

# **E-KARTING SPANISH OPEN 2021**

## ***TECHNICAL REGULATIONS***

MODIFIED on March 24th, 2021



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## 1. GENERAL

1.1. The only e-Kart **propulsion KIT** allowed to compete in the “eKarting Spanish Open” will be the **KIT-EGT5** model made by PLAY AND DRIVE, SL.

1.2. All the vehicles must be conforming to the Technical form 2021 and Parts Catalogue 2021, for the **KIT-EGT5** model, and to any amendments that may be published by the Organizing Committee.

1.3. All the vehicles must keep the the configuration provided by PLAY AND DRIVE. Any change or modification that is not expressly authorized in this Technical Regulations, in the Technical form, Parts Catalogue or in the amendments that may be published on 2021 by the Organizing Committee is forbidden. The entrant is the only responsible for the conformity of the parts fitted in his vehicle.

1.4. It is the responsibility of each entrant to ensure that the marking and sealing remains intact.

## 2. EQUIPMENT

2.1. All vehicles must participate in the “eKarting Spanish Open” with the following standard equipment:

- Chassis **BIREL KZ CIK-FIA** Frame CIK-FIA homologated, homologation **CIK 007/CH/12**, CIK-FIA Karting. Technical Regulation – Art.2.3.3. **Chassis supplied by Play and Drive, SL**
- Chassis **TONY KART KZ CIK-FIA** Frame CIK-FIA homologated, homologation **CIK 51/CH/14**, CIK-FIA Karting. Technical Regulation – Art.2.3.3. **Chassis supplied by MarlonKart, SL**
- Chassis **KART REPUBLIC KZ CIK-FIA** Frame CIK-FIA homologated, homologation **CIK 023/CH/27**, CIK-FIA Karting. Technical Regulation – Art.2.3.3. **Chassis supplied by Kart Republic Spain**
- Bumpers. CIK-FIA Karting Technical Regulation – Art.2.5.
- Floortray. CIK-FIA Karting Technical Regulation – Art.2.6.
- Bodywork. CIK-FIA Karting Technical Regulation – Art.2.7.
- Front and rear brakes. CIK-FIA Karting Technical Regulation – Art.2.11.
- Steering. CIK-FIA Karting Technical Regulation – Art.2.12.
- Seat. CIK-FIA Karting Technical Regulation – Art.2.13.
- Pedals. CIK-FIA Karting Technical Regulation – Art.2.14.
- Rims. CIK-FIA Karting Technical Regulation – Art.2.22.1.

- Tyres. CIK-FIA Karting Technical Regulation – Art.2.22.2.
  - Timing equipment: AIM dash and data logger. CIK-FIA Karting Technical Regulation – Art.2.26
- (The specific electric components and systems are described in the specific articles)

### 3. ELECTRIC MOTORS

**3.1.** The electric motor will be PDM18 model, supplied by PLAY AND DRIVE, with numbered seals detailed in the Technical form. Seal's number must be the same as the one written in the technical e-Kart passport, and must remain intact from the receipt until it is returned to PLAY AND DRIVE, under prior authorization from the Organizer Comitee, for any repairs or revisions. It's the entrant responsibility to write correctly the seal identification number in the e-Kart passport.

**3.2.** A reactive and capacitive loads will be installed in order to minimize the capacitive coupling of the motor. [Appendix J – Art. 253.18.6.1]

**3.3.** It is not authorized in any case, manipulation and/or modification to the motors and his components. All the motors and components rebuilding, repair or manipulation must be carried out only by PLAY AND DRIVE, under the prior authorization from the Organizer Comitee.

**3.4.** In case of any unauthorized motor manipulation, lack, breakage or manipulation of any seal, the Organizer Comitee will act as follows:

**a)** During initial scrutining:

The change of the motor will be compulsory to be authorized to take part in the official practice; in this case, the disassembled motor will be inspected and rebuild by PLAY AND DRIVE, under prior authorization from the Organizer Comitee, before being returned to the entrant. All cost of this operation will be charged to the entrant.

**b)** During the Official Practice, Qualifying and race:

The Technical Delegate will decide that the motor is not technically conformed.

**c)** In case of failure or revision, the motor has to be sent to PLAY AND DRIVE., under prior authorization from the Organizer Comitee, who will repair and seal it again, being assumed that all cost of this operation will be charged to the entrant.

**3.5.** In case of any unauthorized inverter manipulation, parameter modification, lack, breakage or manipulation of any seal, the Organizer Comitee will act as follows:

**a)** During initial scrutining:

The change of the inverter will be compulsory to be authorized to take part in the official practice; in this case, the disassembled inverter will be inspected and rebuild by PLAY AND DRIVE., under prior authorization from the Organizer Comitee, before being returned to the entrant. All cost of this operation will be charged to the entrant.

