

# 2017 TECHNICAL REGULATIONS

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Series:

## IMSA PROTOTYPE CHALLENGE

Presented by Mazda



Class:

## MAZDA PROTOTYPE CHALLENGE



Sanctioned by:

## INTERNATIONAL MOTOR SPORTS ASSOCIATION

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## ARTICLE 1. DEFINITIONS SPECIFIC TO THE TECHNICAL REGULATIONS

- 1.1.1. **Car** means a singular representation of a Car Model possessing a Technical Credential, entered by an Entrant in an Event.
- 1.1.2. **Car Model** means a specific model of a vehicle constructed by an IMSA-recognized Manufacturer Partner, and intended for Competition.
- 1.1.3. **Class** means a category for Cars sharing a common set of Homologation Regulations and differentiated from others by type of Car Model.
- 1.1.4. **Competition** means a contest of competitive nature in which a Car takes part during an Event and results of which Competition are published.
- 1.1.5. **Constructor** means an entity that designs and builds race car chassis.
- 1.1.6. **Entrant** means an entity or person who has entered a Car that has been accepted for Competition and holds an IMSA Membership in the capacity of an Entrant or Entrant/Driver.
- 1.1.7. **Event** means an IMSA Sanctioned motorsport activity. It includes the designated Race as well as all periods for registration, inspections, practice Sessions, qualifying Sessions, racing, pre- and post-Race activities and inspections, and rain or postponed dates related thereto.
- 1.1.8. **Homologate** means to execute the Homologation Process.
- 1.1.9. **Homologated** means a Car Model approved through the Homologation Process.
- 1.1.10. **Homologation** means the concept of all things associated with Homologation Authority approval via the Homologation Process.
- 1.1.11. **Homologation Authority** means an entity with the authority to Homologate.
- 1.1.12. **Homologation Documentation** means all files, documents, information, and communication associated with the issuance of official approval of Homologation.
- 1.1.13. **Homologation Identifier** means the unique identifier (generally including a string of characters identifying the Category or Class of Homologation followed by a sequential number assigned to the Car Model) serving as a reference to the official approval of Homologation, assigned by the Homologation Authority.
- 1.1.14. **Homologation Process** means all procedures associated with petitioning a Homologation Authority for approval that a Car Model complies with the Homologation Regulations.
- 1.1.15. **Homologation Regulations** means a set of technical requirements and criteria used to design, construct, and document a Car Model intended for racing in a specific category or class of racing.
- 1.1.16. **Manufacturer** means a Manufacturer Partner constructing an approved Car Model.
- 1.1.17. **Manufacturer Partner** means a recognized IMSA Official Automotive Partner.
- 1.1.18. **Permissive** means modifications explicitly authorized by these Technical Regulations are permitted and modifications not explicitly authorized by these Technical Regulations are prohibited.
- 1.1.19. **Specification** means all technical characteristics of the Car Model defined by the Homologation and Technical Credential.
- 1.1.20. **Specific Homologation** means the Homologation specific to a particular Car Model.
- 1.1.21. **Specific Technical Credential** means the Technical Credential specific to a particular Car Model.
- 1.1.22. **Technical Credential** means the concept of all things associated with IMSA approval via the Technical Credential Process.
- 1.1.23. **Technical Credential Documentation** means all files, documents, information, and communication associated with the Technical Credential Process.
- 1.1.24. **Technical Credential Identifier** means the unique identifier that serves as a reference to the Technical Credential granted by the IMSA. Example: IMSA GTLM 20170101 [GTE-0XX].

- 1.1.25. **Technical Credential Process** means all procedures associated with petitioning IMSA for approval that a Car Model is Technically Eligible.
- 1.1.26. **Technical Eligibility Form** means the form which documents the Specific Technical Credential.
- 1.1.27. **Technically Eligible** means conforms to all technical requirements and criteria defined by these Technical Regulations.

