



EFRA ANNUAL GENERAL MEETING
HOTEL Holiday Inn, Brussels
Belgium
5-6th of November 2011

MINUTES ELECTRIC SECTIONS – GENERAL. Sat. 5.11.11.

1. CHAIRMAN'S WELCOME Mr. Heiner Martin & Mr. Paul Worsley

The Electric Track Chairman opened the meeting at 13.40.

2. APOLOGIES FOR ABSENCE – ELECTRIC GENERAL

Apologies have been received from: Greece, Hungar, Slovak Republic
 Member Countries presents. Section subscription.

COUNTRY	PRESENT	SECTION SUBSCR
AUSTRIA		X
BELGIUM		X
BULGARIA		
CROATIA		
CYPRUS		
CZECH REP.		
DENMARK		
ESTONIA		
FINLAND		X
FRANCE		X
GEORGIA		
GERMANY		X
GREAT BRITAIN		X
GREECE		
HOLLAND		X
HUNGARY		
IRELAND		
ITALY		X
LITHUANIA		
LUXEMBOURG		
MONACO		
NORWAY		X
POLAND		X
PORTUGAL		X
ROMANIA		
RUSSIA		
SLOVAK REP.		
SLOVENIA		
SPAIN		X
SWEDEN		
SWITZERLAND		X
TURKEY		
TOTAL		

Other persons present: Stefan Köhler, LRP electronic

3. MINUTES OF 2010 SECTION MEETING

6st and 7th of November 2010 – Brussels, Belgium

Matters arising from the minutes:

The minutes were checked and accepted as written at the AGM 2010. Austria seconded it, Passed unanimously

The following person was elected to check the minutes of this year: France

4. CORRESPONDENCE RECEIVED

No correspondence received.

5. RULE PROPOSALS (Does / May affect all Electric Sections)

APPENDIX 3 A ELECTRIC CARS GENERAL

THE RULE SHOULD BE DELETED:

2.1.

Existing Rule:

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

Remarks:

These motors are no longer used by competitors at EFRA events

Proposed by EFRA

Seconded by: Great Britain

The proposal passed Unanimously

THE RULE SHOULD BE DELETED:

2.2.

Existing Rule:

MODIFIED BRUSHED MOTORS

Specifications '05' sized displacements:

Can:

Can diameter to be a maximum of 36.02 mm.

Overall length to be a maximum of 53 mm measured from the mounting face of the motor to the furthest point not including solder, tabs or lead wires.

Current is supplied to the armature by 2 brushes.

Only Ceramic magnets are permitted. (Cobalt and rare earth magnets are not allowed)

Armature:

Shaft diameter is 3.175mm (0.125inches), production tolerances are allowed. The rotor shall have three poles with windings. Stack length 21.00mm minimum, 22.80mm maximum (both dimensions to be measured with Epoxy/Hysol insulation removed). No split rotor is allowed. The laminations have to be continuous without anything in between. The thickness of the stack plates is 0.35mm +/- 0.05mm. Only round copper wire is to be used for winding. The armature has to be permanently marked by the manufacturer, showing the number of windings and name of the manufacturer.

Remarks:

These motors are no longer used by competitors at EFRA events.

Proposed by EFRA

Seconded by: Great Britain

The proposal passed Unanimously

THE RULE IS NEW:

2.3.

Existing Rule:

MODIFIED BRUSHLESS MOTORS:

1 Sensorless as well as sensored motors are allowed.

2 The motor has to be rebuildable . Ball bearings are allowed.

3 If the motor is sensored:

It must use a six position JST ZH connector model number ZHR-6 or equivalent connector with 6JST part number SZH-002T- P0.5 26-28 AWG contacts or equivalent.

Wire sequence must be as follows:

Pin #1 - Black wire ground potential

Pin #2- Orange wire phase C

Pin #3- White wire phase B

Pin #4 - Green wire Phase A

Pin #5- Blue wire temp control, 10K thermistor referenced to ground potential

Pin #6- Red wire +5.0 Volts DC +/-10%

Compatible speed control must use the 6 position JST header part number X-6B-ZR-SMX-TF (Where the X denotes the style of header), or equivalent.

