

1/8th I.C ONROAD

Technical Rules

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RCRA

REMOTE CONTROL RACING AUSTRALIA

1/8th I.C ON ROAD

Technical Rules

(UPDATE NOTES)

Effective 1 May 2019

Effective August 2021

**Created with IFMAR RULES (AARCMCC Tyre Rule
Restrictions)**

1/8th I.C. TECHNICAL RULES

Amended August, 1993
Amended October, 1994
Amended July, 1995
Amended February, 1996
Amended December, 1996
Amended June, 1997
Amended August, 1998
Amended March, 1999
Amended October, 2000
Amended June, 2001
Amended December, 2012
Amended March, 2014
Amended January, 2017
Amended April 2018
Amended November 2020

Amended September, 2002
Amended October, 2003
Amended October, 2004
Amended December, 2004
Amended April, 2005
Amended September, 2005
Amended October, 2007
Amended November, 2008
Amended April, 2010
Amended January, 2011
Amended May, 2013
Amended March, 2015
Amended June, 2017
Amended November 2019
Amended March 2023

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TECHNICAL RULES

1. Technical Specifications

The official measurements in these Technical Specifications are the metric measurements.

- 1.1 The engine may have a total capacity of not more than 3.5 cubic centimetres/0.214 cubic inches. No tolerance allowed.
- 1.2 The maximum carburettor size will be 9.00 mm/0.35 in.
- 1.3 The fuel tank, including filter and fuel pipes up to the carburettor may hold a maximum of 125 millilitres/4.23 fluid ounces. No loose inserts allowed. Any tank found to be illegal (over 125 millilitres/4.23 fluid ounces) after a heat or final shall be removed from the car and inspected for a second time after an initial 'cool down' period of fifteen (15) minutes. This 'cool down' period is only necessary in the case of temperatures above 20 degrees C/68 degrees F.
- 1.4 Overall dimensions:

Wheel base	270 - 330 mm/11-13 in.
Maximum overall width	267 mm/10.5 in.
Maximum overall height	180 mm/7.5 in. (except aerial, incl. Gurney strip)

1.5 Tires:

For IFMAR World Championships a controlled tire must be used.

In General foam and/or rubber tires may be used. (See also the appendix on the last page). For all official racing under dry circumstances a controlled rim and foam tire from a single brand is mandatory. **One brand, 1 diameter front, 1 diameter rear, 1 shore for front and 1 shore for rear.**

The pre-determined hardness and diameters for the front and the rear will be fixed and the same during the whole event. The tire diameter and hardness must be enough to run a sub final of 20 minutes on a single set.

One type of rim must be used, no special rims with a possibility to change the softness (or hardness). The rim must be used as it comes out of the moulding, no extra milling to make it lighter or softer is permitted.

The only addition allowed is the use of a disc to close a rim, however that disc must be mounted by means of a screw to avoid it comes off.

Whenever one set is referred to, this means 2 front and 2 rear tires = 1 set. The general measurements and hardness for 1/8th IC track tires are described in appendix 1. The final values are made by the IFMAR IC Executive in consultation with the organizer and can depend on the track surface.

Before official racing starts the tires will be checked for shore rate (shore A) and diameter by IFMAR or the organizer to make sure equal tires will be handed out.

Tires will be handed out in the controlled staging area where you also get your fuel.

When tires are handed out and have any visible defects (bad gluing, visible damage to tire or rim) only when returned immediately the effected tire(s) can be exchanged. Production tolerance (including shore hardness) will not be considered as a defect. Tires must be marked with the driver's registration number.

Tires must be used as they are supplied and will be given out and fitted in the controlled area. (No modifications to the rims, except the hole for the axle, no shore meters can be used to select tires). No tire truing allowed. Every driver must buy a minimum of 8 sets of tires. The maximum number of sets to buy is 14 sets (+1 extra set for those who make the main final).

Every time you go racing you come without tires and you will receive your box or bag with their tires. Extra sets for those who brake tires or move up due to the Christmas tree finals must be paid extra to the manufacturer/organizer; All tire movements to be done by means of a ticketing system and administration.

During their race time, drivers can use tires from their box in the controlled area. It is not allowed to exchange tires with another driver.

After finishing their race time, drivers must leave their tires on the car, bring car and box to technical inspection and decide to put their tires back in their box after technical inspection. Any tire that leaves the controlled pit, cannot be used in the Official race anymore.

When drivers finish their participation in the event, they can collect their box with used or unused tires from the controlled area and keep them. For free practice, drivers have free choice of tires used, but no treatment is allowed.

From the start of the controlled timed practice, drivers have to use the controlled tires. Apart from the 8 sets there are also tires needed for the practice, these can be ordered on the entry form. The bag or box supplied by the organizer for the tires must be large enough for maximum 8 sets.

