

# NITRO RX

## TECHNICAL REGULATIONS – CROSSCAR

SEASON 1 2022 -2023

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Crosscar is a one seated rear wheel drive vehicle built according to the following specifics:

Vehicles with four-wheel drive and all types of (turbo, compressor etc.) are all prohibited.

Automatic or half automatic gearboxes are allowed only to drivers with a disability, in all other cases the mechanical gearbox is compulsory.

## **CKX-T 0 GENERAL**

It's allowed to make redactions or changes to the rules during an active season if it is necessary from a safety standpoint or other important reasons.

FIA homologated cross cars can participate according to FIA cross car technical regulations.

### **CKX-T 0.1 General provisions**

#### **CKX-T 0.1.1 General**

It is always the competitor responsibility to make sure that his/her vehicle fulfil all rules and regulations during the whole competition.

#### **CKX-T 0.1.2 Exemption from rules**

The state sensor, organizers, competition leaders, judges or technical inspectors are not allowed to make exemptions from the standing rules and regulations.

### **CKX-T 0.2 Fuel provisions**

In Crosscar only P1 WRC Sustainable fuel is allowed to be used.

### **CKX-T 0.3 Provisions about drive-by sound surveys**

An organizer may, if the competition is done during special circumstances, impose in the competition invitation that a lower noise level than 100 dB (A) will apply. Measurements should be made in a scale that can ensure that the maximum prescribed sound limit is not broken. Measurement shall take on bypass principle in the race track during the race at any time including free practice, where the cars go on full speed and full throttle acceleration. Measuring point must be max 10 meters from the centre of the bypass place. Measurement ideal places must be well marked (10 m) and painted on the track and marked measuring point to make it easier for the measuring Marshall. During one race can be more than one measuring point which is indicated by separate bulletin and approved by stewards on the race day. The measuring equipment must be located max 10m from the marking on the track, min. 1.35 and max. 1.5 meters above the ground.

### **CKX-T 0.4 Mutual safety provisions**

Safety gear for all competing classes.

#### **CKX-T 0.4.1 Seat belt**

##### **CKX-T 0.4.1.1 Types**

The seat belt should be minimum a 5-point belt. There shall be no common connection point for the belts. The fastenings for the belts shall be in proper dimensions and connected to the vehicle's chassis with minimum 8mm bolts. Alternatively welded loop. Seat belts of the type Nascar are recommended. The seat belt shall be mounted so that all the angels are right. Seatbelts shall be marked with either FIA or SFI. It's allowed to wrap the belt around the pipes behind the seat.

##### **CKX-T 0.4.1.2 Usage**

The seat belt shall be used in compliance with the manufacturer's instructions and manuals. Belts should be exchanged after a bigger collision. The belt shall be exchanged when metal parts are deformed, damaged by corrosion, if the

fabric is damaged, stretched or weakness by chemicals or sunlight.

#### **CKX-T 0.4.1.3 Marking of damaged seat belts, National provisions**

Markings shall be made on both sides of the belt on all belts in connection to the locking mechanism, with white colour. Marked equipment shall not be used in any motor sport context.

#### **CKX-T 0.5 Competition inspection, technical and personal**

Before the competition shall all competing vehicles undergo an inspection. The inspection shall make sure that the specific demands from the technical rule book is followed and that all components to the vehicle does not have any damage that compromise the safety. Specific attention shall be made on any cracking in the frame or cage. If the vehicle does not fulfil the technical demands or have damaged components that compromise safety, that vehicle is not allowed to participate in the competition. The Drivers overalls shall be carried by the driver during the inspection and be found clean and free from oil stains. The overalls condition is decided by the chef technician. The driver is obligated to bring and show the vehicles logbook during the inspection. The log- book number shall be marked chassis production number must be stamped on a plate welded to the frame and be easily readable. The logbooks/chassis number shall be documented in the inspection papers. Drivers that can't show their vehicles logbook can be denied participation in the competition.

#### **CKX-T 0.6 Personal safety gear for the driver**

During scrutineering driver must wear overall. Below is a tablet about the minimum compulsory personal safety equipment during training and competition. Faulty equipment that is found during the competition inspection can be confiscated by the chef technician to be returned then the competition is finished.

- Flame retardant overall
- Shoes and gloves
- Balaclava
- Support collar or type HNRS/FHR protection (HANS).
- Helmet and protective goggles

#### **Flame retardant overall**

During the competition the overall shall be approved by FIA according to FIA 1986 standard or the Norm 8856-2000 or 8856-2018 standards.

