# 2024 - 2026
# Technical Regulations for EPWR Touring Car

**Contents**





Designations/abbreviations in these Regulations:
**SBF** = Swedish Automobile Sports Federation
**SBF TR** = SBF General Technical Regulations
**RESS** = Rechargable Energy Storage System (battery)
**PDM** = Power Distribution Module
**VCCU** = Vehicle Charging Control Unit
**ARB** = Antiroll bar system
**OEM** = Original Equipment Manufacturer
**FIA** = Federation International Automobile
**HV** = High Voltage
**VCU** = Vehicle Control Unit
**MSD** = Manual Service Disconnect
**MGU** = Motor Generator Unit
**CAN** = Controller Area Network (Bus)

## ART. 1 DEFINITION AND PRINCIPLE

### 1.1 Main regulation principle

The main principle of the EPWR Technical Regulations is to ensure a fair competition and controlled cost.

### 1.2 Technical Rights Holder

E-PWR AB.

### 1.3 Technical rules

In addition to this regulation text, FIA appendix J Art 251, 252, 253, 277 apply the list of applicable articles listed in Appendix 1 of these regulations.

## ART. 2 ELIGIBLE CARS

**2.1**

EPWR is the only authority entitled to authorize any new car models.

## ART. 3 BATTERY AND POWERTRAIN KIT

**3.1** Only EPWR supplied RESS, powertrain, suspension kit can be fitted in the car.
The homologated battery and powertrain kit parts must be used in their entirety. These parts must not, at any time, be modified in any way.
The following components are sealed for safety.

- RESS
- MGU
- Motor Controller
- VCU
- Power Box

Any servicing or repair on those components may only be carried out by the kit supplier.

## ART. 4 MODIFICATIONS AND ADJUNCTIONS ALLOWED OR OBLIGATORY

**4.1**

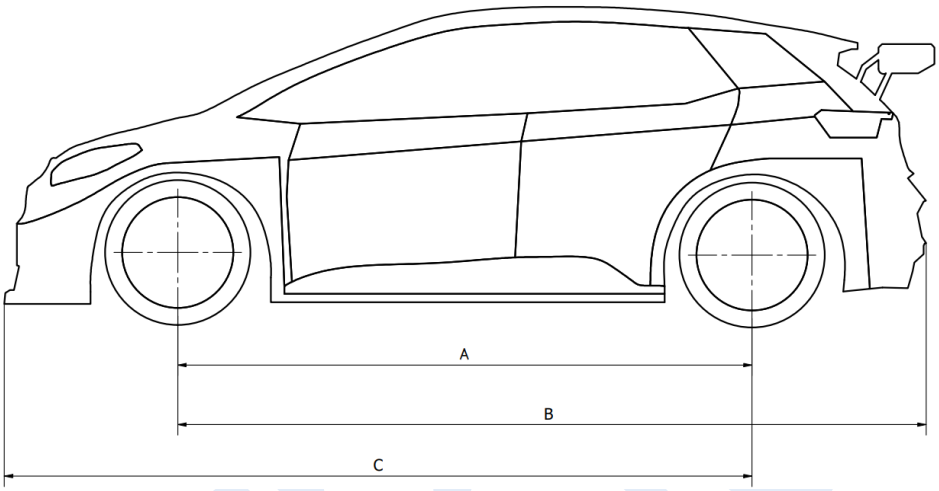
All modifications which are not explicitly allowed by the present regulations are forbidden. An authorized modification may not entail a non-authorized modification.

### 4.2 Wheelbase

The wheel base will be mentioned in the Homologation Form.

### 4.2 Overhangs

Necessary car information will be mentioned in the Homologation Form.




Example:

Wheelbase 2580 mm Front overhang = 780 mm
C Must be between the following figures:
(2580+780) -1% ≤ C ≤ (2580+780) +1% 3326,4 mm ≤ C ≤ 3393.6 mm

### 4.3 Material

Unless explicitly authorized by the present regulations, the use of the following materials are prohibited unless they correspond exactly to the material of the original part:

- Titanium alloy
- Magnesium alloy (< 3 mm thick)
- Ceramics

### 4.4 Driving aids

Unless explicitly authorized by the present regulations, any driving aid system is prohibited (ABS/ASR/Traction Control/ESP…).