**b)** During the Official Practice, Qualifying and race:

The Technical Delegate will decide that the inverter is not technically conformed.

**c)** In case of failure or revision, the inverter has to be sent to PLAY AND DRIVE, under prior authorization from the Organizer Comitee, who will repair and seal it again, being assumed that all cost of this operation will be charged to the entrant.

**3.6.** The ekart has two power maps ("race mode", and "qualifying mode"). The qualification rounds will be carried out with the map "qualifying mode" (right button position), and the races will be carried out in "race mode" (vertical button position).

**3.7.** It is not allowed to use the "qualifying mode" map during races. The organization may check the recorded data to verify that the map has not been changed during the race. If such change is detected, the participant will be disqualified from the corresponding race.

During free practice it is allowed to use whatever power map.

## 4. TRACTION INVERTER

**4.1.** The inverter will be a SEVCON controller, model Gen 4, size 6, and will accomplish Appendix J – Art. 253.18.6.1. The inverter will be supplied with numbered seals detailed in the Technical form of the e-kart. Seal's number must be the same as the one written in the technical e-kart passport, and must remain intact from the receipt until it is returned to PLAY AND DRIVE., under prior authorization from Organizer Comitee, for any repairs or revisions. It's the entrant responsibility to write correctly the seal identification number in the e-kart passport.

**4.2.** It is not authorized in any case, manipulation and/or modification to the inverters, the parameters and his components. All the inverters and components rebuilding, repair, manipulation or re-parametrized must be carried out only by PLAY AND DRIVE, under the prior authorization from the Organizer Comitee.

**4.3.** Throughout the event, personnel from the Organizer Comitee. can download the information of the inverter for the scrutining of the system parameters. In the technical scrutining this operation will be done under the request of the Sportive Delegate, and in the presence of the Technical Delegate.

**4.4.** During the event, and coinciding with the change of category, the Organizing Committee staff could access the investor to modify the limits of the parameters corresponding to each category (Junior and Senior).

## 5. ELECTRICS AND ELECTRONICS

5.1. The only data logger device admitted is the following one:

Brand: AIM

Model: SOLO2 DL

5.2. It is not allowed to change and/or modify the data logger. It is compulsory that they are always connected.

5.3. It is not allowed to modify the wiring which the e-kart comes with, including the loom of the data logger, or in any other electrical element of the vehicle.

5.4. Any manipulation, modification, elimination or disconnection of any e-kart sensor is not allowed. The entrant is responsible for the quality of the sensor signals.

5.5. The Organizing Committee reserves the right to replace or to interchange the data logger at random during the season.

5.6. Throughout the event, personnel from the Organizer Comitee. can download the information of the data logger for the scrutining of the recorded data.

5.7. In cases of any unauthorized data loggers or wirings manipulation or any seal lack or breakage Organizer Comitee will act as follows:

a) During initial scrutining:

The change of the data logger units will be compulsory to be authorized to take part in the official practice; in this case, the part will be inspected and rebuild by PLAY AND DRIVE, under the authorization of the Organizer Committee, before being returned to the entrant. All costs of this operation will be charged to the entrant.

b) During the Official Practice, Qualifying and race:

The Technical Delegate will decide which component is technically not conformed.

c) In case of failure or revision, the electrical parts must be sent to PLAY AND DRIVE.who will repair and seal it again, being assumed that all costs of this operation will be charged to the entrant.

## 6. ELECTRICAL SECURITY

6.1. The electrical security systems installed, and the accomplished regulations are the following:

- Protection against electrical shock. [Appendix J – Art. 253.18.7.a – 253.18.7.d]
- Isolation surveillance between Chassis and Power Circuit. An IMD (Insulation Monitoring Device), will be installed. [Appendix J – Art 253.18.10]
- Power Circuit. [Appendix J – Art 253.18.11]

- Power Bus. [Appendix J – Art 253.18.12]
- Power Circuit wiring [Appendix J – Art 253.18.13]
- Power Circuit connectors, leading contacts, automatic disconnection, etc. [Appendix J – Art 253.18.14]
- Driver Master Switch [Appendix J – Art 253.18.16]
- General Circuit Breaker [Appendix J – Art 253.18.17]
- Emergency Stop Switches [Appendix J – Art 253.18.18]
- Overcurrent trip (fuses). [Appendix J – Art 253.18.19]
- Charging units (off board) [Appendix J – Art 253.18.20]
- DC converter [Appendix J – Art 253.18.21.b]
- Safety Indicators [Appendix J – Art 253.18.22 and Technical Regulations E-Karting – Art. 4.23].