The power connector has to be clearly marked A, B, C:

A for phase A, B for phase B and C for phase C

4 "05" Size specifications

Can: Overall maximum diameter is 36,02mm measured at whatever point yields the maximum dimension, excluding solder tabs or lead wires. Overall minimum diameter is 34,0mm measured at whatever point yields the maximum dimension, excluding solder tabs or lead wires. Maximum length is 53,0mm measured from the mounting face of the motor to the furthest most point of the end bell, not including solder tabs, lead wires or original manufacturer's logo or name. Minimum length is 50,0mm measured at whatever point yields the maximum dimension, excluding solder tabs or lead wires.

Motor mounting holes must be on 1,00 inch (25.0 - 25.4mm) centres.

Stack/Stator: The stack or backiron must be continuous. The laminations have to be one after the other without anything in between. Stack/backiron minimum length 19.3mm, maximum 21.0mm. The thickness of the stack/backiron laminations is 0.35 +/- 0.05mm. All laminations must be of the same material. Inside diameter of stack or windings equals the central space between the laminations or assembly of windings and must accept 'plug' gauges of 12.5mm minimum, 16.0mm maximum. These dimensions to be measured with the centre of the 'plug' gauge in-line with the centre of the motor can. (ie. concentric to can).

Winding: Delta and Y wounded stators are permitted. Only circular (round) pure copper is permitted. There is no turn limit.

Rotor: Output shaft diameter must be 0,125" (3.175mm). Only one piece, two poles Neodymium or Ferrite magnetic rotors are permitted.

Magnet: Minimum length 23,0mm. Maximum 27,0mm. Magnet minimum diameter 12,0mm, maximum 15,5mm.

5 All motors must have the original manufacturer's logo or name permanently marked by the manufacturer into the end bell or end-plate.

Proposal:

Add:-

6. If the stator cannot be easily removed from the assembled motor for technical verification of sizes or construction, then the Can/Sleeve must have:-

Slots or holes that will allow measurement of the stator length.

Slots or holes to allow visual appraisal of the laminates used in the stator.

Rule to be applied to any new range of motor starting 01.01.12. Existing motors without these features are not excluded.

Remarks:

The design of the majority of current Brushless Motors do not allow the dimensions and laminate thickness to be measured or viewed without major surgery. This is difficult at an event.

This rule wording has now been accepted by IFMAR.

Proposed by EFRA

Seconded by: Holland

The proposal passed Unanimously

THE RULE SHOULD BE AMENDED TO READ:

2.4.

Existing Rule:

'SPEC' BRUSHLESS MOTORS (17.5T, 13.5T and 10.5T 'wind' limit)

The following rules have been agreed by various International organisations.

1 Only sensored motors are allowed in the Spec. classes.

2 The motor has to be rebuildable. Ball bearings are allowed. The motor must be constructed to allow easy replacement of the; rotor, bearings and front End-Bell.

3 Sensor connection requirements:

The motor must use a six-position JST ZH connector model number ZHR-6 or equivalent connector with 6 JST part number SZH-002T-P0.5 26-28 awg. contacts or equivalent.

Wire sequence must be as follows: -

Pin #1 - Black wire ground potential

Pin #2 - Orange wire phase C

Pin #3 - White wire phase B

Pin #4 - Green wire phase A

Pin #5 - Blue wire temp control, 10 k Thermistor referenced to ground potential

Pin #6 - Red wire + 5.0 volts d.c. +/- 10%.

Compatible speed control must use the 6 position JST header part number X-6B-ZR-SMX-TF (where the X denotes the style of the header), or equivalent.

The motor power connectors have to be clearly marked A, B, C.

A for phase A. B for phase B. C for phase C

It is not mandatory that sensored Speed Controls have to be used, or that the sensor 'harness' has to be connected.

4 The Can. (Based on '05' size specifications).

The overall dimensions of the assembled motor do not include: - solder tabs, lead wires or the original manufacturer's logo or name.

Overall maximum diameter is 36.02mm measured at whatever point yields the maximum dimension.

Overall minimum diameter is 34.0 mm measured at whatever point yields the minimum dimension.

Maximum length is 53.0 mm measured from the mounting face of the motor to the furthest point of the end bell. Minimum length is 50.0 mm measured from the mounting face of the motor to the furthest point of the end bell. Motor mounting holes must be on nominal 25.0/25.4 mm centres.

