

INTERNATIONAL FEDERATION OF MODEL AUTO RACING



PRESIDENT: JOHN D. GRANT
30 TRACEY STREET,
REVESBY. 2212
N.S.W. AUSTRALIA.
Tel: (612) 97734921
Fax: (612) 97721959

WEBSITE: <http://www.ozemail.com.au/~ifmar>
EMAIL: ifmar@ozemail.com.au

February 2, 2005

TO: EFRA, ROAR, FEMCA & FAMAR

RE: IFMAR POSTAL VOTES – IFMAR ELECTRIC OFF-ROAD AND ON-ROAD WORLD CHAMPIONSHIP RULES

Dear Members

Please find attached the results of the recent IFMAR Postal Votes covering five (5) proposals relating to the above Rules.

It should be noted that Proposals A, C and D have been accepted and, as Proposal B resulted in a tied vote, the original

Rules - Motors 4.4.2 (Off-road) and 4.3.2 (On-road) remain. The three (3) new rules will come into effect immediately.

It is requested that this information is distributed to your members as soon as convenient.

Best regards
Marian Grant
IFMAR Secretary/Treasurer.

cc IFMAR V.P.
IFMAR E.S. C'man.
IFMAR I.C. C'man.

Page 1/5

RESULTS OF IFMAR POSTAL VOTES - DATED DECEMBER 17, 2004

REFERENCE: IFMAR 1/10TH ELECTRIC OFF-ROAD WORLD CHAMPIONSHIP RULES and
IFMAR 1/12TH & 1/10TH ISTC ELECTRIC ON-ROAD WORLD CHAMPIONSHIP RULES

A. ROAR PROPOSAL:

Existing Rules – Motors 4.4.2 (Off-road) and 4.3.2 (On-road):

An approved products list of motors approved for use in the World Championships must be included in the race acknowledgement package sent to each competitor no later than two (2) months prior to the event.

Specifications: '05' sized displacements.

Can diameter to be a maximum of 36.02mm

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

Shaft diameter is .125 inch. Production Tolerances allowed. Ceramic magnets only (cobalt and rare earth magnets specifically not allowed). Current is supplied to the armature by two (2) brushes. Armature – the rotor is to have three (3) poles with windings. Stack length without epoxy – minimum 21 mm and maximum is 22.8 mm. Only copper wire is to be used for the winding. No split rotor allowed. The laminations have to be one after the other without anything between. The thickness of the stack plates is 0.35 mm + 0.05 mm, a maximum of 63 laminations to be used. The minimum stack thickness is 3.5 mm.

A minimum of 5,000 units must be available at the time of approval. A minimum of three hundred (300) motors must have been sold to at least three (3) distributors or hobby shops or OEM's at the time of submittal. The manufacturer has to provide an address of a Hobby shop or the like, that any driver who wishes to obtain these motors at the time of approval can do so.

Approved motors may be modified by re-winding, balancing, truing of commutators, epoxying, ball bearings, brushes and custom brush systems only.

No hybrid (mixing of parts from approved motors) allowed.

Proposal: Amend existing Rules 4.4.2 (Off-road) and 4.3.2 (On-road) to read: -

An approved products list of motors approved for use in the World Championships must be included in the race acknowledgement package sent to each competitor no later than two (20 months prior to the event).

BRUSHED MOTORS:

Specifications: '05' sized displacements.

Can diameter to be a maximum of 36.02mm

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

Shaft diameter is .125 inch. Production Tolerances allowed. Ceramic magnets only (cobalt and rare earth magnets specifically not allowed). Current is supplied to the armature by two (2) brushes. Armature – the rotor is to have three (3) poles with windings. Stack length without epoxy – minimum 21 mm and maximum is 22.8 mm. Only copper wire is to be used for the winding. No split rotor is allowed. The laminations have to be one after the other without anything between. The thickness of the stack plates is 0.35 mm ± 0.05 mm, a maximum of 63 laminations to be used. The minimum stack thickness is 3.5 mm.