### 4.5 Energy recovery

Any energy-recovery system other than that provided by the RESS and powertrain kit provider is prohibited. The level can be adjusted on the steering wheel with a rotary switch.

### 4.6 Telemetry/Voice communications/Cameras

Any form of wireless data transmission between the vehicle and any person and/or equipment is prohibited while the car is on the track.
This definition does not include:

• Voice radio communications between the driver and the team.
• Transponder from the official timekeeping. Position of transponder right front in front of the wheel-axis.
• Automatic timing recording.
None of the previously mentioned transmission data may in any way be connected with any other system of the car (except for an independent cable to the powerbox of the car).

The transmission of data by radio and/or telemetry is prohibited. On-board TV Cameras are not included in the above definitions. However, the equipment must meet TR 5.22.
The cameras must be installed before scrutineering. They must not hinder the driver's visibility, exit or extraction in case of emergency.

### 4.7 GPS Units

1 x GPS unit/antenna connected to the Driver Display (Mandatory and in working condition)
1 x GPS unit/antenna connected to a Camera

### 4.8 Vehicle Control Unit´s

VCU:
Only the homologated VCU is allowed, with the single homologated software/firmware.

The torque demand to the inverter must come from the single homologated VCU.

Only the power distribution (PDM) supplied by EPWR is allowed, with the single homologated software.
Only the switch panels supplied by EPWR are allowed, with the single homologated software.
Only the driver display supplied by EPWR is allowed, with the single homologated software.

Maximum number of VCU: one (1).
Maximum number of PDM: one (1)
Maximum number of Keypad: two (2) (Steering wheel and console).
Maximum number of Dash Display: one (1).
Maximum number of VCCU: one (1) (DC Charging control unit).

During an event, the competitors must, for safety and control reasons, allow officially assigned technicians access to any electric control units on their request.

### 4.9 List of sensors

Only the homologated sensors listed below are allowed on the car and connected to the VCU and Display:

- Accelerator Pedal Position – number: two (2).
- Brake pressure – number: one (1) front and one (1) rear.
- Motor oil pressure – number: one (1).
- Motor oil temperature – number: one (1).
- Steering angle in steering rack – number: one (1).
- Wheel speed at front axle – number: two (2).
- GPS antenna – number: two (2).

The following sensors can be fitted to cars as option:
Wiring loom are prepared

- Ambient air temperature/pressure – number: one (1).
- Beacon/Lap marker – number: one (1).

Sensors that are mounted inside: RESS, Inverter, VCU, Display, are not listed.

### 4.10 List of actuators

Maximum the following homologated actuators can be fitted and controlled by VCU/PDM/CAN

- RESS Cooling fluid pump – number: one (1).
- Drivetrain coolant pump – number: one (1).
- Electric power steering unit – number: one (1).
- Drivetrain and RESS cooling fans – number: one (1).
- Defroster/driver cooling fan – number: one (1).
- Wiper motor – number: two (2).
- Windscreen washer pump – number: one (1).
- Horn – number: one (1).

### 4.11 Wiring Harness

The wiring harness supplied must be used in its entirety without modifications, also including CAN wiring,

.

## ART. 5 MINIMUM WEIGHT

The minimum weight of an EPWR Touring Car must be 1545kg including ballast that will be fitted on the floor underneath the driver as described in homologation form.

The weight of the car is measured with the driver on-board wearing his/her full personal racing apparel and with the fluids/parts remaining at the moment at which the measurement is taken.

## ART. 6 ELECTRIC MOTOR

### 6.1 General

The electric motor must not undergo any modifications compared to the homologated version.

### 6.2 Traction control

The use of traction control is forbidden. This includes any means to actively control the wheel slip.

### 6.3 Electric motor location

Location of the electric motor as homologation.

### 6.4 Electric motor supports

Support must not undergo any modifications compared to the homologated version.

### 6.5 Inverter

Only the homologated Inverter can be fitted in the car. The Inverter must not undergo any modifications compared to the homologated version.

### 6.6 Cooling system drivetrain/RESS

**Only the homologated components are allowed:**
2 x Radiator
2 x Coolant pump
2 x Header tank
1 x Cooling fan
Coolant lines can only pass through the cockpit and the boot if they comply with Art. 253-3.2.

Blanking of air inlets not allowed for cooling and brakes

Any spraying system onto the cooling radiator is prohibited while the car is outside the team's area.

