

1/10th I.C ONROAD

Technical Rules

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RCRA

REMOTE CONTROL RACING AUSTRALIA

1/10th I.C ONROAD

Technical Rules (UPDATE NOTES)

Effective Date 1 November 2020

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

IFMAR 1/10th I.C. TECHNICAL RULES

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INDEX

1/10 I.C Technical Rules

1	Technical Inspection	2
2	Technical Specifications	3
3	Technical Restrictions:	9
4	Tyre Rule Restrictions:	9
5	Technical Checklist - 1/10th On Road (IFMAR May 2016).....	10

1/10th I.C.

TECHNICAL RULES

1 Technical Inspection

Will be on completed prior to the commencement of the event. Drivers or mechanics have to present their cars with bodies, empty tanks, a bottle of fuel and transmitters.

Random inspection will occur on the start line for numbers, tyres, wings and chassis.

No race will be delayed because of non-compliance by a competitor. At the completion of each heat all cars in that heat, whether they finished or not, must be presented for technical inspection. Cars which are not presented for technical inspection at the end of a heat will be disqualified from that heat. Any race damage will be taken into account. At the end of finals, all cars will be impounded and may be inspected for engine size, fuel tank capacity, etc

The use of a non-homologated, modified homologated muffler will constitute disqualification from the event. The disqualified driver will be placed on the last position of the final qualifying results and/or the last position of the final positions' results and he will be noted as a disqualification.

Any technical infringement, other than those concerning engine, fuel tank, weight and muffler will cause disqualification from that heat or final and the disqualified driver's position will be shown as the last position in that heat or final.

All cars must be fitted with a clutch, a braking system and a homologated exhaust pipe.

The engine and fuel tank may be checked at any time.

The volume of the fuel tank will include all fuel piping and filters up to the carburetor.

Following method of measurement will be used:

- take off pressure lines
- fill the fuel tank completely
- remove fuel pipe from the carburetor inlet and make sure fuel line is full.
- connect an air pump to the pressure nipple and measure fuel amount with a calibrated glass. The amount of fuel pressed into the glass will be considered as the total content of the fuel system.
- Only one car per driver will be accepted.
- Only one chassis may be used for all qualifying heats and finals. The only exception to this rule will be in the case of a broken or bent chassis which may be changed with the Race Director's approval. The new chassis must be presented to technical inspection for marking before re-building the car.

2 Technical Specifications

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

- 2.1 The class run will be the 200mm Nitro Touring Car which will be 4WD. Only one (1) brake, working on the central power transmission, is allowed. No second or individual brake system(s) for front and/or rear axles or single wheels is allowed.
- 2.2 Maximum 2-speed gearbox allowed.
- 2.3 All cars must have a de-clutching device and have an operating brake capable of stopping the car and holding the car motionless with the engine running.
- 2.4 The engine may have a total capacity of not more than 2.11 cc. They shall be air-cooled, with front rotary valve, two-stroke induction. They engines may have a maximum of four (4) ports in the liner, including the exhaust port, seen with the piston at its lowest position.

No form of forced induction is allowed. No form of variable port timing.

Only glow plug ignition is allowed. The piston skirt may only be relieved for clearance of the crankshaft counterweight.

No additional openings in the piston. Additional slits or openings in the liner are allowed as long as they do not reach the top of the piston at lowest position.

Standard or conical glow plugs allowed.

The carburetor size is to be 5.50mm maximum.

- 2.5 Engine capacity is to be maximum .12 (2.11cc) only.
- 2.6 Standard pull-start is optional.
- 2.7 Engine internal modifications are allowed as long as they are within the parameters of Rules 5.4 and 5.5.
- 2.8 Homologated mufflers of a double chamber design in conjunction with a homologated inlet noise silencer boxes (INS box) must be used.

For homologation purposes, each muffler will be tested with an engine at 40,000 rpm. The muffler may not produce more than eighty-five (85) decibels measured at ten (10) meters distance and one (1) meter high. IFMAR's definition of a noise level is always final.