5 The Stack/Stator: Slot-less stators are not allowed. The stator must be continuous laminations

having the same overall shape, being one after the other without anything in between. The laminations must be of one homogeneous material without cut-outs, holes or hollow sections other than for the three slots of copper coil wires and the three grooves for the screws used to hold the entire assembly together. Stator minimum length 19.3 mm, maximum 21.0 mm. The thickness of the stator laminations is 0.35 +/- 0.05 mm. The inside diameter of the stator must accept a 'plug gauge' of 14.50 mm +/- 0.005 diameter, clearing the stator, plus its windings and the electrical collection ring at any end of the stator.

6 The Winding: Only three slot (phase) 'Y' (star) wound stators are allowed. No delta wound stators allowed. Only circular (round) pure copper magnet wire permitted. The three slotted stator must be wound with: -

17.5T Class:- 17.5 turns of 2 x 20 awg. (or 0.813 mm) maximum wire dia.

13.5T Class: - 13.5 turns of 2 x 21 awg. (or 0.724 mm), & 2 x 23 awg. (or 0.574 mm) maximum wire dia.

10.5T Class: - 10.5 turns of 2 x 20 awg. (or 0.813 mm), & 2 x 22 awg. (or 0.643 mm) maximum wire dia. Dimensions are before lacquer coating

7 The Rotor: Shaft diameter must be 3.175mm where the pinion gear locates. Only one piece, two pole Neodymium bonded or sintered, or Ferrite (ceramic) magnetic rotors are permitted. Magnet length will be 25.00 +/- 1.00mm, not including any non-magnetic balancing aids. Magnet outside diameter will be 12.20/12.51mm (min./max. with no further tolerance) for the entire length of the magnet. The shaft outside diameter where the magnet is mounted will be 7.25mm +/- 0.15mm, with this diameter extending beyond the magnet to facilitate measurement.

8 All motors must have the original manufacturer's logo or name moulded/engraved into the end bell/plate. A unique marking or feature that is difficult to remove must be incorporated into the assembled motor to identify the motor is either a 17.5T, 13.5T or 10.5T Spec. Class motor. Motors introduced from 2011 onwards must have the 'wind' # etched/engraved onto the outer surface of the motor on a part of the motor that cannot easily be separated from the stator windings.

Proposal:

'SPEC' BRUSHLESS MOTORS (17.5T, 13.5T and 10.5T 'wind' limit)

The following rules have been agreed by various International organisations.

1 Only sensored motors are allowed in the Spec. classes.

2 The motor has to be rebuildable. Ball bearings are allowed. The motor must be constructed to allow easy replacement of the; rotor, bearings and front End-Bell.

3 Sensor connection requirements:

The motor must use a six-position JST ZH connector model number ZHR-6 or equivalent connector with 6 JST part number SZH-002T-P0.5 26-28 awg. contacts or equivalent.

Wire sequence must be as follows: -

Pin #1 - Black wire ground potential

Pin #2 - Orange wire phase C

Pin #3 - White wire phase B

Pin #4 - Green wire phase A

Pin #5 - Blue wire temp control, 10 k Thermistor referenced to ground potential

Pin #6 - Red wire + 5.0 volts d.c. +/- 10%.

Compatible speed control must use the 6 position JST header part number X-6B-ZR-SMX-TF (where the X denotes the style of the header), or equivalent.

The motor power connectors have to be clearly marked A, B, C.

A for phase A. B for phase B. C for phase C

It is not mandatory that sensored Speed Controls have to be used, or that the sensor 'harness' has to be connected.

4 The Can. (Based on '05' size specifications).

The overall dimensions of the assembled motor do not include: - solder tabs, lead wires or the original manufacturer's logo or name.

Overall maximum diameter is 36.02mm measured at whatever point yields the maximum dimension.

Overall minimum diameter is 34.0 mm measured at whatever point yields the minimum dimension.

Maximum length is 53.0 mm measured from the mounting face of the motor to the furthest point of the end bell. Minimum length is 50.0 mm measured from the mounting face of the motor to the furthest point of the end bell. Motor mounting holes must be on nominal 25.0/25.4 mm centres.