## ARTICLE 2. TECHNICAL PHILOSOPHY

### 2.1. Technical Eligibility

- 2.1.1. Car Models Technically Eligible for participation in IMSA Events are issued a Technical Credential Identifier.
- 2.1.2. Cars representing a Car Model must always respect the Specification.
- 2.1.3. To be issued a Technical Credential Identifier for participation in this Class, a Car Model must:
  - a. Be a Car Model constructed by an IMSA-recognized Manufacturer Partner.
  - b. Hold a valid Homologation conforming to the Homologation Regulations and Homologation Documentation specific to the Class, approved and issued by an IMSA-recognized Homologation Authority.
  - c. Successfully complete the IMSA Technical Credential Process.
- 2.1.4. IMSA is the sole authority to define the Technical Eligibility of a Car Model and issue the Technical Credential.

### 2.2. Balance of Performance Adjustment

- 2.2.1. To maintain competitive equivalency between Cars within the Class, and between Classes, IMSA uses the Balance of Performance process to mandate adjustments to the Specification.

### 2.3. Changes

- 2.3.1. Changes to the Specification are prohibited, unless explicitly authorized by IMSA.
- 2.3.2. Manufacturers alone must petition IMSA to change the Specification; requests by Entrants are not recognized.

## ARTICLE 3. USING THESE TECHNICAL REGULATIONS

### 3.1. Structure

- 3.1.1. These Technical Regulations are structured to assist Manufacturers and Entrants in accurate interpretation of the technical expectations and enforcement of the IMSA Technical Philosophy.
  - a. A brief description of each Article and its purpose follows:

Article / Name	Description / Purpose
1. Definitions Specific to the Technical Regulations	Standardized meanings for specific terms of these Technical Regulations.
2. Technical Philosophy	Guiding principles for these Technical Regulations.
3. Using These Technical Regulations	General structure, purpose, and clarifying statements for these Technical Regulations.
4. Homologation	Pertinent topics related to Homologation.
5. Technical Eligibility	Pertinent topics related to Technical Eligibility.
6. Balance of Performance	General processes associated with competitive equivalency.
7. Safety	Regulatory requirements associated with mandatory safety systems.
8. Definition of Class	Statement of specific Class, Homologation, and Technical Eligibility requirements.
9. Series Required Electronics	Regulatory requirements associated with mandatory electronic systems.
10. Vehicle Systems	Approved modifications to the Homologation component of the Car Model Specification.
11. Refueling System	Regulatory requirements associated with specified refueling system.

### 3.2. Conflict Resolution

- 3.2.1. These IMSA Technical Regulations shall govern in any case where a conflict exists with the Homologation Regulations and Documentation.

### 3.3. Final Authority

- 3.3.1. IMSA is the Final Authority with respect to these Technical Regulations.

## ARTICLE 4. HOMOLOGATION

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### 4.1. Homologation Regulations

- 4.1.1. Reference to the official Homologation Regulations defining the requirements applicable to these Technical Regulations is provided in 0. DEFINITION OF CLASS.

### 4.2. Homologation Process

- 4.2.1. The procedures of the Homologation Process are used to verify that the Car Model meets the necessary requirements and criteria defined by the official set of Homologation Regulations.
- 4.2.2. This process generally includes the following components or phases, which must be completed to the satisfaction of the Homologation Authority:
- a. Homologation Files and Documentation
  - b. Homologation Inspection
  - c. Homologation Testing
  - d. Final Approval
  - e. Identification Assignment
- 4.2.3. Homologation Process fees may apply.

### 4.3. Homologation Files and Documentation

- 4.3.1. All files and documents required by the Homologation Authority to support the Homologation Process; including but not limited to:
- a. Basic Homologation Form
  - b. Homologation Extension Form(s)
  - c. Data Sheet(s)
  - d. CAD Models and Drawings
  - e. Logged Vehicle Data
  - f. Homologation Testing Data
- 4.3.2. Basic Homologation Form: Documents how the Car Model complies with the Homologation Regulations; including photographs, drawings, descriptions, and measurements defining the characteristics, components, parameters, and/or dimensions and tolerances for:
- a. General Vehicle
  - b. Specific Vehicle Systems
  - c. System Assemblies, Parts and Components
  - d. Modifications to the Original Series Production Car (if applicable)
- 4.3.3. Homologation Extension Forms: Describe all approved modifications made to the Basic Homologation Form, including but not limited to modifications for:
- a. Correction of incorrect information
  - b. Safety reasons
  - c. Reliability reasons
  - d. Evolutions of type introduced on the original Car Model (if applicable)
  - e. Evolutions for new components and/or characteristics that cancel and replace those featured in the original Basic Homologation Form
  - f. Variant options, such as endurance packages

- 4.3.4. CAD Models and Drawings: As required by the Homologation Authority to support the Homologation Process; including but not limited to:
  - a. Complete Vehicle CAD Models
  - b. Specific Component CAD Models
  - c. Specific Component Drawings
  - d. Engine Air Intake Restrictor(s)
- 4.3.5. Homologation Testing Data: Information, documentation, data, and results from Homologation Testing.

#### 4.4. Homologation Inspection

- 4.4.1. The inspection process for drawings, CAD models, any reference component, and the constructed Car Model by the Homologation Authority.
  - a. These inspections confirm that a Car Model complies with the Homologation Regulations and are generally conducted as part of the following phases of the Homologation Process:
    - i. Design
    - ii. Construction
    - iii. Final Approval

#### 4.5. Homologation Testing

- 4.5.1. Any testing conducted by the Homologation Authority to support the Homologation Process; including, but not limited to:
  - a. Straight-line Testing
  - b. Wind Tunnel Testing
  - c. Engine Dyno Testing
  - d. Track Testing

#### 4.6. Homologation Identifier

- 4.6.1. The Homologation Identifier is electronically stamped/associated with all information, documentation and files associated with the Homologation.

#### 4.7. Conditions for Use of a Specific Homologation

- 4.7.1. At all times during IMSA-sanctioned Events it is the Entrant's responsibility to ensure the configuration of the Car Model represents the Homologation components of the Specification; including:
  - a. As-Homologated Configuration
  - b. As-Delivered Configuration
  - c. Parts Manual
  - d. Homologation Extension Form Configuration
- 4.7.2. The original, As-Homologated Configuration of the Car Model must not be modified unless permitted by these Technical Regulations.
- 4.7.3. The As-Delivered Configuration of a Car must respect the as-received configuration from the Car Model Manufacturer, unless permitted by these Technical Regulations.
- 4.7.4. The Parts Manual is the official parts catalogue for the Car Model as defined by the Car Model Manufacturer or Constructor:
  - a. Specific parts listed in the Parts Manual must be used on all representations of a Car Model unless permitted by these Technical Regulations.
- 4.7.5. To be eligible for use in any IMSA-sanctioned Event, modifications detailed in Homologation Extension Forms must:
  - a. Comply with these Technical Regulations.
  - b. Be approved by, or have initiated the process to obtain approval from, the Homologation Authority, and appended to the Car Model Homologation.
  - c. Be approved by IMSA.

## ARTICLE 5. TECHNICAL ELIGIBILITY

### 5.1. Technical Credential Process

- 5.1.1. Manufacturers may begin the Technical Credential Process for a Car Model provided the Car Model:
  - a. Holds, or have initiated the process to obtain approval from, a valid Homologation as defined in these Technical Regulations.
  - b. Is approved by IMSA.
- 5.1.2. The procedures of the Technical Credential Process are used to verify that the Car Model meets the necessary requirements and criteria defined by these Technical Regulations.
- 5.1.3. This process generally includes the following components or phases, which must be completed to the satisfaction of IMSA:
  - a. Technical Credential Files and Documentation
  - b. Technical Eligibility Testing
  - c. Final Approval
  - d. Identification Assignment
- 5.1.4. IMSA may request Manufacturers submit reference components to support the Technical Credential process.
  - a. IMSA may retain these components without compensation.
- 5.1.5. IMSA may request Manufacturers submit reference tooling and/or templates to support the Technical Inspection process.
- 5.1.6. Technical Credential fees may apply.