- 2.8.1 The muffler must bear their homologation numbers during the entire competition.
The mufflers' measurements (both internally and externally) have to conform to those on the homologation sheet issued by IFMAR.
- 2.8.2 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 submitted to IFMAR.
- 2.8.3 Mufflers may be homologated by ROAR, EFRA, FEMCA or FAMAR up to four (4) months before the event. Mufflers homologated in the four (4) month period before the event will not be included on the IFMAR Muffler Lists for that event.
- 2.8.4 The IFMAR Muffler List will be published on the IFMAR website and Organizer's website two (2) months prior to the event.
- 2.8.5 The IFMAR Muffler list, with detailed drawings, must be available in Technical Control.
- 2.8.6 The outlet or tailpipe of the muffler must project horizontally or downward. No upward or vertical exhaust outlets are allowed.

Tail pipe maximum internal diameter* 5.20mm.

Tail pipe minimum length 10.00mm.

- This dimension includes a tolerance to account for manufacturing variations in commercially available tubing.

- 2.9 The minimum weight without fuel: **1650.00** grams (including transponder).

NOTE: The minimum weight of a 1/10th scale IC track 200 mm car will be reviewed every 2 years.

The minimum weight will be calculated by taking the average weight of 3 cars minimum in standard version, prepared ready to race, without any lightweight parts (light weight parts meaning titanium, special alloy or other high value weight saving items)

The outcome of the average weight will be rounded down by up to 10 grams to the closest round figure. IFMAR will determine if a kit contains light weight components that are deemed inappropriate for a standard kit, such kits cannot be included in determining the nominal weight.

- 2.10 Fuel tank capacity to be 75.00cc including all fuel tubing, filters, etc. No loose inserts allowed inside the tank.

- 2.11 Bodies must be a 1:10 scale in character reproduction of touring car (sedan) 2 and 4-door vehicles that exists or have existed, and raced in an international Touring Car series.

For homologation purposes, the bodies dimensions will be checked according to the Global Body Specifications.

Bodies must be made from polycarbonate. The weight of the body along with other dimensions submitted for approval will also be recorded for the purpose of identification and comparison for future reference.

Bodies may be homologated by ROAR, EFRA, FEMCA or FAMAR up to four (4) months before the event.

This combined list will be made available by IFMAR to the organiser for inclusion in the Stage II Report. For technical inspection it is necessary that all body shells on the list can be identified by means of a manufacturer's identification reference and/or homologation number issued by a Bloc.

The identification reference / number must be molded in at the lower edge of the windscreen. IFMAR approved bodies (complying with GBS) must also have the IFMAR Logo molded into the windscreen. The IFMAR logo is mandatory as from 2016.

- 2.12 The front bumper must follow the body contour and must be constructed so as to minimize injury that may result from being hit by a car. The bumper must be made from foam rubber or a flexible plastic material.

- 2.13 The body must be made from a flexible material and be painted properly. All windows must remain clear and not be painted over or be semi-transparent. **The body must have a minimum weight of 90 grams. This includes the wing, 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.

- 2.14 Bodies are not to be cut above the lower bumper line at the front or the back or above the bottom line of the doors. Rear of the body may not be cut away higher than 50.00 mm measured with a 10.00mm spacer under the chassis plate. Details of all front and rear lights, grills, air intakes and windows must be clearly contrasted from the surrounding paintwork.

- 2.15 Only the following openings and sizes are permitted in the body shells.

Maximum two holes may be cut with a maximum diameter of 60.0mm each. Note: holes may not be combined. Minimum distance between holes: 5,0mm.

A hole with a maximum diameter of 35.0mm is allowed just above the cooling head for easy glow plug access and cannot be combined with any other hole. Minimum distance between holes: 5,0mm.

Additional non-mounting openings may be made for exhaust, transponder, radio antenna and carburetor access.

Both front side windows and rear windows can be removed for ventilation, but not the side rear windows, which must remain intact.

- 2.16 Rollbars (roll-over bars) must be kept under the body.

- 2.17 Only the muffler outlet, antenna and body posts may protrude outside the body shell.

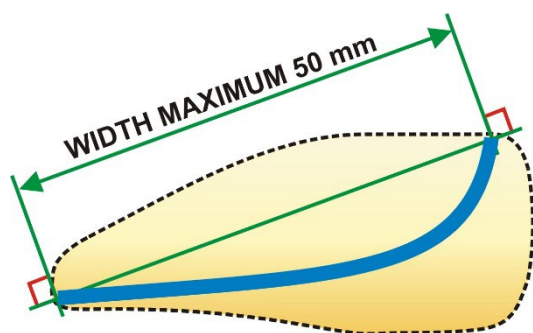
The shape of the exhaust pipe has to be of a straight circular rotated type. Any other shape like oval, bent or any other form that is not reproducible by a lathe is not allowed.

2.18 If a rear diffuser is fitted, the following dimensions apply:

A diffuser mounted on the rear of the chassis is allowed as long as it stays inside the body and not wider as the inner measurement of the wheels. The diffuser must be made of flexible material without any sharp edges.

2.19 General Dimensions: - Minimum (mm)- Maximum (mm)

Wheelbase	230.00	270.00
Width (without body)	170.00	200.00
Width (with body)	175.00	205.00
Length (including body and wing)	360.00	460.00
Height (to top of roof measured with a 10.00mm spacer under the chassis plate on level)	120.00	175.00
Wing width inclusive	125.00	200.00
Wing width		50.00
Wing endplate 35.00mm x 50.00mm – equal size		
Wing overhang (at rear)		10.00
Wheel diameter (excluding tire bead)	46.00	50.00
Wheel width (including bead)	-	30.00 + 1mm tolerance
Tire width (across sidewalls)	-	31.00



2.20 One (1) wing and one (1) spoiler may be mounted to any car (if the original full-size car had more, it is allowed to do the same). Wing and spoiler must be made from a flexible material. Wing and spoiler must not be fixed to body with piano wire. Basically, they must be mounted to body directly. Wing and spoiler may not protrude outside the maximum height and width of the body (including the side dams). Rear wings must be mounted in the same place as was intended by the body manufacturer. The overhang must not exceed 10.00mm at the furthest point, to be measured from the bumper.

The height of the wing may be adjusted but the wing, including endplates must not extend higher than the roofline (No stickers allowed on the roof). Wings (excluding endplates) are to be of single molded construction (no flat-packs/bend your own). Total chord of wing is 50.00mm.

2.21 For IFMAR World Championships a controlled tire must be used.

In General foam and/or rubber tires may be used. In 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 1/10th 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.

2.22 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 16% of nitro methane (Cas number 75-52-5) in volume. The specific gravity of the mixture may not be heavier than 0.87 grams/cc at 20°C and standard atmospheric pressure.

Measurement will be done with a nitromax 16% in the pit lane and/or anywhere inside the venue. Any fuel detected heavier than 0.87 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. More than one brand of fuel manufacturer up to a maximum of 3 brands will be allowed to sponsor an IFMAR 1/10th I.C. On-road World Championship event. If more than one brand of fuel is used, competitors must state their preferences on a selection form at least 6 weeks before the event. Switching to another brand during the event is only possible when there is enough fuel available. Switching is only possible during Qualifying. Every fuel manufacturer that is willing to sponsor an event must be able to supply fuel for the number of drivers that choose that brand + 15%. (The 15% extra is for drivers changing brand during the event).

No fuel brand/manufacturer can ask or claim for exclusivity. The organizer should try everything possible to supply at least 2 different brands. Safety storage for the different brands must be secured. The different brands of official fuel must be available within the controlled area in cans of no more than 5 litres per brand. Fuel bottles must be supplied by the fuel manufacturers. There are no restrictions for a manufacturer in case of a next event. Fuel supply either by organizer or the suppliers. The best offer will prevail. Deadlines will be 6 months (recommendations) and 3 months (decision).