The marking that states that the overall is FIA approved shall be embroidered on the backside of the collar and shall include the name of the maker.

CIK classed overalls are prohibited in all competing classes.

During rain or mud race CIK or any other protection overall except official FIA homologated overall is prohibited to use.

**Flame retardant underwear** FIA 8856-2000 or 8856-2018 standards

**Flame retardant socks** FIA 8856-2000 or 8856-2018 standards.

**Shoes** FIA 8856-2000 or 8856-2018 standards.

**Gloves** FIA 8856-2000 or 8856-2018 standards.

**Balaclava** FIA 8856-2000 or 8856-2018 standards.

#### **Support collar**

Mandatory. Shall always be used both during training and during competition. So called HNRS/FHR (HANS) -protection is mandatory. Approved by FIA

#### **Helmet**

Approved by FIA. The following helmet provisions applies for all drivers. All weights below shall be seen as the total weight

of the helmet; this includes all extra equipment that are in the original design. When the fitting of HNRS/FHR-protection the following applies: no drilling in the helmet is allowed, so the helmet shall have the fittings in the original design. This shall be validated with a certificate from the manufacturer.

Helmets should apply to following FIA standards: [www.fia.com/sport/homologation](http://www.fia.com/sport/homologation)

#### **Common provisions marking of damaged helmets.**

Marking shall be made on damaged or worn helmets that no longer follow the requirements. Markings shall be made on both sides of the chinstrap. White paint shall be used.

OBS! Marked gear shall not be used in context to any form of competition.

#### **CKX-T 0.7 Competition numbers**

The starting number should be on the roof and on the hood in front of the driver. Numbers are white on black background.

A type "shark" wing, of plastic 300mm long and 250mm high

The wing should be black and the numbers are white visible from the left and right sides, the size of the numbers should be my 170mm high and 25mm wide

For disabled people, yellow backgrounds are required and the numbers should be black, the number series should be 1-999



#### **CKX-T 0.8 Logbook**

A logbook shall be available for all competing vehicles.

#### **CKX-T 0.9 Communication**

All wireless communication between driver/vehicle and the depot/any other area, and any equal equipment made for the same purpose, are all strictly prohibited both during training and competition. If any of these devices are found which includes mobile phones are found during an inspection the driver shall be disqualified from the competition immediately.

#### **CKX-T 1FRAME.**

##### **CKX-T 1.1 Construction**

Steel used for the frame shall have a minimum dimension of: Round, 30mm outer diameter and material thickness of 2mm. Square or rectangular, shortest sides shall be a minimum of 30mm and material thickness of 2mm.

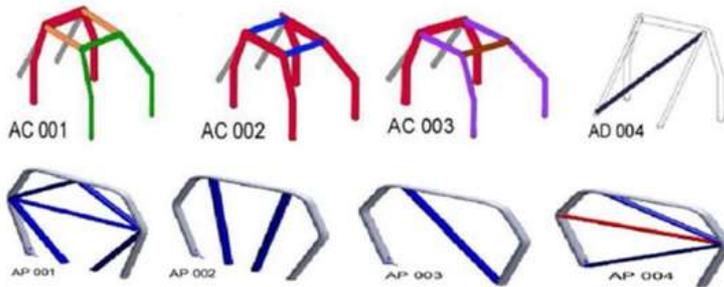
Diagonal or straight pipes supports with the diameter 20 x 2 are the regulation minimum for the front part of the frame. A crash cage is mandatory. The body shall be made with cold drawn seamless pipes with the measurements 40mm in diameter and material thickness of 2mm. The cage shall not have a breaking point under 350Nm/mm<sup>2</sup> and shall be integrated into the chassis with the minimum of 6 connection points and on diagonal point. This Shall be done according to the drawings AC001, AC002, AC003 and for the diagonal AD004 a pipe (30mm in diameter and thickness of 2mm) shall be secured between the frame and the rear bottom part of the diagonal pipe, this pipe can be ether permanent or removable. Other

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alternatives for the diagonal pipe can be found on the drawings AP001, AP002, AP003 and AP004. In drawing AP004 there is a pipe that are marked red (40mm in diameter and 2mm thickness), this pipe can be considered as integrated in the chassis and in that case the blue pipe below cannot be mounted. All points of connection between the frame and the chassis shall be strengthened. It is prohibited to drill in the crash bar/cage.

