



**EFRA ANNUAL GENERAL MEETING**  
HOTEL Sofitel, Brussel.  
Belgium  
3rd to 4th of November 2007

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**MINUTES Common issues ELECTRICS**

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**SATURDAY 4th OF NOVEMBER 2007.**

**1. CHAIRMEN'S WELCOME** Frank Mostrey - Paul Worsley - Heiner Martin - Russel Giles

The Electric Off Road chairman opened the meeting at 14Hoo. This being the first meeting where common as well as section related issues are presented there might be some changes to agendas.

Next year we will produce 3 different agendas. For this year Frank Mostrey presided the common part of the meeting

**2. APOLOGIES FOR ABSENCE**

Apologies have been received from: Russia, Hungary

Member Countries present,

COUNTRY	PRESENT	
AUSTRIA	L.Braun, M-Therese	
BELGIUM	K.Bultynck, W.Heremans	
CROATIA		
CYPRUS		
CZECH REP.	S. Vaclav	
DENMARK	E. Skoln	
ESTONIA		
FINLAND	Kalle Lehto	
FRANCE	JP. Caillaud M.Vialla	
GEORGIA		
GERMANY	J Dragani	
GREAT BRITAIN	J;Spencer R. Cosgrove	
GREECE	N NikolausKopoulos	
HOLLAND	F Heinsbroek	
HUNGARY		
IRELAND	M & D Bolger	
ITALY	A Lolli	
LUXEMBOURG	Schaal	
NORWAY	J A Olsen	
POLAND	J Ochocinski	
PORTUGAL		
ROMANIA		
RUSSIA	RQSt by mail	
SLOVAK REP.		
SLOVENIA		
SPAIN	J Lobbregat	
SWEDEN	W Lindner	
SWITZERLAND	P Imboden	

Other persons present: Team Orion: O Jansen, LRP: S. Köhler & J. Lautenbach

**APPENDIX 3 A: Common to all Electric classes****THE RULE SHOULD BE AMENDED TO READ****2.1 “SPEC” CAR MOTOR:**

*Rebuildable, 17X2, fixed timing of 5 degrees, Bushes (No Bearings), Maximum wire thickness is 0,71mm. All other dimensions see below and Appendix 10.*

*Armatures may be wound using the Mabuchi (star) or Sagami methods.*

*The armature stack must be solid with no cutouts, tri-rotors etc.*

*Armatures have to be either stamped with the wind by the manufacturer or can be 'tagged'.*

*Epoxy balancing of armatures for rebuildable standard or stock motors will not be permitted.*

*Tabs on the armature's commutator may only be "compression welded". No after-market welding, soldering or silver brazing will be permitted.*

*Brushes must be mounted in the 'upright' configuration (lay-down brushes will not be permitted).*

*No hybrid motors or mixing of parts from different models will be permitted.*

*No modifications to the physical construction of the motor can, end bell, or armature will be permitted (e.g. adding or removing material from the armature stack, relocating spring posts).*

*Any motor that shows any sign of tampering will be disqualified, the driver is responsible for any signs of tampering.*

**Rebuildable 19T Spec. Motors****The Can.**

**1. Can diameter, before any surface finish is applied, is 36.02 mm max.**

**The overall length of the assembled motor is 53.0 mm max., measured from the mounting face of the motor to the furthest point of the end bell, not including solder, tabs or lead wires. Only ceramic magnets can be used (Cobalt and rare earth magnets are not allowed). There is no limit on the number of magnets used. Current is supplied to the armature commutator by 2 brushes.**

**2. The can will be stamped with the name of manufacturer and '19 Spec'.**

**3. Ball-raced bearings are allowed.**

**4. The can will incorporate a slot to locate the end bell at a designated timing advance of 24 degrees maximum.**

**The can will have two pairs of mounting holes. The pairs of mounting holes can be positioned by either of the following :-**

**a) Both pairs within the space between the magnets. The line through the mid-point between each pair of mounting holes must pass through the centre of the can and is determined as being zero degrees.**

**b) One pair within the space between the magnets. The line through the centre of these holes must pass through the centre of the can and is determined as being zero degrees. The second pair will be at 90 degrees to the zero degree line.**