Drivers in Super Pole can use a new set of tires or used sets from their bag in the controlled area. If needed they can buy a new set.

All the "race" tires (first 8 sets) must be paid in advance or during registration (up to the organizer). No payment means no racing. In case of rain or a wet track the race director together with IFMAR officials can allow the use of another tire as the allowed controlled tire. In that occasion the following rule will apply. The use of tire treatment is forbidden. This means that it is forbidden to put any product on your tire with the aim to change the "grip" of the tire. IFMAR has the right to employ any testing methods and or procedures it sees fit to test for treatments. Suspect tires will be confiscated but approved. replacements may be used.

The start of a heat or final will not be delayed due to additional inspection of tires.

Confiscated tires may be held for future testing. IFMAR's decision for inspecting tires is final. If upon further independent lab testing tires are found to contain illegal treatments further action may be taken.

Choosing the brand of tire will be done by the organizer in consultation with IFMAR. The mandatory use of a controlled tire may not be used by the organizer to gain money. A "small" profit is allowed due to the extra costs to use a controlled tire.

Tire performance, Tire wear, Price, Payment conditions (50/50%) and the possibility to send back un-used tires are part of the process to choose a brand.

1.6 RIMS:

The rim's diameter must not exceed 54 mm/2.1259 in. An edge to reinforce the rim of 2mm/0.0787 in. thickness and 3 mm/0.1181 in. height on the inside (car side) is allowed. Flange diameter maximum 60 mm/2.3622 in. Any fixing bolts or other equipment installed in the wheel rim must not extend beyond the exterior of the wheel rim. The wheel rim must not extend more than 1.5mm/0.059 in. from the exterior of the tyre.

The use of wheel discs on an open rim is only allowed when they are mechanically secured.

- 1.7 All cars will be equipped with brakes and a clutch in such a manner that the car may be held stationary with the engine running.
- 1.8 Homologated mufflers and homologated inlet noise silencer boxes (INS box) must be used. The maximum noise level for a muffler with INS box is 85 dB's, measured at ten (10) Meter distance and one (1) meter high for 2009. IFMAR's definition of a noise level is always final. The muffler must be of a 3-chamber type minimum. The shape of the exhaust pipe must be of a straight circular rotated type. Any other shape like oval, bent or any other form that is not reproducible by a lathe is not allowed. This dB level should be 83 in 2010, due to environmental rules. The mufflers must bear their homologation numbers during the entire competition. The mufflers' and INS boxes' measurements (both internally and externally) must conform to those on the homologation sheet issued by IFMAR.
- 1.9 Mufflers can be checked and may be cut open at the completion of a qualifying heat and/or final and checked for compliance with homologation drawings
- 1.10 Mufflers and inlet noise silencer boxes (INS box) may be homologated by ROAR, EFRA, FEMCA or FAMAR up to four (4) months before the event. Mufflers and INS boxes homologated in the four (4) month period before the event will not be included on the IFMAR Muffler and Inlet Noise Silencer Box Lists for that event.
- 1.11 The IFMAR Muffler List and IFMAR Inlet Noise Silencer Box List will be supplied to each participant with the rule book two (2) months prior to the event. The IFMAR Muffler and Inlet Noise Silencer Box Lists, with detailed drawings, must be available in Technical Control. Additional copies of the IFMAR Muffler and INS Box Lists must be available to each participant, if requested.
- 1.12 The outlet or tailpipe of the muffler must project horizontally or downward. No upward or vertical exhaust outlets are allowed. The outlet pipe may have a minus tolerance of 2mm/0.078 in. (length).
- 1.13 The front of the car must be equipped with a bumper in such a manner that it will minimise a wound in the case of it becoming in contact with other participants or members of the public. The bumper must be made from a flexible material with all corners and sharp edges rounded off. The contour of the bumper will follow the contour of the body with which it is being used. At no point may the bumper protrude more than 5 mm/0.20 in. in front of the body.
- 1.14 If a rear bumper is fitted, it must finish no more than 10 mm/0.40 in. behind the rear wheels.
- 1.15 If a roll-over bar is built in, it must be placed behind the driver or just behind the imaginary driver's position.
- 1.16 The aerial must be made from a flexible material in such a manner that it will bend completely under the weight of an inverted car. Metallic aerials must have the free end protected.
- 1.17 Bodies must be a one-eighth scale reproduction of sports cars or prototype cars in full scale racing participating in FISA's, IMSA's or CANAM's official sport classes.
- 1.18 Only bodies that are recognized and approved by IFMAR will be allowed. Bodies may be homologated by ROAR, EFRA, FEMCA or FAMAR up to four (4) months before the event. The combined list from the blocs will be valid for the WC event.
- 1.19 The body must be made from a flexible material and painted properly. **The body must have a minimum weight of 145 grams. This includes the gurney strip, ready to race, painted and with stickers. It is not allowed to use extra weight. The use of heat resistant tape or similar inside the body is allowed. Glue or similar adhesives are allowed to strengthen the body. Not allowed is adding weight by means of metal plates or similar.**