5 The Stack/Stator: Slot-less stators are not allowed. The stator must be continuous laminations having the same overall shape, being one after the other without anything in between. The laminations must be of one homogeneous material without cut-outs, holes or hollow sections other than for the three slots of copper coil wires and the three grooves for the screws used to hold the entire assembly together. Stator minimum length 19.3 mm, maximum 21.0 mm. The thickness of the stator laminations is 0.35 +/- 0.05 mm. The inside diameter of the stator must accept a 'plug gauge' of 14.50 mm +/- 0.005 diameter, clearing the stator, plus its windings and the electrical collection ring at any end of the stator.

6 The Winding: Only three slot (phase) 'Y' (star) wound stators are allowed. No delta wound stators allowed. Only circular (round) pure copper magnet wire permitted. The three slotted stator must be wound with: -

17.5T Class:- 17.5 turns of 2 x 20 awg. (or 0.813 mm) maximum wire dia.

13.5T Class: - 13.5 turns of 2 x 21 awg. (or 0.724 mm), & 2 x 23 awg. (or 0.574 mm) maximum wire dia.

10.5T Class: - 10.5 turns of 2 x 20 awg. (or 0.813 mm), & 2 x 22 awg. (or 0.643 mm) maximum wire dia. Dimensions are before lacquer coating

7 The Rotor: Shaft diameter must be 3.175mm where the pinion gear locates. Only one piece, two pole Neodymium bonded or sintered, or Ferrite (ceramic) magnetic rotors are permitted. Magnet length will be 25.00 +/- 1.00mm, not including any non-magnetic balancing aids. Magnet outside diameter will be 12.20/12.51mm (min./max. with no further tolerance) for the entire length of the magnet. The shaft outside diameter where the magnet is mounted will be 7.25mm +/- 0.15mm, with this diameter extending beyond the magnet to facilitate measurement.

8 All motors must have the original manufacturer's logo or name moulded/engraved into the end bell/plate. A unique marking or feature that is difficult to remove must be incorporated into the

assembled motor to identify the motor is either a 17.5T, 13.5T or 10.5T Spec. Class motor. Motors introduced from 2011 onwards must have the 'wind' # etched/engraved onto the outer surface of the motor on a part of the motor that cannot easily be separated from the stator windings

9 If the stator cannot be easily removed from the assembled motor for technical verification of sizes or construction, then the Can/Sleeve must have :- Slots or holes that will allow measurement of the stator length. Slots or holes to allow visual appraisal of the laminates used in the stator.(Rule to be applied to any new range of motor starting 01.01.12. Existing motors without these features are not excluded.)

Remarks: The design of the majority of current Brushless Motors do not allow the dimensions and laminate thickness to be measured or viewed without major surgery. This is difficult at an event.

Proposed by EFRA

Seconded by: Finland

The proposal passed Unanimously

THE RULE SHOULD BE AMENDED TO READ:

3.

Existing Rule: BATTERIES
EFRA approved cells can be NiCd, NiMH or Lithium based (LiPo/LiFe). Each Electric Section will define which types of cell are allowed at EFRA events and the number of cells and/or nominal rated voltage.

Proposal: BATTERIES
EFRA approved cells will be Lithium based (LiPo/LiFe). Each Electric Section will define the number of cells and/or nominal rated voltage.

Remarks: NiCd and NiMH cells are no longer submitted by manufacturers for approval and are no longer used by competitors at EFRA events.

Proposed by EFRA

Seconded by: France

The proposal: passed Unanimously

THE RULE SHOULD BE DELETED:

3.1.1.

Existing Rule: NiCd or NiMH cells rated at 1.2 volts nominal can be approved, but must conform to the following :-
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 1st April 2008, cells may never exceed 43.0 mm.

Remarks: NiCd and NiMH cells are no longer used by competitors at EFRA events.

Proposed by EFRA

Seconded by: Great Britain

The proposal passed Unanimously

THE RULE SHOULD BE AMENDED TO READ:

3.1.2.

Existing Rule: Lithium Based (LiPo/LiFe) Batteries can be approved, but must conform to the following :-
1. Lithium Based (LiPo/LiFe) battery packs must have a hard, protective case that completely envelopes the cell(s). The case should be made from ABS or a similar material. The two halves of the case must be factory sealed in a way that any attempt to open the case will destroy the case. The only opening in the case that is allowed, is for the exit of wires.:
Batteries to comply with the weights specified on the EFRA homologation list, (maximum tolerance for manufacturers is +/- 4%).
The maximum case sizes are as follows:
2S Batteries:
Length: 139.0 mm.
Width: 47.0 mm. (The max. width includes any side exit wires).
Height: 25.10 mm. (Chassis location features additional to this dimension are allowed)
Saddle-Pack cells are allowed, but must comply with the above dimensions.
Saddle-Pack cells must have a combined dimension of 139.0mm max when placed end to end.
1S Batteries:
Length: 93.0mm.
Width: 47.0mm. (Side exit wires are allowed outside this dimension).

Height: 18.5mm. (Chassis location features additional to this dimension are allowed)

2. Individual cells used in the construction of the battery pack shall be rated at (LiPo 3.7/LiFe 3,3) volts nominal. Individual cells may be wired in parallel.
For 2S Packs, the maximum connection "In Series" is two, to give a Final pack voltage of (LiPo 7.4v/LiFe 6.6v) nominal.
For 1S Packs, cells can only be connected in parallel to give a Final pack voltage of (LiPo 3.7v/LiFe 3.3v) nominal.

3. The battery pack shall have leads extending from the case for the positive and negative electrical connections using wire of adequate size to handle discharge rates acceptable to racing applications. Alternatively, the case shall have internal connection points for these wires clearly marked positive and negative so the user can apply the lead wires. Any type of metal connections that are incorporated in the battery pack must be substantially below the major surface of the plastic casing, to prevent any "short circuit" if placed on a conductive surface.

4. The case must have the original suppliers label intact, stating:- the Part #, the rated voltage and the chemistry (Lipo/LiFe).. The Brand name/logo shall be easily readable.

5. All LiPo/LiFe packs must be charged with a LiPo/LiFe-capable charger using the industry standard CC/CV (Constant Current/Constant Voltage) charge profile.

6. 2S LiPo/LiFe batteries may be charged to a maximum of 8.40v (LiPo) resp. 7.40v (LiFe). 1S LiPo/LiFe batteries may be charged to a maximum of 4.20v (LiPo) resp. 3.70v (LiFe). Overcharging is a serious safety hazard and will not be tolerated.

7. Any competitor found to be charging cells using a charger that is not specifically designed for LiPo/LiFe cells, or using a charge profile other than the industry standard CC/CV, will be penalised at the event.
Any competitor found to have charged LiPo/LiFe cells to above the values detailed in rule 3.1.2 (6) above will be penalised. The different guidelines for use and homologation of LiPo/LiFe-Batteries are published on the EFRA webpage (www.EFRA.ws). A copy of the guidelines for the end-user must be included in the driver's packages for EC's.

8. LiPo/LiFe drive batteries should be charge in a 'Lipo sack' at all times.
LiPo sack is defined as a receptacle designed for the purpose of charging LiPo/LiFe batteries and of a suitable construction as to contain a LiPo/LiFe fire.

Proposal including amendments:

Lithium Based (LiPo/LiFe) Batteries can be approved, but must conform to the following :-

1. Lithium Based (LiPo/LiFe) battery packs must have a hard, protective case that completely envelopes the cell(s). The case should be made from ABS or a similar material. The two halves of the case must be factory sealed in a way that any attempt to open the case will destroy the case. The only opening in the case that is allowed, is for the exit of wires or pin type connections.
Batteries to comply with the weights specified on the EFRA homologation list, (maximum tolerance for manufacturers is +/- 4%).
The maximum case sizes are as follows:
2S Batteries:
Length: 139.0 mm.
Width: 47.0 mm. (The max. width includes any side exit wires).
Height: 25.10 mm. (Chassis location features additional to this dimension are allowed)
Saddle-Pack cells are allowed, but must comply with the above dimensions.
Saddle-Pack cells must have a combined dimension of 139.0mm max when placed end to end.
1S Batteries:
Length: 93.0mm.
Width: 47.0mm. (Side exit wires are allowed outside this dimension).
Height: 18.5mm. (Chassis location features additional to this dimension are allowed)

2. Individual cells used in the construction of the battery pack shall be rated at (LiPo 3.7/LiFe 3,3) volts nominal. Individual cells may be wired in parallel.
For 2S Packs, the maximum connection "In Series" is two, to give a Final pack voltage of (LiPo 7.4v/LiFe 6.6v) nominal.
For 1S Packs, cells can only be connected in parallel to give a Final pack voltage of (LiPo 3.7v/LiFe 3.3v) nominal.

3. The battery pack shall have leads extending from the case for the positive and negative electrical connections using wire of adequate size to handle discharge rates acceptable to racing applications. Alternatively, the case shall have internal connection points for these wires clearly marked positive and negative so the user can apply the lead wires. Any type of metal connections that are incorporated in the battery pack must be substantially below the major surface of the plastic casing, to prevent any "short circuit" if placed on a conductive surface.

4. The case must have the original suppliers label intact, stating:- the Part # of the pack, the rated voltage, the chemistry (Lipo/LiFe) and the pack capacity in Wh. The Brand name/logo shall be easily readable.

5. All LiPo/LiFe packs must be charged with a LiPo/LiFe-capable charger using the industry standard CC/CV (Constant Current/Constant Voltage) charge profile.

6. 2S LiPo/LiFe batteries may be charged to a maximum of 8.40v (LiPo) resp. 7.40v (LiFe). 1S LiPo/LiFe batteries may be charged to a maximum of 4.20v (LiPo) resp. 3.70v (LiFe). Overcharging is a serious safety hazard and will not be tolerated.

7. Any competitor found to be charging cells using a charger that is not specifically designed for LiPo/LiFe cells, or using a charge profile other than the industry standard CC/CV, will be penalised at the event.
Any competitor found to have charged LiPo/LiFe cells to above the values detailed in rule 3.1.2 (6) above will be penalised. The different guidelines for use and homologation of LiPo/LiFe-Batteries are published on the EFRA webpage (www.EFRA.ws). A copy of the guidelines for the end-user must be included in the driver's packages for EC's.

8. LiPo/LiFe drive batteries **must be charged** in a 'Lipo sack' at all times. Anybody not doing this, will be penalized at the event.
LiPo sack is defined as a receptacle designed for the purpose of charging LiPo/LiFe batteries and of a suitable construction as to contain a LiPo/LiFe fire.

9. Modifications to the original battery case, by removal of material or any modification that could be deemed to affect safety is not allowed.

Remarks: Original rule 8 stated LiPo/LiFe 'should' be charged in a 'LiPo sack'.
'Should' is not good enough.

Addition 9 is needed.

At a recent WC event, competitors were reducing the thickness of the plastic case by 'sanding' in an effort to comply with the maximum sizes allowed. There was no rule that prohibited this procedure.

Clearly it is required in the interest of safety.

Proposed by EFRA

Seconded by: Holland

Passed with ..12.. for, ..1.. against and ..0.. abstentions.

Amended by Great Britain. 8 Add: Anybody not doing this, will be penalized at the event. Amendment seconded by France

Amendment by EFRA: 4. The partnumber of the pack , the pack capacity in Wh. Seconded by Great Britain

THE RULE SHOULD BE AMENDED TO READ:

3.2.2.

Existing Rule:

Lithium based batteries:

2S Batteries -- A minimum of one individual battery has to be received by 1st. Dec.

1S Batteries -- A minimum of one individual battery has to be received by 1st. Dec.

Each individual battery sample must be supplied with :- (a) Lithium based batteries must be covered by their safety test certification in accordance with UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.5, Part 3, Sub-Section 38.3, Tests T1 to T8.

(b) Technical Spec. sheet detailing the recommended charging rate, the maximum voltage when charging, case material, thickness and method of sealing the case, the battery weight (max tolerance +/- 4%).

New batteries have to be submitted to the EFRA Battery Homologation Officer for approval. Subject to the Officer being satisfied that the new cell conforms with technical specifications and commercial availability, the cell will be legal for use from the following April 1st. 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 battery or casing after the original approval will require re-approval.

Proposal:

Lithium based batteries:

2S Batteries -- A minimum of one individual battery has to be received by 1st. Dec.

1S Batteries -- A minimum of one individual battery has to be received by 1st. Dec.

Each individual battery sample must be supplied with :- (a) Lithium based batteries must be covered by their safety test certification in accordance with UN Manual of Test and Criteria ST/SG/AC.10/11/Rev.5, Part 3, Sub-Section 38.3, Tests T1 to T8.

(b) Technical Spec. sheet detailing the recommended charging rate, the maximum voltage when charging, case material, case thickness and method of sealing the case, the battery weight (max tolerance +/- 4%).

New batteries have to be submitted to the EFRA Battery Homologation Officer for approval. Subject to the Officer being satisfied that the new cell conforms with technical specifications and commercial availability, the cell will be legal for use **from:- 2S Batteries - the following April 1st. 1S Batteries - the following March 1st. Cells** received after the above submission dates (1st. Dec.) will not be included on the EFRA approved list for the following year. Any changes to the technical specifications or visual appearance of the battery or casing after the original approval will require re-approval.

Remarks:

Proposed by EFRA

Seconded by: Switzerland

The proposal passed Unanimously

THE RULE SHOULD BE AMENDED TO READ:

3.4.

Existing Rule:

1/10 Touring scale cars will be driven by a maximum of five NiCd or NiMH cells, or a lithium based (LiPo/LiFe) battery. Maximum nominal voltage is 7.4 V/ 6.6 volts. Receiver batteries are not allowed.

Proposal:

1/10 Touring scale cars will be driven by a lithium based (LiPo/LiFe) battery. Maximum nominal voltage is 7.4 V/ 6.6 volts. Receiver batteries are not allowed.

Remarks:

NiCd or NiMH batteries are no longer used by competitors at EFRA events.

Proposed by EFRA

Seconded by: Belgium

The proposal: passed Unanimously

THE RULE SHOULD BE AMENDED TO READ:

3.5.

Existing Rule: 1/10 Offroad scale cars will be driven by a maximum of six NiCd or NiMH cells, or a lithium based (LiPo/LiFe) battery. Maximum nominal voltage is 7.4 V/ 6.6 volts. Receiver batteries are not allowed.

Proposal: 1/10 Offroad scale cars will be driven by a lithium based (LiPo/LiFe) battery. Maximum nominal voltage is 7.4 V/ 6.6 volts. Receiver batteries are not allowed.

Remarks: NiCd or NiMH batteries are no longer used by competitors at EFRA events

Proposed by EFRA

Seconded by: Finland

The proposal passed Unanimously

THE RULE SHOULD BE AMENDED TO READ:

7.1.1.

Existing Rule: European Championships are held in the following classes:

1/10 Off-Road
1/12 Modified
1/10 Touring Cars
1/12 10.5T Spec. Brushless or 19T Brushed Motors
1/10 Touring Cars Indoors

Proposal: European Championships are held in the following classes:

1/10 Off-Road
1/12 Modified
1/10 Touring Cars
1/10 Touring Cars 10.5T Spec. Brushless
1/12 10.5T Spec. Brushless or 19T Brushed Motors

Remarks: Stock Racing is the most popular form of Racing on National level. Also on International Events like the LRP Touring Car Masters and the ETS Series, Stock is the most popular class. Many drivers want to take part at an European Championship but they don't like modified racing. A real Spec. Class will be very attractive to the drivers. So EFRA should offer a European Championship for these drivers. Please see the following proposals too.

According to the EFRA rules a technical/fundamental change like that can only start for the 2013 season. However as no existing class is affected, and if the AGM votes this new class in, we propose to start an EC as early as 2012. Obviously it can only take place, if a suitable organiser can be found at that short notice.

Proposed by LRP electronique GmbH, Kraemer Andy

Seconded by: Great Britain

Passed with ..11... for, ..1.. against and ..1.. abstentions.

THE RULE SHOULD BE AMENDED TO READ:

7.1.1.

Existing Rule: European Championships are held in the following classes:

1/10 Off-Road
1/12 Modified
1/10 Touring Cars
1/12 10.5T Spec. Brushless or 19T Brushed Motors
1/10 Touring Cars Indoors

Proposal: European Championships are held in the following classes:

1/10 Off-Road
1/12 Modified
1/10 Touring Cars
1/12 10.5T Spec. Brushless
~~1/10 Touring Cars Indoors~~

Remarks: delete 1/10 Touring cars indoor EC. There is no need for a 2nd EC other than the outdoor EC. The response in the last years is not great neither from the drivers as from organizers.