2.23 Any infringement of these rules by a mechanic/team manager/driver or any associated person will cause that driver to be excluded from the event. Further punishment to be determined by IFMAR, such as a ban from future international racing.

2.24 The aerial support must be flexible. Carbon, GRP, steel, etc. are not allowed.

2.25 Only two (2) servos are allowed. Frequency must be legal as specified by Race Director. Drivers must have more than one (1) frequency available. Under no circumstances shall a transmitter be taken onto the track.

2.26 The use of electronic gyroscopes is not allowed.

2.27 All measurements referred to in these rules are maximum or minimum values.

2.28 Not allowed:

- "Pressurised" braking systems including pneumatic or hydraulic systems. Only mechanical, single braking units such as those already in use on the rear or midshaft axle.
- Liquid cooled engines
- Hydraulic systems
- More than 2 servos

- 3-speed transmissions.
- Quick-change wheel systems are not allowed. Wheels must be fixed by a screw or nut that must not extend beyond the exterior of the wheel rim.

3 Technical Restrictions:

- 3.1 It is not allowed to use any electronic devices with the exception of:
Two radio channels of the receiver which will be used to operate steering, throttle and brakes.
A passive data recording or information system to record functions of the car can only be used up to the end of controlled practice.
- 3.2 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 1/10th I.C. 200mm Nitro Touring Car Circuit World Championship be a test of driver skill.

4 Tire Rule Restrictions:

Treatment of the tires 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.

- Tire Marking Method to be used at all State and National Events before the days racing begins.
- Each set of tires is to be presented in their original packaging for inspection by race scrutineer's and marked with selected colour for the days racing on each rim.
- Chosen colour and marking must be present during the day's racings.
- Used or Unused tires 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 even if tires have the correct markings after inspecting the surface of the tire and finding prohibited additives on the surface.

A competitor without any, or the correct colour marking for the day will automatically be disqualified from that rounds result.

APPENDIX 1

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

- Front, 62mm, 37 shore
- Rear, 64mm, 40 shore

Final measurements and shore after consultation with the organizer/tie manufacturer, changes are possible due to very high traction circumstances/ facilities.

5 Technical Checklist - 1/10th On Road (IFMAR May 2016)

5. 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	Main
Check Weight - Car complete, including body shell, transponder, empty fuel tank													
2.9	Weight Empty Tank Min 1650g												
Visual Inspection of exterior of car													
2.11	Homologated Body (Min Weight 90g)												
2.13	All Windows Clear												
2.14	Body Cut Lines Side and Rear cut lines												
2.14	Body Details Lights, Grills etc												
2.15	Windscreen max60mm hole												
2.15	Refuel - max 50mm + 5mm spacing												
2.15	Glow Plug Access Hole - Max 35mm												
2.19	Wing Width - Max 200mm												
2.19	Wing Chord - Max 50mm												
2.19	Wing Endplate Size												
Check Car in Technical Jig with Chassis on 10mm spacer as required													
2.19	Body Height Min 120mm												
2.20	Wing Height (Not above roof line)												
2.20	Wing Overhang max 10mm from bumper												
2.14	Rear Cut Height max 50mm												
Check Car in Technical Jig without body													
2.19	Width without body max 200mm												
Check chassis without body													
2.8.4	Homologated Pipe												
2.8	Homologated INS Box												
2.8.6	Stinger Internal Length - min 10mm												
2.8.6	Stinger I.D - max 5.2mm												
2.8.6	Stinger at or below horizontal												
2.4	Carburetor Diameter - max 5.5mm												
2.4	Number of ports - max 4 incl exhaust												
2.19	Tyre Width - max 31mm												
2.28	Wheel Affixed with Screw or Nut												
2.28	Screw / Nut Inside Wheel Profile												
Fill tank and check fuel													
2.22	Fuel - max 16% nitro												
2.10	Fuel Capacity - max75cc												

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.