- 1.20 A realistic PAINTED driver's figure (minimum helmet and shoulders) made to 1/8th scale must be fixed at the normal place in the body. The head may not be amputated to make way for the fuel filler cap or any other element. The driver need not be fitted under a closed body.
- 1.21 All bodies must have the front and rear sides cut out for the wheels if the original was so designed. The radius of the cut-out must not exceed the tyre by more than 13 mm/0.5 in
- 1.22 The windscreen must not be cut out. In closed bodies, a hole of maximum 6.5 square centimetres/1 square inches for cooling is allowed to be cut out in the front of the windscreen. The windscreen may be painted in a realistic transparent colour.
- 1.23 Side windows and rear windows may be opened.
- 1.24 No wheels, tyres or rims of the car may extend outside the body shell, as viewed from above.
- 1.25 Cut-outs in the body that were not in the original full-scale version will be allowed for the following:
 - 1.25.1 The cylinder head and air filter must follow their contour and have a maximum of 20mm/0.787 in. clearance on all sides.
 - 1.25.2 The aerial hole will be no larger than 20 mm/0.787 in. in diameter
 - 1.25.3 The radio switch hole will be no larger than 25 mm/0.984 in. in diameter
 - 1.25.4 Cut-out for the fuel filler cap will follow the contour of the above piece with a maximum of 20 mm/0.787in. in gap between the body and the filler cap, as viewed from above.
 - 1.25.5 The hole for the exhaust pipe must follow the contour of the above piece with a maximum of 25 mm/0.984in. in gap, in any direction, between the body and the exhaust outlet
 - 1.25.6 The slot for the roll-over bar should be no more than 20 mm/0.787 in. in width. The roll-over bar should not protrude more than 50 mm/1.968 in. above the cylinder head.

1.26 SPOILER:

A gurney flap which conforms to IFMAR regulations maybe fitted.

1.27 SPOILER SIZE:

Spoiler/wing sizes for sports cars/prototypes:

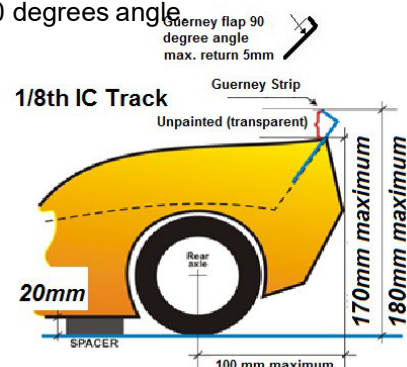
Overall width of body and spoiler max 267mm (measured on top).

Separate Wings or spoilers are not allowed. Only a Gurney strip directly mounted on the rear of the body is allowed.

No additional items may be fastened to the body exterior other than a rear Gurney strip. All measurements for the wing height will be taken with the chassis raised on 20mm blocks. The Gurney strip return should not be greater than 5mm with a 90 degrees angle.

Maximum height for the body, side and rear wing is 170 mm, with the chassis placed on 20 mm spacer blocs. The maximum overall height including the Gurney strip is 180 mm, the Gurney strip, must be attached directly to the body. No independently mounted wings are allowed.

The maximum overhang behind the rear axle measured from the rear axle centre point is



100mm.

If body stiffeners are used, they cannot cause the body to be wider than 277mm at any point.

2. Fuel:

The Event is organized with controlled fuel. Fuel or fuels must be commercially available. Fuel may only contain methanol (methyl alcohol) CAS number 67-56-1, and/or Ethanol (Ethyl Alcohol) CAS number 64-17-5, lubricating oil, a small content of anti-corrosion chemicals and maximum 25% of nitro methane (Cas number 75-52-5) in volume. The specific gravity of the mixture may not be heavier than 0.91 grams/cc at 20°C and standard atmospheric pressure. Measurement will be done with a nitromax 25% in the pit lane and/or anywhere inside the venue. Any fuel detected heavier than 0.91 or containing more nitro as specified will mean that the driver will have the result deleted from the heat or final where the fuel was found to be illegal.

The following additives are strictly prohibited, Hydrazine, Hydrogen Peroxide, Toluene, Propylene Oxide, but not restricted to other harmful/dangerous products. IFMAR has the right to take samples for analysing and penalties can be given to manufacturers that have used other ingredients or more nitro as mentioned in the rules.

Fuel suppliers are invited to make a submission to the event host for supply. Each supplier must send a (safety)datasheet with the complete ingredients to IFMAR 2 months before the event

3. Weight:

The minimum weight limit of the cars is **2350 grams/5,181** pounds. The weight limit will be checked with the car being ready to race but with empty fuel tank and with timing transponder installed. The weight will be checked by a set of digital electronic scales and can be done at any time during the meeting, i.e. before the start of a heat, sub-final or final or after the end of either. An approved test weight must be provided for checking calibration of the digital electronic scales.