Proposed by DMC

Seconded by: Switzerland

Passed with ..12.. for, ..0.. against and ..1.. abstentions.

THE RULE IS NEW:

7.2.

Existing Rule: ALLOCATIONS

Proposal: 7.2.7. Drivers that finished in the Top 20 at an 1/10 Touring Car European Championship (indoor or outdoor) in the last 3 years are not allowed to participate at the 1/10 Touring Cars 10.5T Spec. Brushless European Championship

Remarks: You need to avoid that international Top modified drivers take part at the Stock European Championship to just „claim another title“. The 10.5T EC should be more like a “B” EC, like it is in 1/8 Onroad, 1/8 Offroad and 1/10 Nitro.

Proposed by LRP electronique GmbH, Kraemer Andy

Seconded by: Switzerland

Passed with ..11.. for, ..1... against and ..1.. abstentions.

THE RULE SHOULD BE AMENDED TO READ:

8.1.2.

Existing Rule: 1/10th Touring EUROPEAN CHAMPIONSHIP:

Proposal: 1/10th Touring EUROPEAN CHAMPIONSHIP:

Remarks: THURSDAY: Free practice, Registration and Technical Inspection
FRIDAY: Controlled Practice and Qualifying Rounds 1-3
SATURDAY: Qualifying Rounds 4-5, 3xFinals and Prize Ceremony

Thanks to GSM there is no need for a final practice and so it's possible to save one complete day. What will effective reduce costs for the drivers.

Proposed by DMC

Not Seconded

THE RULE SHOULD BE AMENDED TO READ:

9.4.1.

Existing Rule: All qualifying Heats and Finals 1/10th will be 5 minutes and the last lap plus the time to complete this last lap up to a max of 40 seconds. For 1/12th the racing times will 8 minutes.

Proposal: All qualifying Heats and Finals 1/10th will be 7 minutes and the last lap plus the time to complete this last lap up to a max of 40 seconds. For 1/12th the racing times will 8 minutes.

Remarks: Thanks to the capacity of the actual LiPo batteries it's possible to increase the race time and allow the drivers to have effective more driving time and to use less powerful brushless motors.

Proposed by DMC

Seconded by: Switzerland

Amended: Portugal: Split between 1/10 Offroad and 1/10 Touring Cars. **Seconded by** Austria.

Rejected for 1/10 Offroad with ..4.. for, ..5.. against and ..2.. abstentions.

Rejected for 1/10 Touring Car with ..4.. for, ..4.. against and ..5.. abstentions. The section chairman had the casting vote. He explained, that he is against this proposal.

THE RULE SHOULD BE AMENDED TO READ:

9.4.2.

Existing Rule: Qualifying will be by fastest time for 1/12th, by the 2 fastest times added together, for 1/10th Off-Road round by round system is used. For 1/10th On-road see App. 3 rule 9.4.2b.

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.

Fastest competitor (based on laps & time) in each Round will score zero (0) points, second place 2 points, third place 3 points, fourth place 4 points and so on. If two (or more) competitors achieve an equal time in any Round they will be awarded equal points. The next competitor not included in the tie will be awarded points corresponding to his position in the particular Round.

Proposal: Qualifying will be by fastest time for 1/12th, by the 2 fastest times added together. For 1/10th Off-Road the round by round system is used. For 1/10th On-road see App. 3 rule 9.4.2b.

If the 'Round by Round' qualifying method is used, the number of Rounds to count are as follows :- 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.

Fastest competitor (based on laps & time) in each Round will score zero (0) points, second place 2

points, third place 3 points, fourth place 4 points and so on. If two (or more) competitors achieve an equal time in any Round they will be awarded equal points. The next competitor not included in the tie will be awarded points corresponding to his position in the particular Round.

Remarks:

Deleted the reference in the Round by Round system of six Rounds being used.

The two Electric Sections that use the Round by Round system have a maximum of five Qualifying Rounds as detailed in rule 8. Therefore the reference to six Rounds in this rule can be confusing. First sentence also split to make reading easier.

Proposed by EFRA

Seconded by: Holland

The proposal: Passed Unanimously

The Section Chairman thanked all participants for a constructive meeting, the meeting was closed at 15.20.