**6.2. RESS (see description in the next paragraph) Status Light:**

All e-karts must be fitted with a set of RESS status light at the front dash board, which:

- Is in working order throughout the event even if the main hydraulic or pneumatic on the e-kart have failed;
- 2 ball lights stand up on the dashboard, so they can be seen by the pilot, comisaries and other staff;

Light Status	HV Status
Green	SAFE
Red (Blinking)	DANGER (System Defect)

While the e-kart is the box or going to it, RESS green light must stay activated.

**6.3. Master Switch:** all vehicles must be equipped with a driver master switch.

**6.4. Ready to move light:** a green light “Ready-to-move” must be placed, and fixed when the vehicle is in operational mode.

## 7. HIGH VOLTAGE BATTERY

**7.1.** The RESS (Rechargeable Energy Storage System) or HV battery pack, will consist of a 100.8 rated voltage and 49.9 A.h of capacity, and IP-55 grade lithium ion RESS.

**7.2.** The RESS must be capable of being isolated from the Power Circuit by at least two independent systems (e.g. relays, detonators, contactors, a manually operated Service Switch, etc.). There must be at least one manually operated system and one automatic system (control by BMS, ECU,...). [Appendix J – Art. 253.18.4.1.h].

**7.3.** The RESS must include two independent systems to prevent overcurrent. [Appendix J – Art. 253.18.4.1.i].

**7.4.** The maximum RESS weight will be 37 kg

**7.5.** Cable insulation must have a service temperature rating of at least -20 °C to +150 °C. [Appendix J – Art. 253.18.4.1.l].

**7.6.** A BMS (Battery Management System) will be installed. [Appendix J – Art. 253.18.4.1.1.d]

**7.7.** Temperature control must be considered in the BMS to prevent thermal runaway during overload or battery failure [Appendix J – Art. 253.18.4.4.2.d]

**7.8.** The BMS is a security system; it must detect internal faults and has to trigger via Can-Bus the power reduction delivered from/to RESS or has to switch off the RESS if the BMS considers battery operation unsafe. [Appendix J – Art. 253.18.4.4.2.f]

**7.9.** The BMS will also disconnect or stop the recharging system of the e-kart when it is finished or it is unsafe.

**7.10.** The RESS will be supplied with numbered seals detailed in the Technical form. Seal's number must be the same as the one written in the technical e-kart passport and must remain intact from the receipt until it is returned to PLAY AND DRIVE, under the prior authorization from the Organizer Comitee, for any repairs or revisions. It's the entrant responsibility to write correctly the seal identification number in the e-kart passport.

**7.11.** It is not authorized in any case, manipulation and/or modification to the battery and his components. All the SRAE and components rebuilding, repair or manipulation must be carried out only by PLAY AND DRIVE., under the prior authorization from the Organizer Comitee.

**7.12.** In case of any unauthorized battery manipulation, lack, breakage or manipulation of any seal, the Organizer Comitee will act as follows:

**a)** During initial scrutining:

The change of the RESS will be compulsory to be authorized to take part in the official practice; in this case, the disassembled RESS will be inspected and rebuild by PLAY AND DRIVE., under prior authorization from the Organizer Comitee, before being returned to the entrant. All cost of this operation will be charged to the entrant.

**b)** During the Official Practice, Qualifying and race:



The Technical Delegate will decide that the battery is not technically conformed.

c) In case of failure or revision, the RESS has to be sent or retired to/by PLAY AND DRIVE., under prior authorization from the Organizer Committee, who will repair and seal the RESS again, being assumed that all cost of this operation will be charged to the entrant.

## 8. TRANSMISSION

8.1. The e-kart is supplied with a chain transmission system. [CIK-FIA Karting Technical Regulation – Art.2.8.].

8.2. The e-kart will mount a 14 teeth pinion and a ring gear of 50 43 teeth. It is not allowed to replace the pinion or the ring gear.

8.3. Rear Axle diameter: 50mm Homologation CIK-FIA

## 9. BRAKES

9.1. The e-kart is supplied with rear and front brake system. [CIK-FIA Karting Technical Regulation – Art.2.11.]. The brake system is the following:

- Rear brake: manufacturer: ~~Freeline, homologation CIK007/B4/69~~ Homologation CIK-FIA

- Front brake: manufacturer: ~~Freeline, homologation CIK007/B4/69~~ Homologation CIK-FIA

9.2. It is not allowed any modification not detailed in the Technical form, the only brake pads allowed are the ones listed in the parts Catalogue.

## 10. BODY AND CHASSIS

10.1. Any chassis frame and body-shell elements modifications are not allowed, except those specifically authorized in the Technical form. Any additional reinforcement by material contribution is not allowed. It is not allowed any modification not detailed in the Technical form and Parts Catalogue.