All additional diagonal support or enhancements shall have the minimum measurements of 20mm in diameter and 2mm material thickness.

A tube for belt attachment is free to put behind the seat



## CKX-T 1.2 Floor

The underside of the chassis shall be completely sealed from the front to the main frame, the material shall be either steel with a thickness of minimum 1mm or aluminium with a thickness of minimum 2mm.

## CKX-T 1.3 Hooking protection

A side protection shall be mounted between the wheels long side. The protection shall be made with a construction of steel pipes (30mm diameter and 2mm thick, holding frame must be minimum 20x2mm or 25x1,5mm) and be secured on both sides, covering a minimum of 60% of the length of the wheelbase. The space between this construction and the body structure shall be completely or partly filled to prevent a wheel from penetrating. Both ends of the outer pipes shall be plugged in the same material and be put in height with the centre of the wheel hub +/-50mm.



## CKX-T 1.4 Roof

There shall be a plate roof. 1,5mm shall be welded on top of the cage, it shall be a minimum of 20 weld and each shall be 2cm long. Minimum distance between the helmet and the roof shall be 5cm, this shall be measured with the driver in the seat. The head frame shall be equipped with shock absorbing material closest to the head/helmet.

## CKX-T 1.5 Towing Connection

Towing must be fitted front and rear.

## CKX-T 1.6 Protective wall

A simple protection wall to safeguard against cooling liquid and motor explosion.

## **CKX-T 2WHEEL SYSTEM**

### **CKX-T 2.1 Tire**

**Winter Competition** Free choice of tire and rim, according to national supplementary regulations.

On all other forms of competition this applies:

Front: Goldspeed yellow marking 165/70-10 27n c9205 397 or Goldspeed yellow marking C-9211SD 165/70-10 27 N

Maxxis 165/70-10 27N c 9272.

Rear: Goldspeed yellow marking 225/40-10 32n c 9203 397 or Goldspeed yellow marking C 9211 SD 225/40-10 32N

Maxxis 225/40-10 32N C9273

Only rims of steel or aluminium are allowed. All forms of tire heating are prohibited. Mechanical or chemical treatment of the tires are prohibited. Both front and back tires are 10 inches with a width of front 5-6 inch and back 8-10 inches

### **CKX-T 2.2 Wheel suspension**

The Wheel suspension is free, no fixed axles in the front or the back. The rear axle shall be divided.

### **CKX-T 2.3 Springs and shock absorbing**

Shock absorbers are free but all types of active shock absorbers are prohibited. There is a 1 per unit/wheel rule that applies for shock absorbers and they shall all be of the coil over type with screw springs. It is allowed to put more than one spring in each unit.

Maximum 3-way shock absorbers are allowed and expansion containers are allowed. With only adjusting the compression high and low speed and returned. No other features type electronics or sensors, electrical or hydraulic "cornerback Control System that is built" stabilizer "systems may be. Shock absorber should work as a private individual device.

Springs shall be made from steel.

Springs from composite or titanium are prohibited. Springs and shock absorbers shall be made so that the bottom plate cannot touch the ground.

## **CKX-T 3 DRIVE SYSTEM**

### **CKX-T 3.1 Engine**

Approved engines:

4-stroke, 4-cylinders 600cc or 750 cc engine from the motorcycle production, with exemption from motorcycle engines that have not been on the market for a year or less. All repairs shall be made with parts from the original or copies with the same specification model of the engine according to the manufacturer's workshop manual. Changes to rotating parts of the engine are prohibited. In rotating parts, the following are included: Cylinder including in and outboard canals that are not removable from the cylinder head, engine block, crankcase, crank rods, pistons, flywheel, camshafts, any form of launch control, traction control, or similar systems are prohibited.

FIA Appendix 2 types of engines added:

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## ANNEXE 2 / APPENDIX 2 HOMOLOGATED CROSS CARS ENGINES REGISTERED BY THE FIA

FIA REGISTRATION N°	MAKE OF THE ENGINE	MODEL OF THE ENGINE	MODEL YEAR OF THE ENGINE
2020-01-XCAR-GSXR	SUZUKI	GSXR 600	2011-2017
2020-02-XCAR-MT09	YAMAHA	MT09	2016-2020
2020-03-XCAR-R6	YAMAHA	R6	2012-2020

Intake system should be original the same make as the engine.  
Only airbox, air intake velocity funnels and filter are free.