**The zero degree line will be marked on one side of the can to indicate zero degrees.**

**The centre of each magnet (or assembly of magnets) on each side of the can will be at 90 degrees to the 0 degree centre-line, with a tolerance of +/- 2 degrees.**

**5. Magnets must be permanently glued to the motor can and may not be removed. No magnet shims are allowed (e.g. an extra shim that could be added on the end of the magnet or between the tips to change performance). Flux collector/timing rings are allowed as long as their only purpose is to secure the end bell to the motor can. Such rings may not extend between the magnet tips.**

**6. The motor can must have inspection holes/slots between magnet tips so that the armature may be viewed for inspection. These holes/slots may be no closer than 5.00mm from either the open end or mounting face of the motor can. The view through the inspection holes/slots must not be obstructed by anything covering the holes/slots (e.g. motor label).**

**The End-Bell.**

**7. Ball-raced bearings are allowed.**

**8. The end bell will incorporate a 'tab', which when assembled to the slot in the can must result in a designated timing advance of 24 degrees maximum. When the end-bell assembly is secured to the can, the brush hoods will be aligned at 90 degrees to the can zero line, plus the allowed timing of 24 degrees maximum.**

**Brush hoods/tubes will be assembled at 180 degrees apart. The centre of the brush hood/tube will be in-line with the centre of the armature.**

**9. End bells must be marked with the manufacturer's name.**

**The Armature.**

10. **The shaft diameter is 3.175 mm.**

**The rotor to have three poles with windings. Length of stack is to be 21.00mm min. to 22.80mm max (both dimensions measured with epoxy/hysol insulation coating removed). The thickness of the 'stack' laminations is 0.35mm +/-0.05mm. The width of the stack web will be 3.50mm minimum with epoxy/hysol insulation removed.**

**The armature has to be permanently marked (or tagged) by the manufacturer, showing the number of windings and the name of the manufacturer.**

11. **The commutator slots must be aligned with the centre of the individual poles, with a tolerance of +/- 2 degrees.**

12. **The armature will be wound using a single wind of round 19 AWG (American wire Gauge) copper wire giving 19 Turns. It is not mandatory to use the 'Mabuchi' cross wrap technique for winding the armature. There is no plus tolerance on the wire diameter. Armatures must be machine wound, 'hand winding' is not permitted. It is not mandatory to use a locking device between the commutator and the armature stack.**

13. **Tabs on the armature's commutator may only be "compression welded". No after-market welding, soldering or silver brazing will be permitted.**

14. **Epoxy balancing of armatures will not be permitted.**

15. **Only full stack armatures with no cut-outs are allowed. No split, skewed, tri-rotors etc. are allowed. Longitudinal slots/grooves parallel to the armature shaft in the pole crowns are not allowed on any armature introduced after 01.01.02. The crowns of each pole must be symmetrical in cross section, with a constant crown radius. Steps in the crown are not allowed.**

16. **No modifications to the OEM armature stack may be made, other than the drilling/grinding of balancing holes. Modifications to the OEM designs, including (but not limited to) excessive drill holes, milling or turning to lighten or enhance the performance of the armature are not allowed.**

17. **The armature shaft does not have to extend beyond the end bell, but any extension has to have a reduced diameter to form a parallel step.**

**Timing.**

18. **The overall timing of the assembled motor is determined by the allowed tolerances of the individual assemblies, (I.e. Magnet position, Commutator position, Location of End-bell to Can).**

**General.**

19. **No modifications to the OEM construction/design of the motor can, end bell, or armature will be permitted. (e.g. adding or removing material from the armature stack, changing the dimensions or orientation of brushes or brush hoods, relocating spring posts).**

20. **The armature, motor can, and end bell must all be from the same OEM and can contain only components from the same model. No hybrid motors or mixing of parts from different models will be permitted.**

21. **All motors used in EFRA sanctioned events must have their original motor builders label(s) substantially intact to be eligible.**

**Organiser may offer one "handout" motor to all competitors entered in the "Spec Car Motor" class. Where "handout" motors are used, the competitor may not make any changes to magnets or springs during the event.**

**Costs of the handout motor (without profit to the organiser) may be charged to the competitor**

**Remark:** The 17 turn 6 cell class is no longer supported in EFRA events. The 19 turn 4 cell class is very popular in UK and US. This class makes a good alternative class for those wishing to race 1/12 without the high performance of the latest brushless systems. The addition of a handout clause allows the practice commonly used in US spec racing to be used in EFRA

**Proposed by BRCA - Great Britain    Seconded by: HOLLAND                       Passed Unanimously.**

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**2.2.d.                      ~~Rotor magnets must be marked or colour coded to identify the composition of the material used.:~~**

**Remark:** With the free usage of bounded or sintered magnets there is no need for colour coding anymore.

**Proposed by DMC – Germany    Seconded by: Great Britain    The proposal:  Passed Unanimously**

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**THE RULE SHOULD BE DELETED**

- 2.2.d. ~~**Rotor magnets must be marked or colour coded to identify the composition of the material used.:**~~

**Remark:** This rule was adopted when only 'bonded' magnets were allowed, to help identify them from the more powerful sintered type of magnet, which was not allowed. As we now allow both types of magnet (bonded and sintered) the identification is not needed. None of the manufacturers mark or code the magnets, so if the rule remains none of the magnets comply

**Proposed by BRCA - Great Britain and withdrawn by BRCA.**

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**THE RULE SHOULD BE DELETED**

- 2.2.e. ~~**All motors must have the original manufacturer's logo or name moulded into the end bell.**~~

**Remark:** The manufacturer's logo is (should be) on the can. There is no need for marking extra the end bell.

**Proposed by DMC – Germany: NOT seconded**

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**THE RULE SHOULD BE AMENDED TO READ**

- 3.1. Only NiCd or NiMH cells are approved. Cells are rated at 1.2 volts nominal. The size of the individual cells to be :- Diameter 23.0 mm +0/-1mm, Overall length 43.0 mm +0/-1.5mm. Measurements include original manufacturers heat shrink. Overall length is the maximum length **of the complete cell including the positive button**, before attaching/soldering any link wires, **connectors** or battery bars. **Dimensions taken at ambient temperature and at 90 degrees to the centre-line of the cell. The original manufacturers of cells are allowed a maximum of +/- 2 grms. tolerance on the nominal weight of the cell stated on the technical specification/data sheet submitted at the time of approval and is valid for virgin cells.** Weights to conform to EFRA cell approval list **for cells approved from Jan. 2007 onwards. Existing approvals having a weight tolerance outside +/- 2 grms. will be adjusted accordingly.** It is **known** that fast charging may result in cell distortion. However from **1<sup>st</sup> April 2008**, cells may never exceed 43.0 mm.

**Remark:** The proposed change incorporates what was accepted at the 2006 AGM with regard to cell length, but sets the start date at 1st April so that the 1/12th. EC (usually March) is not affected. The proposal also includes that cells have a maximum weight tolerance. Some manufacturers are stating larger tolerances, to allow substantial development during an approval year. Weights on the EFRA cell list clarified as applying from Jan 2007 onwards, as the list did not include weights prior to this date.

**Proposed by BRCA - Great Britain**

**Seconded by: France**

**The proposal: was amended by Spain to include the text "valid for virgin cells"**

**The amended proposition:  Passed with 17. for, 1 against and 0 abstentions.**

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**THE RULE SHOULD BE AMENDED TO READ**

- 3.7. Any new NiCd or NiMH must be commercially available for a reasonable time before it can be used at an EFRA event. Therefore any new cells have to be submitted to the EFRA Section Chairman. Rule takes effect as from January the first 2006. Cells submitted or approved before that date keep their approval for lifespan.  
**Approval process: -**  
**For 2008, a minimum of six individual cells have to be received by December 31<sup>st</sup>. 2007, together with a written technical specification/data sheet from the original cell manufacturer, which must include: - dimensions and weights with associated tolerances. Samples submitted are required to closely represent the weight range stated.**  
**For 2009, samples must be received by 1<sup>st</sup> December 2008 and in addition to the above, must also include documentation to show that a minimum of 20,000 individual cells have been received by distributors or commercial outlets associated to the hobby industry within the EFRA countries, by 31<sup>st</sup>. Dec 2008.**

Subject to the Chairman being satisfied that the new cell conforms with technical specifications and **commercial availability**, the cell will be legal for use from the following April 1<sup>st</sup>. **Cells received after the above submission dates will not be included on the EFRA approved list for the following year.**

**Any changes to the technical specifications or visual appearance of the cell/heat shrink after the original approval will require re-approval.**

**Remark:** EFRA needs specifications from the manufacturer. The approval process has been difficult to manage in recent years with many different manufacturers submitting cells. Typically, many samples arrive between Xmas and New Year, which gives difficulty for any correspondence due to holiday period. More importantly, it has been found that manufacturers are submitting samples before commencing production or supply. This gives EFRA a major problem, as we cannot guarantee that cells will be available to all by the time the cell becomes legal for use.

**Proposed by BRCA - Great Britain**

**Seconded by: France The proposal:  Passed with 16. for, 1 against and 1 abstentions.**

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#### **THE RULE SHOULD BE AMENDED TO READ**

**6.1.** Second line of rule Change: (subject to 6.5) to **(subject to 6.6):**

**Remark:** Simple 'tidy-up'. Maybe a typo from last year or rule numbers moved

**Proposed by BRCA - Great Britain Seconded by: Germany and  Passed Unanimously**

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#### **THE RULE IS NEW**

**7.1.1.** ***European championships will be held every year, except of the year where WC is held in Europe. The year WC is held in Europe; this year there will not be hold an EC for that class. The time for the Euros, shall be that the finals shall be finished:  
1:12th European Championship, the last weekend of March  
1:10th Touring European Championship, the first weekend of August  
1:10th Electric Off Road European Championship, the last weekend of July***

**Remark:** This will make it possible for both organizers and drivers to organize and participate the ECs. All IC/Large Scale classes, have similar rules, why not the electric classes also? We have proposed foxed times for the ECs, from the calendar for 2007. The definition of a week is already defined in the general rules

**Proposed by NMF - Norway**

**Seconded by: Sweden The proposal was  REJECTED with 1. for, 12 against and 3... abstentions.**

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#### **THE RULE SHOULD BE AMENDED TO READ**

**7.2.5.** For EC's **any** countries allotment is in no case to be higher than 33% of the total number of **allocated** entries ("No-Show's" and last minute cancelling drivers are not to be considered).

**Remark:** Simple 'tidy-up'. Using the word allocated makes it clear that the calculation is made on the total number allocated to all countries and not the number listed at the time of the event.

**Proposed by BRCA - Great Britain Seconded by: Holland The proposal: Passed Unanimously**

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#### **THE RULE IS NEW**

**9.4.2-1** ***Top Qualifier of each round gets an extra point, i.e. 151pts instead of 150.  
a. In case of points tie, the 4 fastest times combined will be the tie breaker deciding the final starting order***

**Remark:** Proposed by Greece and withdrawn by Greece

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#### **THE RULE SHOULD BE AMENDED TO READ**

**9.4.10** If the number of Heats differs from **the format detailed in 9.4.9**, or if the event is planned with more/less Rounds, a sequence following this general theme has to be used.

Remark: Simple 'tidy-up'. Worded to accommodate any number of heats

Proposed by BRCA - Great Britain Seconded by: FRANCE The proposal:  Passed Unanimously

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**THE RULE SHOULD BE AMENDED TO READ**

12.2 Open cockpit cars must have a realistic driver figure fitted in an appropriate position at all times when racing. This consists of at least a driver's head/helmet, ~~shoulders and arms~~ and should be painted in a realistic appearance, colour and garb.

Remark: Modern open cockpit racecars have enveloping cockpits due to the latest safety requirements. Generally the driver's arms cannot be seen.

Proposed by BRCA - Great Britain

Seconded by: Belgium The proposal:  Passed with 17 for, 0 against and 1 abstentions.

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**THE RULE SHOULD BE AMENDED TO READ**

3.6 Additional batteries to power the radio equipment in the car are allowed.  
3.6 Additional batteries to power **only** the radio equipment in the car are allowed.