## 11. BALLAST

11.1. It is authorised to adjust the weight of the kart with one or several ballasts fixed to the seat of the vehicle. It is not allowed to fix ballasts to other parts different to the seat of the e-kart. The minimum weight of the vehicle plus pilot must reach **205Kg** for each class:

- Junior Class: 186 kg.

- Senior Class: 199 kg.

11.2. After each race and qualifying session, vehicle plus pilot will be weighted. Participants who do not reach the minimum weight will be penalized as follows:

- Disqualified of the race or the qualifying session.

## 12. RIMS

12.1. The only authorized rim will be the one provided by the Organization detailed in the e-Kart Technical form.

**Brand : Freeline Homologation CIK-FIA**

Size: 5x130 (Front) 5x210 (Rear)

## 13. TYRES

~~13.1. Each participant will be allowed to use 3 front and rear dry tyres and 4 front and rear rain tyres for the qualifying session and all races. The participant will decide when to change the tyres.~~

~~Once the tire change has been made, the used tires can be reused.~~

~~Rain tires may only be used when the Race Direction declares the track wet~~

### 13.1. Tire brand and model:

- Front Dry (slick): 10x4.5-5 ”: Vega XM3 (White) CIK PRIME
- Rear Dry (slick): 11x7,1-5 ”: Vega XM3 (White) CIK PRIME
  
- Front Rain (wet): 10x4.5-5 ”: Vega W6 (Blue) CIK RAIN
- Rear Rain (wet): 11x7,1-5 ”: Vega W6 (Blue) CIK RAIN

### 13.2. Logistics, management, and tire use

The day before the first day of private practice, the driver will receive 3 sets of new dry tires and a maximum of 3 sets of water tires marked and associated with his name, which will be the only tires that can be used during the session of private training and the official day of the Race.

For the official Race day, the driver can use the 3 dry sets and the water sets interchangeably in any official Qualifying session or race planned in the schedule, but only a single new set of Dry tires and Wet tires can be used. (in this last case only if the race is declared “Wet track”).

With the exception of the new tires selected by the driver for the Official Day of the Race, it is mandatory to use each dry tire in at least one of the planned sessions during the 2 Private Training days.

The day before the official race day and at the scheduled time, the rider will appear at the closed tire park to proceed with the marking of the set of new Dry and Wet tires of his choice for the Official day of the Race.

Irregular use of tires or those not associated with the driver is totally prohibited throughout the event and will be penalized as indicated in Annex 1.

At the end of the event, each driver will have to deliver the 3 sets of Dry tires that he has acquired for the Event for later recycling by the Organizer. The driver will be able to keep the new and used Wet tires for use in subsequent events, but once the driver considers that a Wet tire has reached the end of its useful life, it is mandatory that they deliver that tire to the organization for later recycling. Failure to comply with this rule will be sanctioned as indicated in Annex 1.

13.3. The pilot is solely responsible for the pressure set-up of his tyres..

## 14. DATA ACQUISITION SYSTEM, TRANSPONDER AND RADIOS

14.1. The automatic timing will be compulsory, through the following transponder system:

Brand: My Laps, **compatible with the models indicated in ANNEX 2**

Power: Independent and fed by the battery

14.2. The maintenance of these installed transponders & timing equipment in the vehicles is responsibility of the entrant. Likewise, it will also be his responsibility to place the transponder before each race, and return it to the Organization at the end of the last race. Its loss or deterioration will mean the substitution cost for the entrant.

14.3. It is not allowed to use telemetry systems that's allows the transmission or data storage from a vehicle in movement to the pits and vice versa, throughout the official training and the race, except for the ones installed in the e-kart. Only the data acquisition provided by the Organizer is allowed (detailed in the technical form).

14.4. Any radio communication system between any Driver on the track and any other body is strictly forbidden. [E-Karting Technical Regulations - Appendix J – Art. 2.17.4.]

## 15. SET UP

15.1. The following mechanical adjustments are allowed (**respecting CIK-FIA Regulation**):

- 1) Tire pressure
- 2) Front wheel geometry
- 3) Steering column adjustment
- 4) Seat position
- 5) brake / accelerator pedal position



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- 6) Mount/disassemble front/rear stabilizer bar
- 7) Rear bumper set up
- 8) Front bumper set up
- 9) Taking the measure in the vertical Axle of the rear axle section, the distance between the inferior part of the tube of the chassis-frame and the superior part of the rear axle tube can not be longer than 125mm.
- 10) Adjusting rear width
- 11) Adjusting front width
- 12) Chain tension
- 13) Brake balance

**15.2.** No adjustment of the electrical system or its components is allowed.

**15.3.** Maximum width of the kart will be 140 cm.