Maximum RPM of the motor should be the same as the original engine + 500 RPM The exhaust manifold can be modified or exchanged Ignition and injection/carburettor system original, electrical system is free, only original ECU the same make as the engine, injectors and coils

Power Commander or similar to fix fuel map, auto tune allowed to fix. Outbound chain sprocket is free, prohibited to change gearbox or primary gear drive

Following changed are also allowed: Improvement of the cooling system including water pump, thermostat, cooler, hoses and pipes. Improvement of the lubrication system, adjustments, oil cooler and more. Gear cut / quick shift.

Engine shall be placed behind the seat.

Engine shall have an engine exhaust container or original comparison and it shall be mounted in connection by the engine. Seal holes must be prepared in bolts in engine block and cylinder head and cam cover.

### **CKX-T 3.2 Fuel system**

The fuel tanks construction is free but the maximum capacity shall not be over 12 litres, one recommendation is to install a security tank, a separate deaeration system with check valve function that comes out at floor level.

The tank shall be safely mounted and connected outside of the cockpit. If the tank is mounted behind the head frame a deformation of the frame for about 4cm shall be approved without compromising the tank, if this is not possible the tank shall be protected by an additional multi-pipe construction of a diameter of 30mm. If the distance is less than 20cm to the exhaust or engine the tank shall be protected with heat isolating screen.

If the tank is by the driver's side in so called pontoons a watertight metal screen shall be mounted against the cockpit. Fuel hoses shall be properly clamped.

### **CKX-T 3.3 Exhaust system**

The exhaust system shall be equipped with a silencer.

### **CKX-T 3.4 Start system**

It shall be possible to start the vehicle from inside the cockpit.

### **CKX-T 3.5 Cooling System**

Installation of radiators are prohibited inside and in front of the cockpit. It is allowed to mount radiators in pontoons in the sides if these are separated by bulkheads. No part of the system shall be visible from the cockpit (radiators, hoses, lids, expansion tanks and so on). Air intake and scoop are allowed in the roof and sides behind the head frame and in the pontoons.

### **CKX-T 3.6 Electrical system**

The switch that kills the engines ignition system shall be mounted and shall not be equipped with a spring-loaded button that goes back to the original position after activation. If a battery is mounted on the vehicle a main switch shall also be mounted that kills all electrical systems, the switch shall be easily accessible for both a driver strapped in the seat as well as the emergency personnel. Emergency stop buttons shall not be placed under the openable cage, it shall be placed for easy accessibility from the outside of the vehicle and it is allowed to place double emergency stop buttons. The main switch shall be placed on the left side of the vehicle. It shall be marked with a red lightning bolt on a triangular white background with a blue frame around. The sides of the triangle shall be a minimum of 100mm and one of the edges shall point towards the main switch.

The triangle shall be visible and be on the body.

A Battery shall be properly secured. Acid batteries is not allowed.

### **CKX-T 3.7 Power transmission**

Transmission is free, but the driveshaft shall have a common connection, the differential shall be fixed, type fixed coil, a reverse gear is allowed.

Propulsion shall be achieved with a chain.

### **CKX-T 4 BRAKESYSTEM**

#### **CKX-T 4.1 Brake**

A brake shall be found on all 4 wheels; on the rear wheels a central brake system is allowed. A brake system shall be of the type 2 circuit and be controlled by a pedal. If leakage occurs somewhere in the system brakes shall always be maintained on 2 out of 4 wheels. A handbrake is mandatory.

### **CKX-T 5 STERING SYSTEM**

#### **CKX-T 5.1 Steering device**

Steering shall be achieved by a steering wheel.

Only steering on the front wheels are allowed.

The steering wheel shall be equipped with quick release.

### **CKX-T 6 BODY WORK**

#### **CKX-T 6.1 Covering the chassis**

The body must exist and cannot have any sharp or pointy extensions. The body's front shall be covering up to the centre of the steering wheel. Sides shall be a minimum of 30cm from the bottom of the frame and the thickness of the material shall be at least 0,5mm. All aerodynamic constructions are prohibited in the front of the vehicle. Redirection/spray protection in the front is prohibited if they are not integrated into the body mould. A wing or spoiler in the rear is allowed if it is flat and has a maximum width, of the vehicle width and is between the head band and the rear limit of the vehicle.

#### **CKX-T 6.2 Mudguards**

Mudguards shall be placed on all wheels; they must cover a minimum of 1/3 of the wheel's circumference and the tires width. Thickness min 2mm Without a driver in the vehicle the mudguards should be 3cm under the wheel's centre and without any pointy or sharp parts.

#### **CKX-T 6.3 Driver Seat**

The seat shall be FIA/SFI approved and can be extended use +5 years from end of homologation date if seat does not have any visible damage.

The chair shall be Secured at 4 points with the minimum of 8mm bolts. Minimum thickness of the steel that are used for securing the seat shall be 3mm, lightweight material is prohibited. Securing shall be welded or screwed in the frame above the floor, no securing shall be made in the floor metal. The head support shall be integrated into the chair. The seat may not be adjusted while driving

#### **CKX-T 6.4 Seat belt**

See CKX - T 0.4.1

#### **CKX-T 6.5 Front and side windows**

The front window shall be covered by a net or polycarbonate thickness minimum 3mm, but it shall be easy to remove. The holes in the net shall be a minimum of 10x10mm and maximum of 25x25mm, the thread shall be a minimum of 2mm thick tolerance is +/- 10%.

Full front polycarbonate window may not be mounted unless windscreen wipers, flush is used. Eyewear type motocross or visor with roll-off or tear off system is mandatory.

It is allowed to have polycarbonate or net, or both on the side doors. The plastic polycarbonate must be transparent so that the driver is visible. If side doors are covered with transparent polycarbonate, then it must be installed on top of safety net.

It is allowed to have an advertising space on the side window. The visible area must be at least a 2/3 third of the side door.

Front window / mesh may be covered in transparent plastic.

Nets or polycarbonate shall be mounted on the openings on both sides and cover the whole of the opening. These shall be mounted on the cages top pipes and be equipped with quick releases from both the inside and outside on the lower parts of the door. The holes in the net shall not be above 40x40mm and it shall have a minimum thread thickness of 3mm.

It is also possible to use the following installation:

A frame provided with a metal net of maximum measurement of 60x60mm and a thickness of 2mm. The top of the frame is equipped with hinges that are welded to the frame. The bottom of the frame is equipped with a quick connection device that shall be easily accessible from both the inside and the outside of the vehicle.

#### **CKX-T 7 COMMUNICATION**

##### **CKX-T 7.1 Side mirrors and lighting**

2 mirrors are mandatory (left and right)

Each vehicle shall have the following lights mounted in the rear: One central red light (anti-crash) of the type LED, height or diameter shall be a minimum of 50mm or light according to FIA technical list no 76. These shall be mounted between 800mm and 1400mm from the ground and shall always be on. Red stop lights shall be placed symmetrical on each side of the vehicles centreline and be of the type LED. Height or diameter of the red stop light shall be a minimum of 50mm and be placed between 800mm and 1400mm from the ground. Brake lights shall solely be connected to the brake light connection on the hydraulic system. These 3 lights shall be placed so that 2 of them always are visible from the rear of the vehicle in an angle of 30° on either side of the centre axle, this is valid on all vehicles regardless of body shape or other aerodynamic arrangement.

#### **CKX-T 8 INSTRUMENTATION**

##### **CKX-T 8.1 Instrument, controls**

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Tachometer, temperature control and so on are allowed but shall be mounted so that there are no sharp edges that can cause an injury.

## **Camera Connection:**

Camera connections are included in the inspection. It is up to the chef technician to decide if the camera is properly secured to the vehicle.

## **CKX-T 9 OTHER**

### **CKX-T 9.1 Minimum weight**

Ballast: Weights on these shall be maximum 10 kg a piece. Total weight of ballasts max. 35kg Any ballast weights are required to be solid and uniform and must be mounted to the car's chassis/frame and/or bottom floor and it must be clearly visible. In bottom floor maximum 10 kg is allowed. Ballast must be securely fastened with minimum M6 bolt and locknut x 4 per unit. If ballast is mounted in the floor minimum  $\varnothing$ 20mm washer shall be used under the floor on both weight and floor.

It is recommended to put a thicker/heavier plate to reach the minimum weight.

600cc / 850cc weight with driver min 400kg

750cc weight with driver min 430 kg

### **CKX-T 9.2 Maximum measurements**

Total length: can't exceed 2600mm without the silencer

Total width: can't exceed 1600mm (the width is measured from the outside of the rim)

It is allowed to have the air intake on top of the vehicle but it cannot be bigger than 15cm x the width of the roof.

The gauge and axle spacers are free inside of the above-mentioned limitations.