### 6.7 Cooling pump´s/radiator´s location and fixing

Described in homologation form.
Type and photos including measurement of radiator.

### 6.8 Liquid cooling

Only the RESS supplier coolant fluid can be used in the RESS cooling system.

## ART. 7 TRANSMISSION

### 7.1 General

Only the homologated transmission can be fitted in the car.
The transmission must not undergo any modifications compared to the homologated version, unless such modifications are explicitly allowed by the present regulations or technical notes.

### 7.2 Transmission location

Location of the transmission as described in homologation form

### 7.3 Transmission Supports

Support must not undergo any modifications compared to the homologated version.

### 7.4 Differential

Only the kit homologated differential (spool) can be fitted to the car and must not undergo any modifications.

### 7.5 Transmission lubrication/cooling

Only the homologated oil pump inside of the speed reducer is allowed.
Only the homologated oil cooling system is allowed (Radiator, fan).

### 7.6 Transmission shafts

Only the homologated driveshaft and components between differential and wheels are allowed and may not undergo any modification.

## ART. 8 RECHARGEABLE ENERGY STORAGE SYSTEM (RESS)

### 8.1 General

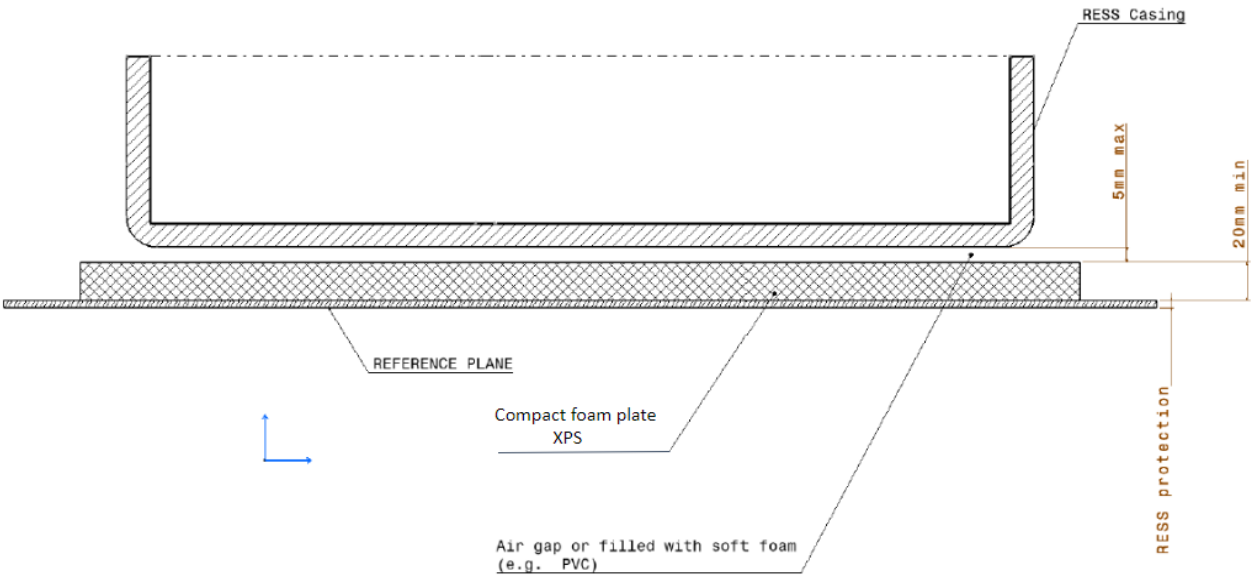
Only EPWR designated supplier's RESS can be fitted in the car. The RESS must not undergo any modifications compared to the homologated version, unless such modifications are explicitly allowed by the present regulations.

### 8.2 Design and installation

All fixing points of the RESS must be fixed to the RESS frame. The position of the RESS cannot be changed.

### 8.3 RESS Underbody Protection Plate Gap Filler

The gap between the entire floor surface of the RESS and the RESS protection plate must be filled with a compact foam made of expanded polystyrene XPS minimum thickness of 20 mm, in order to avoid big solid elements entering between the RESS protection plate and the RESS floor. The remaining gap between the compact foam plate and the RESS floor should never be more than 5 mm and can be filled up by further adding a soft foam (e.g. PVC foam).




### 8.4 Channels controlled by SBF

This information will be permanently monitored by a dedicated monitor unit under the SBF jurisdiction. Only the STCC/ Technical Delegate and/or SBF Technical Delegate can get access to monitored data.

The SBF data logger set on VCU will monitor:

- DC Voltage on bus
- DC current on power bus
- MGU Speed
- MGU Torque
- Driver torque demand
- Brake pressure Front and Rear
- Insulation resistance
- Hottest RESS Temperature
- Car Speed
- Front Wheels speed
- Lap Trigger (From GPS)

### 8.6 Conditioners (External to car)

No conditioner is allowed (Chiller or heater).
Only fans that are blowing ambient temperature air is allowed.
At extreme (hot) conditions the use of dry ice or any other cooling solution can be allowed in bulletin.

## ART.9 ELECTRICAL EQUIPMENT AND SAFETY PROVISIONS

**See Appendix 1**

### 9.1 MSD

The RESS has an MSD located on the top cover, when the MSD is in the on position the battery is able to function as normal. When the MSD is in the off position the HV is disconnected. Before working on any HV component the MSD should be switched to the off position and should be locked, this is to prevent accidentally switching the RESS on while HV components are exposed.

When the RESS is not being used, the MSD should be switched to the off position and locked.

### 9.2 RESS status light

All cars must be fitted with 4 (four) x RESS status lights which are supplied in the car without modifications.

- Is in working order throughout the event.

| Indicator | Status | Light | Pattern | Notes |
|---|---|---|---|---|
| RESS Status Lights | HV system safe | GREEN | Continuous light | Car can be touched |
| | HV system Danger or UNKNOWN | RED | Continuous light | DO NOT TOUCH THE CAR without protection gear |
| | HV system Initialization | RED | Flashing | HV System is being checked |
| | Light malfunction | OFF Mixed Lights | --- | DO NOT TOUCH THE CAR without protection gear |
| Thermal / Medical Lights | Deceleration below threshold | OFF | --- | |
| | Deceleration above threshold | BLUE | Continuous light | Driver may be injured car may be unsafe |
| | RESS Danger Overheat | Yellow | Flashing 300ms ON / 600ms OFF | Stop the Powertrain, monitor the RESS temperature carefully, run the RESS cooling system |
| | RESS Thermal Runaway | RED | Flashing 200ms ON / 200ms OFF | APPLY THERMAL RUNAWAY EMERGENCY PROCEDURE |
| Ready to Move Lights | Drive mode engaged | WHITE | Continuous light | Car ready to move forward or reverse, controlled by driver |
| | HV System ON | WHITE | Flashing 1s ON / 1s OFF | Powertrain HV bus powered Car not ready to move |
| | HV Charging System ON | WHITE | Flashing 200ms ON / 1800ms OFF | Charging HV bus powered RESS being charged |
| | All HV Systems OFF | OFF | --- | All HV busses unpowered |

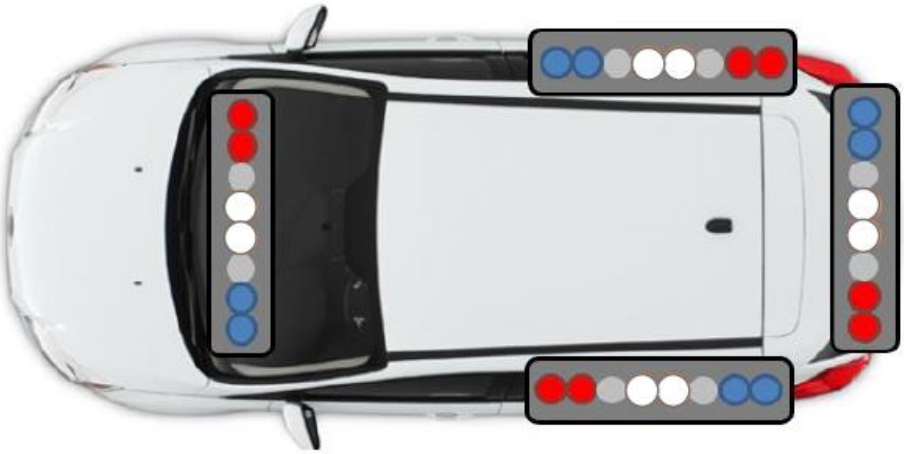
**Always pay attention to the safety lights status when approaching the vehicle**

**Never touch the vehicle without HV protection gear when RESS status light is RED (continuous or flashing)**

| CONTINUOUS GREEN | FLASHING RED | CONTINUOUS RED | GREEN & BLUE | RED & BLUE | NO EXTERNAL LIGHTS VISIBLE | GREEN & RED |
|---|---|---|---|---|---|---|
|  |  FLASHING |  |  |  |  |  |
| Vehicle High Voltage System is safe.<br>Normal operating procedures can be applied.<br>The vehicle is healthy | Vehicle electrical system is initiating.<br>Light will flash for ar. 5 seconds during power up.<br>High voltage system is being checked, vehicle is not yet confirmed to be safe. | Electrical system is not safe.<br>Some parts of the car may be live.<br>High voltage procedure must be applied.<br>The vehicle should be tested with the HV test equipment to confirm HV Status. | Vehicle electrical system is safe.<br>A high level of deceleration has been detected (>16g).<br>The vehicle will have attempted to open the HV contactors.<br>Normal operating procedures can be applied.<br>Medical staff will request that the Driver reports to the Medical Centre. | Electrical system is not safe and a high level of deceleration has been detected. Some parts of the car may be under HIGH VOLTAGE.<br>High voltage procedure must be applied.<br>The vehicle should be tested with the HV test equipment to confirm HV Status. The vehicle is unhealthy.<br>Medical staff will request that the Driver reports to the Medical Centre. | **Refer to Safety Lights on RESS if operational.**<br>If no Safety lights operational or visible, HV and medical status UNKNOWN.<br>Apply same procedures like if it were "RED & BLUE". Check for HV, vehicle and Driver Health. | Safety Lights Malfunction<br>Apply the same procedure as if all lights were RED.<br>Some parts of the car may be live.<br>High voltage procedure must be applied.<br>The vehicle should be tested with the HV test equipment to confirm HV Status. |

with each of the 4 (four) lights horizontally towards one of the four (4) sides of the car.

**Four (4) x Safety Lights on car**



### 9.3 Extinguishing Systems

Mounted in front of driver seat on the floor.
Specifications are laid down in Appendix J – Article 253 18.23.

### 9.4 DCDC

No DCDC-converter is allowed in the car.

### 9.5 AUXILIARY 12V BATTERY

**Number:** One (1).

**Type:** As homologation form.

**Location:**
The battery must be located outside the cockpit, in the front engine bay in the homologated position.

**Battery fixing**

The battery must be securely fixed and the positive terminal must be protected.
The battery must be attached to the body using a metal support and two metal clamps, fixed to the frame by nuts and bolts.
For attaching these clamps, metallic bolts with a diameter of at least 10 mm must be used.

## ART.10 SUSPENSION

### 10.1 GENERAL

No modifications to the homologated suspension parts are allowed.

Parts needs to meet specification according to the homologation form, weight, size.

### 10.2 SUBFRAMES FRONT AND REAR

Described in homologation form.

### 10.3 FRONT AND REAR ANTIROLL BAR SYSTEM

ARB blade with 3 (three) different options.
ARB Tubes with 3 (three) different stiffness 22x2, 25x3, 35x3.
ARB tubes front and rear are the same.
It is allowed to run the car with the anti-roll bar system disconnected.
One drop link disconnected or removed.

### 10.4 WISHBONES

Min weight 2400g.
Only camber shim thickness can be adjusted 0-37,5mm.
Max combination of camber shims is 37,5mm.
Wishbone Extremity Assy is only allowed to mount in its homologated position.

### 10.5 SHOCK ABSORBERS

No modifications to the Homologated dampers are allowed.
Upright height adjustment of ±10mm is allowed to modify bump and rebound travel.
Weight and dimensions as described in homologation form.
Front and Rear: EPWR413031

Exclusive supplier of shock absorbers is EPWR.

Service only allowed by EPWR designated company.

Up on request from SBF Technical delegate dampers can be taken on request and checked for conformity between two (2) events.

### 10.6 SHOCK ABSORBER TOP MOUNTS FRONT AND REAR

With three (3) different positions for the shock absorber end eye for adjustments.
Part number: Left 5FR412331C Right 5FR412332C.

### 10.7 SPRINGS

Spring preload adjustable on shock absorber seat.
Mainspring options:

| | |
|---|---|
| 5FR411105D | 200-60 - 0090 |
| 5FR411105E | 200-60 - 0100 |
| 5FR411105F | 200-60 - 0110 |

At car delivery 100/110
Helper spring:

| | |
|---|---|
| VN0020018100 | 60-60-002 |

Fabric covers on springs/shock absorber are allowed.

## ART.11 RUNNING GEAR

### 11. Wheels and Tyres

### 11.1 Wheels

- Dimensions of the four (4) wheels same
- Wheels maximum dimension are 10x18”
- Minimum weight 11,5kg
- Cast aluminum alloy
- Air extractors are forbidden
- Pressure control valves on the wheels are forbidden

Only rim 5FR6010251XZ is allowed (Color free).

Max 5mm wheel spacers are allowed on each side.

### 11.2 Spare wheels

Prohibited.

### 11.3 Brakes

Only the homologated brakes are allowed:
Caliper: 5FR615105/106
Disc: 5FR615301/302
Bell: 5FR615329
Pads: EPWR5069RC6

Type in homologation form.
Front and Rear same only differs left and right.
Front brake Homologated cooling.
See also Art 12.3.

### 11.4 Pedal box (Brake and Accelerator pedal)

Only the kit supplied pedal box CP5500-625UTS is allowed to use without modifications as in homologation form.
Master cylinder as homologation form.

### 11.5 Brake fluid tanks

Only the homologated fluid reservoir is allowed.

### 11.6 Braking system and circuit

**Regulator**
A rear brake pressure regulator limiter is allowed CP3550-13.
The adjustable brake proportional valve is Homologated and situated on the brake line of the rear brake circuit. Position in car free.

### 11.7 Steering column

Only the EPWR supplied steering column is allowed as in homologation form.
Quick release system for steering wheel is free.
Spacers 20-120mm on steering wheel hub to adjust driver position is allowed.

### 11.8 Steering system

Only the supplied steering rack is allowed without modifications as in homologation form.

## ART.12 BODYWORK - CHASSIS

**No modifications to the supplied chassis and bodywork, other than repair work, are allowed.**

### 12.1 Interior

### 12.2 Dashboard

Free.

### 12.4 Bodywork Exterior

Only the E-PWR AB supplied bodywork parts are allowed to be used without modifications.

It is not allowed to tape the joints or use self-made gaskets (foam, rubber, etc) between bodywork panels and parts. The hood´s and boot lid´s original positions may not be changed.

### 12.5 Bodyshell

No modifications to EPWR supplied body shells are allowed.

### 12.6 Underbody and underfloor protection

*Different weight protections provided by EPWR may be used to balance weight distribution between car models meaning that it can be aluminium, steel, plastic.*

**Front:**
Aluminium 3 mm.

**Center/RESS:**
Aluminium, 4 mm thickness.

Gap filling structure according to art 8.3 plate and RESS compulsory.

The entire RESS has to be covered and no modifications to EPWR supplied protection.

**Rear:**
Plastic min 2 mm thickness as supplied by EPWR.

Skid blocks in titanium on guards are allowed max diameter 50mm and max qty 6.

### 12.7 Glazing

**Windscreen**

The windscreen must be of laminated glass.
Tinted glass screens are only permitted if they are original for this car.
Windscreens which are damaged to such an extent that visibility is seriously impaired or that there is a likelihood of their breaking further during the competition will be rejected.
The addition of a maximum of six (6) protective transparent films on its external face is permitted.
A windscreen demister system is compulsory.
Heated windscreens are permitted.
Demister blower can only be mounted under the dashboard as per homologation.

**Side and rear windows**

Glass must be replaced with polycarbonate or PMMA ensuring the same transparency as the original glass (minimum thickness 3.8 mm).
A sliding window in the side windows of the driver's must be fitted. The opening must be a minimum of 130 mm x 130 mm and a maximum of 160 mm x 160 mm.
A frame may be added to the door if it is originally frameless.
No window lifts are allowed.

### 12.8 Windscreen wiper system, motor and mechanism

Homologated and functioning wiper system has to be in place.

### 12.9 Windscreen lower trim

A windscreen lower trim may be modified on the following conditions:
• Material: As series OEM part.
• The general shape of the series part must remain unchanged.
• It must be mounted on the original position.
• Additional fixings may be added for its mounting on the bodyshell.