4. Measurement:

The car shall be measured for the width by placing it on a baseboard equipped with two side rails of 25.4 mm/1 in. in height spaced 267 mm/10.5 in. apart, constructed in such a way that the car can roll freely between them. Base board and rails must be constructed of high-quality material, suitably stiffened to prevent distortion. The car must roll freely between the rails with any steerable wheel set in the straight-ahead position, irrespective of the compression or extension of the suspension.

The car shall be measured for length and height in a similarly constructed box of internal dimensions 637 x 267 mm/25 x 10.5 in. which includes provision for checking the maximum height. Measurement of the wheelbase may be made by simple measurement of axle centre distance but the Race Director should be prepared to make more exact checks in case of doubt or protests. It is suggested that the wheels are removed, and the wheel spindles firmly placed on V-blocks whilst accurate measurements are made.

It is the responsibility of the driver to ensure that his car always complies with the regulations it is on the track and the organiser may check any car, at any time during the championship, for compliance with the regulations. On checking immediately after a race, if a car is found to be under the minimum weight or has incorrect dimensions, positive proof of race damage may prevent disqualification.

5. Technical Restrictions:

Not allowed:

- 4-wheel brakes (no independently controlled braking on the front wheels is allowed)
- liquid cooled engines
- hydraulic systems
- more than 2 servos
- no more than 3-speed transmissions.

5.1 Driver Aids – The use of traction control devices, active suspension devices and any steering control aided by gyroscopes/'G'-force sensors is strictly forbidden. The use of on-board data recording sensors or data transmission devices is not permitted. It is the object of this rule to ensure that the IFMAR 1/8th I.C. Circuit World Championship be a test of driver skill.

6. Tyre Rule Restrictions:

Treatment of the tyres with post-manufacturing additives is prohibited. Competitors found to be using additives will be disqualified from the event. AARCMCC's (RCRA) and Host Club decision for inspection is final.

- Tyre Marking Method to be used at all State and Nationals Event before the days racing begins.
- Each set of tyres is to be inspected by race scrutineer and marked with selected colour on each rim.
- Chosen colour and marking must be present during the day's racings.
- Used /unused tyres with the appropriate colour markings can be return at the end of race day and will be stored in sealed bags at race control overnight.
- Tyres will be remarked with the correct colour for the days racing and made available for use.

Race director and event scrutineer can disqualify any competitor, after inspecting the surface of the tyre and finding prohibited additives on the surface, even if tyres have the correct markings.

Competitor without the correct colour marking for the day will be disqualified from that rounds result.

NEW APPENDIX 1 (see 5.4 Tires)

The diameter and hardness of the controlled tire is in General:

Front, diameter 69mm, 32 shore

Rear, diameter 76mm, 35 shore

The above dimensions and harness are the recommended starting reference point only. The final diameter and hardness of the controlled tire will be determined consultation with the organizer, after testing under local conditions have been taken into consideration.

7. Technical Checklist - 1/8th On Road (IFMAR November 2020)

7. Technical Checklist

Championship:		Date:	
Driver's Name:		Heat:	Car:
Competitor agrees to abide by the AARCMCC (RCRA) Code of Conduct:			
Signature:			

Rule #	Item	Pre-Race	Qualifying				Finals					
			Q1	Q2	Q3	Q4	Q5	Q6	1/16	1/8	1/4	1/2
Body On												
3.	Weight (Empty Tank) Min 2350g											
1.18	Homologated Body (Min Weight 145G)											
1.24	Wheel / Tyre "Top Veiw"											
1.27	Body Width (max 267mm at top edge)											
1.27	Body Width (max 277mm at bottom edge)											
1.27	Maximum Body height - 170mm excl gurney strip. 180mm incl gurney strip											
1.20	Driver Painted minimum 3 Colours											
Body Holes												
1.21	Wheel Arch / Tyre Gap max 13mm											
1.25.1	Engine & Ins Box (max 20mm gap)											
1.25.2	Aerial Hole (max 20mm diameter)											
1.25.4	Fuel Filler (max 20mm gap)											
1.25.5	Exhaust Outlet Hole (max 25mm)											
1.25.6	Roll Over Bar Slot (max 20mm wide)											
Body Removed												
1.2	Fuel Capacity - (max 125mL)											
1.4 & 4	Maximum Width - (max 267mm)											
Exhaust System												
1.8	Homologated Pipe											
1.12	Stinger at or below horizontal											
Engine												
1.8	Homologated INS Box											
1.2	Carburetor Diameter - (max 9.0mm)											
2.0	FUEL - (max 25% nitro)											

Comments: