses filled with sand, rubber hoses etc.
By choosing the track markers the safety of the public is far more important as preventing damage to the cars.
 - e) Start / Finish
There must be a clearly visible start/finish line. On the finish line the timing loop must be placed in such way the cars may not damage it. In case of a loose track surface the markings for start finish can be made on the track markers.
 - f) Pits: It needs to be separated from the track Pits entrance and exit needs to be at least 1 meter width.
 - g) The drivers preparation area needs to be within a reasonable distance of the track. It needs to have pit tables for all drivers and 220 volts available. Only drivers, mechanics and race officials can enter the pit area. They have to show ID cards, made available by the organiser to identify. Each driver

- should receive a card for himself and 2 cards for mechanics
- h) Only weather resistant track surfaces to be used at European Championships from 2014 on.
- 5.4.15 All warnings and instructions must be clear to hear for all competitors and mechanics
- 5.4.16 Adequate sanitary must be available during the event.



Maximum width 395mm

tolerance in length, wheelbase +/- 5%

Max. width to be taken at the widest point of the body except side mirrors

Producer / type	Measurements original-racecar				Measurements model scale 1:5				
	min. length 4200mm		height		width		height -5%		Homologation No.
FIA Super Production / Super 2000	wheelbase	length	width	height	wheelbase	length	width	height -5%	
Superstars, BTCC, STCC, STC 2000	2811	4716	1826	1320	562	943	365	251	5061/11
Audi A4 2.0 BTCC 15									
3er BMW 320si E90 WTCC 08-13	2760	4535	1845	1310	552	907	369	249	5051/06.5052/06.5057/08.
BMW M3 Superstars	2761	4615	1880	1310	552	923	376	249	5058/08.5063/14
Chevrolet Cruze WTCC 15	2709	4633	1852	1377	542	927	370	261	5062/14
Citroen C-Elisée WTCC 14	2700	4577	1950	1346	540	915	390	255	5059/10.5066/15
Honda Civic WTCC 14, TC 2000	2595	4285	1934	1320	519	857	386	250	5060/11
Honda Civic Tourer BTCC 14	2595	4535	1870	1360	519	907	374	258	
Vauxhall Insignia BTCC 12	2700	4850	1858	1405	540	970	372	267	
Ford Focus WTCC 12	2840	4358	1840	1400	523	872	365	266	
LADA Vesta WTCC 15	2635	4410	1807	1435	527	882	361	272	
Toyota Avensis BTCC 12	2700	4710	1810	1395	540	942	362	265	5062/13
MG 6 GT BTCC 12	2705	4651	1850	1400	541	930	368	266	
Volvo S60 WTCC 16	2776	4635	1939	1424	555	927	387	270	
VW Passat CC BTCC 15	2710	4798	1897	1400	542	959	379	266	
SEAT Leon WTCC 05	2600	4328	1820	1338	520	866	364	254	

All informations without guarantee. Source material: information material of manufacturers, race-car magazines and web-pages from various touring car race series around the world. This list will be continued.
Cars written in *italics* not yet available as models with EFRA-Homologation updated: **January, 27th 2016**