### 12.10 Rear view

Only outside mirrors supplied by EPWR are allowed to use.
Inside rear view mirror free.
Mirrors Appendix J - Article 253-9.

### 12.11 Front bonnet

Material: Composite.
Outer surface shape unchanged from the original car. Inner surface shape free provided that it does not protrude from the outer surface more than 50 mm inwards. At least two safety fasteners must be fitted. Minimum number of fixing points to the bodyshell = four (4). The original locking mechanisms must be rendered inoperative or removed. Opening from the outside must be possible (without tools).

### 12.12 Boot lid/Tailgate

Material: Composite.
Outer surface shape unchanged from the original car. At least two safety fasteners must be fitted. Minimum number of fixing points to the bodyshell = four (4). The original locking mechanisms must be rendered inoperative or removed.

### 12.13 Doors

As supplied by EPWR.

Driver door filled with FIA 8866-2016 protection foam. Minimum weight as described in homologation form.

### 12.14 Front Doors inner trim panels

As supplied by EPWR.

### 12.15 Fenders

As supplied by EPWR.

### 12.16 Wheel housing liners

Material: Composite or softer materials authorised i.e. Polystone PE-HD/PE 300.

Metallic materials are not permitted.
However, the material must have a maximum thickness of 2.0 mm.

### 12.17 Front bumper and grill

As supplied by EPWR.

FIA 8857-2001 rollcage padding is allowed to be added to the bumper bar on the 40mm tube section to fill the gap between the bar and the bumper.

### 12.18 Rear bumper

As supplied by EPWR.

FIA 8857-2001 rollcage padding is allowed to be added to the bumper bar on the 40mm tube section to fill the gap between the bar and the bumper.

### 12.19 Roof panel

As supplied by EPWR.

### 12.20 Rear aerodynamic device

Only the homologated rear wing and end plates are allowed to use.
Position described in homologation form.

## ART.13 SAFETY

**See Appendix 1**

### 13.1 Safety Cage

Appendix J - Article 253.
No modifications or change of the supplied certified safety cage is allowed.

### 13.2 Seat and safety harness

Driver seat 8855-1999 and Safety Harness FIA 8853-2016, complying with FIA Appendix J Article 253-16. (8855-2021 and 8862-2009 seats are allowed with its homologated supports).
Anchorage points for fixing the seat supports: Accordingly to anchorage points for fixing seats in conformity with Appendix J Article 253 Drawing 253-65B.

### 13.2 Window nets

According to**:** Appendix J - Article 253 11.2.

### 13.3 Towing device

One (1) front and one (1) rear towing device is compulsory.
They must:
• Be clearly visible and marked in yellow, red or orange.
• Allow the passage of a cylinder with a diameter of 60 mm.
• Be a belt type, made from soft material.
• This towing-eye will only be used if the car can move freely.

### 13.4 External lights

Are removed,
The external shape and contour of the headlights and lights (part swept by the airstream) must be identical to those of the production car's lights.

**Rear lights**
Each car must be fitted with two (2) rear light, two (2) brake lights, L+R Indicator, in a combined light as in homologation form. (WAS 410).

### 13.5 Horn

A homologated horn is mandatory for paddock safety.
The noise level produced by the horn must be greater than or equal to 95dB during at least three (3) seconds, measured seven (7) m in front of the vehicle.

## Appendix 1 - List of applicable FIA regulations articles

**Art. 253**

| | |
|---|---|
| 1 | 18.7 a-d |
| 3.1 | 18.8 a-b |
| 3.2 | 18.9 |
| 4 | 18.10 |
| 5 | 18.11 |
| 6 | 18.12 |
| 7.2.2 | 18.13 |
| 7.2.3 | 18.15 |
| 7.2.4 | 18.16 |
| 7.2.5 | 18.17 a-d |
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| 10 | 18.19 |
| 11.2 | 18.20 b-c |
| 16 | 18.20 e-f |
| 17 | 18.20 j |
| 18.1 a-e | 18.22 a |
| 18.2 | 18.22 c-e |
| 18.4.1 d-j | 18.22 i-j |
| 18.4.2 | 18.23 |
| 18.4.4.1 | |
| 18.4.4.2 a-fj | |
| 18.5 | |



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