A minimum of 5,000 units must be available at the time of approval. A minimum of three hundred (300) motors must have been sold to at least three (3) distributors or hobby shops or OEM's at the time of submittal. The manufacturer has to provide an address of a Hobby shop or the like, that any driver who wishes to obtain these motors at the time of approval can do so.

Approved motors may be modified by re-winding, balancing, truing of commutators, epoxying, ball bearings, brushes and custom brush systems only.

No hybrid (mixing of parts from approved motors) allowed.

BRUSHLESS MOTORS:

General definition of a Brushless Motor:

- a) Sensored or sensorless motors are allowed.
- b) The motor has to be rebuildable. Ball bearings are allowed.
- c) If the motor is sensored:

- It 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 power connector has to be clearly marked A, B, C.

A for phase A

B for phase B

C for phase C

d) `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 34.00mm measured at whatever point yields the minimum dimension, excluding solder tabs or lead wires. Maximum length is 53.00mm 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 50.00mm 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. Motor mounting holes must be on 1.00- inch (25.40mm) centres.

Stack/Stator:

Stack minimum length 19.30mm, maximum 21.00mm. Stack inside diameter minimum 12.50mm, maximum 16.00mm. If a stack is used then it must be continuous. The laminations have to be one after the other without anything in between. The thickness of the stack plates is 0.35 +/- 0.05mm. All laminations must be of the same material.

Winding:

Only three slot (phase) "Y" wound stators are permitted. No delta wound stators allowed. Only circular (round) pure copper wire permitted. No turn limit.

Rotor:

Shaft diameter must be 0.125 inches (3.175mm). Only one piece, two pole bonded Neodymium or Ferrite magnetic rotors are permitted. Magnet minimum length 23.00mm, maximum 27.00mm. Magnet minimum diameter 12.00mm, maximum 5.50mm.

e) All motors must have the original manufacturer's logo or name moulded into the end bell.

f) A minimum of two thousand (2000) brushless motors must be available at the time of approval. A minimum of three hundred (300) brushless motors must have been sold to at least three (3) distributors or hobby shops or OEM's at the time of submittal. The manufacturer has to provide an address of a hobby shop or the like, that any driver who wishes to obtain these motors at the time of the approval can do so. No hybrid (mixing of parts from approved brushless motors) allowed.

EFRA - YES ROAR - YES FEMCA - NO FAMAR - YES
VOTE: ACCEPTED.

FEMCA PROPOSAL I:

Existing Rules - Motors 4.4.2(Off-road) and 4.3.2(On-road):

An approved products list of motors approved for use in the World Championships must be included in the race acknowledgement pack sent to each competitor no later than two (2) months prior to the event.

Specifications: '05' sized displacements.

Can diameter to be a maximum of 36.02mm

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

Shaft diameter is .125 inch. Production Tolerances allowed. Ceramic magnets only (cobalt and rare earth magnets specifically not allowed). Current is supplied to the armature by two (2) brushes. Armature – the rotor is to have three (3) poles with windings. Stack length without epoxy – minimum 21 mm and maximum is 22.8 mm. Only copper wire is to be used for the winding. No split rotor allowed. The laminations have to be one after the other without anything between. The thickness of the stack plates is 0.35 mm ± 0.05 mm, a maximum of 63 laminations to be used. The minimum stack thickness is 3.5 mm.

contd.

Page 3/5

A minimum of 5,000 units must be available at the time of approval. A minimum of three hundred (300) motors must have been sold to at least three (3) distributors or hobby shops or OEM's at the time of submittal. The manufacturer has to provide an address of a Hobby shop or the like, that any driver who wishes to obtain these motors at the time of approval can do so.

Approved motors may be modified by re-winding, balancing, truing of commutators, epoxying, ball bearings, brushes and custom brush systems only.

No hybrid (mixing of parts from approved motors) allowed.

Proposal: Amend Rules 4.4.2 (Off-road) and 4.3.2 (On-road): -

An approved products list of motors approved for use in the World Championships must be included in the race acknowledgement package sent to each competitor no later than two (2) months prior to the event.

Specifications: '05' sized displacements.