Remark: In relation to the proposal for modifications of rule 3.2 here above

Proposed by FVRC: not Seconded

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**THE RULE SHOULD BE AMENDED TO READ**

Existing rule

10.6 In the event of a tied position the driver with the single highest finishing position in either of the best 2 finals that counted will be awarded the tie. In the event of a continuing tie then the laps and times from the highest finishing position will be compared. The driver with the fastest laps and time total will be awarded the tie. In the case of a continuing tie, then the times from the second best position will be compared.

Proposed rule

10.6 In the event of a tied position the driver with the single highest finishing position in either of the best 2 finals that counted will be awarded the tie. In the event of a continuing tie then the laps and times from the highest finishing position will be compared. The driver with the fastest laps and time total will be awarded the tie. In the case of a continuing tie, then the times from the second best position will be compared.

**When some drivers of a final do not run a final, they will be awarded the remaining points in the order of their car numbers.**

Eg: Remark:

Car Number	1	2	3	4	5	6	7	8	9	10
Finishing position	No race	3rd	No race	5th	No race	4th	No race	2nd	No race	1st
Points	6	3	7	5	8	4	9	2	10	1

Eg: Will help lap counting software developers.

Proposed by FVRC

Seconded by: Spain The proposal:  Passed with 17. for, 0 against and 1. abstentions.

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**THE RULE SHOULD BE AMENDED TO READ**

12.19 rule should say : **including transponder.(whatever the type)**

Remark: What is important and fare is that the cars have the same minimum weight

Proposed by FVRC Seconded by: Italy

The proposal: was amended by France to delete 6.2 and 7.2 to keep 12.19

Amendment:  Passed with 15 for, 1 against and 2. Abstentions.

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## THE RULE SHOULD BE AMENDED TO READ

### 9.4.2 g Rule :-

From second paragraph :-

If the 'Round by Round' qualifying method is used, the number of Rounds to count are as follows :- Six Rounds three to count, Five Rounds two to count, Four Rounds two to count, Three Rounds two to count, Two Rounds one to count. Less than two Rounds completed event null and void.

If the intended maximum number of Rounds cannot be completed, due to weather or unforeseen circumstances, the number of Rounds to count will follow the same format. Qualifying Round has to be completed for any Heats in that Round to be counted.

Highest qualifying position in each Round will score zero (0) points, second place 2 points, third place 3 points, fourth place 4 points and so on. All other qualifying Round scores will be discarded. In every Round, in the event of a tie the points will be equally awarded to each driver and the first next driver not tying will get one point less.

### Proposed Rule to read :-

From second paragraph: -

If the 'Round by Round' qualifying method is used, the number of Rounds to count are as follows :- Six Rounds three to count, Five Rounds two to count, Four Rounds two to count, Three Rounds two to count, Two Rounds one to count. Less than two Rounds completed event null and void. **All other qualifying Round scores will be discarded. Qualifying Round has to be completed for any Heats in that Round to be counted**

If the intended maximum number of Rounds cannot be completed, due to weather or unforeseen circumstances, the number of Rounds to count will follow the same format. .

Highest qualifying position in each Round will score zero (0) points, second place 2 points, third place 3 points, fourth place 4 points and so on. In every Round, in the event of a tie the points will be equally awarded to each driver and the first next driver not tying will get one point less.

**Remark:** This proposal is supported by the EFRA Committee

Simple 'tidy-up'. The meaning of the Rule has not been changed. Two sentences have been moved to make the rule easier to understand.

**Proposed by BRCA**    Seconded by: Belgium    The proposal:  Passed Unanimously

## 10. ANY OTHER BUSINESS,

none

## 11. ITEMS FOR GENERAL DISCUSSION.

Lithium Polymer drive batteries, allow them from 2009 ????

- Lipo is becoming more and more a standard in the industry
- To improve safety for racers as well organizers clear rules need to be written to avoid accidental issues
- Dimensions and configuration settings for (car) manufacturers
- Longer runtimes possible- Higher cycle rates compared to NiMh
- Safety issue have been improved a lot the last 2 years

A discussion around the introduction of these type of batteries took place and the section chairmen are to gather information in order not to delay the introduction longer than needed

All the Section Chairmen do thank the participants for a constructive meeting,  
The meeting was closed at 16H00