Can diameter to be a maximum of 36.02mm

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

Shaft diameter is .125 inch. Production Tolerances allowed. Ceramic magnets only (cobalt and rare earth magnets specifically not allowed). Current is supplied to the armature by two (2) brushes. Armature – the rotor is to have three (3) poles with windings. Stack length without epoxy – minimum 21 mm and maximum is 22.8 mm. Only copper wire is to be used for the winding. No split rotor allowed. The laminations have to be one after the other without anything between. The thickness of the stack plates is 0.35 mm ± 0.05 mm, a maximum of 63 laminations to be used. The minimum stack thickness is 3.5 mm.

A minimum of **3,000** units must be available at the time of approval. A minimum of three hundred (300) motors must have been sold to at least three (3) distributors or hobby shops or OEM's at the time of submittal. The manufacturer has to provide an address of a hobby shop or the like, that any driver who wishes to obtain these motors at the time of approval can do so.

Approved motors may be modified by re-winding, balancing, truing of commutators, epoxying, ball bearings, brushes and custom brush systems only.

No hybrid (mixing of parts from approved motors) allowed.

REASON: In the market to-day, it is considered that a minimum of 5,000 units is too high and a minimum of 3,000 would be more realistic.

EFRA - NO ROAR - NO FEMCA - YES FAMAR - YES

VOTE: NOT ACCEPTED.

C. FEMCA PROPOSAL II:

Existing Rules – Batteries 4.3.1 (Off-road) and 4.2.1(On-road):

The deadline date for submitting batteries (cells) to be approved for that year's World Championship is eight (8) months prior to the date of the Opening Ceremony of the World Championship. Applications for approval must be submitted to IFMAR.

The submittal for approval must contain a written technical specification from the original cell manufacturer for verification.

A minimum of 100,000 individual cells must have been sold (by the person/company requesting approval) to commercial outlets in the retail or distribution sector of the hobby industry.

The submittal for approval must conform to the procedure current at the time for IFMAR approval - copies available on request.

Proposal: Amend Rules 4.3.1 (Off-road) and 4.2.1 (On-road): -

The deadline date for submitting batteries (cells) to be approved for that year's World Championship is eight (8) months prior to the date of the Opening Ceremony of the World Championship. Applications for approval must be submitted to IFMAR.

The submittal for approval must contain a written technical specification from the original cell manufacturer for verification.

A minimum of **50,000** individual cells must have been sold (**by the original manufacturer or their agents**) to commercial outlets in the retail or distribution sector of the hobby industry. **Approval may be requested by the original manufacturer or their agents.**

The submittal for approval must conform to the procedure current at the time for IFMAR approval - copies available on request.

REASON: In the current market, it is considered that a minimum of 100,000 batteries is too high and a minimum of 50,000 would be more realistic. By changing the approval request to the original manufacturer or their agents, it gives the original manufacturer the opportunity to have direct approval of the cells rather than having to have the cells submitted through outside agents.

EFRA - YES ROAR - NO FEMCA - YES FAMAR - YES
VOTE: ACCEPTED.

D. FEMCA PROPOSAL III:

Existing Rules – Batteries 4.3.4 (Off-road) and 4.2.4 (On-road):

Batteries Technical

Cells must be sub-C size, rated nominally at 1.2 volts and dimensioned nominally at 43 mm length and 23 mm diameter with heat shrink fitted. No modifications allowed to the outer or inner cell construction or modifications to the chemical composition. Soldering for connections and wire is allowed.

Proposal: Amend Rules 4.3.4 (Off-road) and 4.2.4 (On-road): -

Batteries Technical:

Cells must be sub-C size, rated nominally at 1.2 volts and dimensioned nominally at **44.00mm** length and 23.00mm diameter with heat shrink fitted. No modifications allowed to the outer or inner cell construction or modifications to the chemical composition. Soldering for connections and wire is allowed.

REASON: As above, the existing rule states “dimensioned nominally at 43 mm”. Some cells have previously been approved which measure 43.5 mm so the rule requires up-dating.

EFRA - YES ROAR - NO FEMCA - YES FAMAR - YES
VOTE: ACCEPTED.