### 5.2. Technical Credential Files and Documentation

- 5.2.1. All files and documents required by IMSA to support the Technical Credential Process; including but not limited to:
  - a. Technical Eligibility Form
  - b. Data Sheet(s)
  - c. CAD Models and Drawings
  - d. Logged Vehicle Data
  - e. Electronic Controller Calibrations
  - f. Technical Eligibility Testing Data
- 5.2.2. Technical Eligibility Form: Documents how the Car Model complies these Technical Regulations; including:
  - a. List of all files and documentation associated with the Specific Homologation of the Car Model
  - b. List of all files and documentation associated with the Specific Technical Credential of the Car Model
  - c. All approved IMSA-Only Declarations
- 5.2.3. CAD Models and Drawings: As required by IMSA to support the Technical Credential Process; including but not limited to:
  - a. Complete Vehicle CAD Models
  - b. Specific Component CAD Models
  - c. Specific Component Drawings
  - d. Additional components requested by IMSA
- 5.2.4. Technical Eligibility Testing Data: Information, documentation, data, and results from Technical Eligibility Testing.

### 5.3. Technical Eligibility Testing

- 5.3.1. Any testing conducted by IMSA to support the Technical Credential Process; including, but not limited to:
  - a. Restrictor Flow
  - b. Engine Dyno
  - c. Wind Tunnel
  - d. On-track Testing
  - e. Refueling Testing

#### 5.4. Technical Credential Identifier

- 5.4.1. The Technical Credential Identifier is electronically stamped/associated with all information, documentation and files associated with the Technical Credential.

#### 5.5. Conditions for Use of Specific Technical Credential

- 5.5.1. At all times during IMSA-sanctioned Events it is the Entrant's responsibility to ensure the configuration of the Car Model represents the approved Technical Credential components of the Specification.

### ARTICLE 6. BALANCE OF PERFORMANCE

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#### 6.1. Balance of Performance

- 6.1.1. IMSA may, at its discretion, utilize an adjustment method to maintain competitive equivalency between Cars within each Class, and between Classes.
- 6.1.2. All decisions by IMSA regarding Balance of Performance are Conclusive and not subject to protest or appeal.
- 6.1.3. Providing false or intentionally misleading information is a breach of these Technical Regulations.

#### 6.2. Criteria for Adjustments

- 6.2.1. Performance is evaluated using observed performance data; including, but not limited to, the IMSA Scrutineering data logger and official Timing and Scoring.
- a. IMSA may omit from consideration any data not indicative of the established performance of the Car Model.

#### 6.3. Adjustment Parameters

- 6.3.1. The following adjustments may apply:
- a. Minimum mass
- b. Engine restrictor and/or boost ratio change
- c. Maximum fuel cell capacity
- d. Assigned refueling restrictor diameter
- e. Aerodynamic elements and/or settings
- f. Other parameters as designated by IMSA

#### 6.4. Release of Adjustments

- 6.4.1. IMSA may release Balance of Performance adjustments at any time during the season.
- 6.4.2. All adjustments take effect seven (7) days after publication except in the case of Events on consecutive weekends.



## ARTICLE 7. SAFETY

### 7.1. Driver Safety Harness System

- 7.1.1. Cars must be equipped with a minimum 6-point Driver safety harness with a valid label demonstrating compliance with one of the following standards:
  - a. FIA Standard 8853/98: FIA Safety Harnesses Standard
    - i. [FIA Technical List #24](#): Harnesses Homologated by the FIA according to the FIA Standards 8853/98 and 8854/98
  - b. FIA Standard 8853-2016: Safety Harnesses
    - i. [FIA Technical List #57](#): Harnesses Homologated according to the FIA Standard 8853-2016
  - c. SFI Specification 16.5: Stock Car Driver Restraint Assemblies
    - i. [Specification](#)
    - ii. [Manufacturers](#)
  - d. SFI Specification 16.6: Advanced Motorsport Driver Restraint Assemblies
    - i. [Specification](#)
    - ii. [Manufacturers](#)
- 7.1.2. Installation must be performed in accordance with instructions provided by the system supplier and/or manufacturer.
  - a. Belt components must be installed at each anchor point to prevent accidental release or opening.
  - b. Individual belt straps must be independent; any method or attempt to combine individual straps is prohibited.
  - c. Elastic retention straps are prohibited.
- 7.1.3. Harnesses must be replaced at the request of IMSA, or whenever the following conditions occur:
  - a. Expiration:
    - i. FIA Homologated: Immediately following December 31<sup>st</sup> of the year printed on the label.
    - ii. SFI Certified: Immediately following December 31<sup>st</sup> two (2) years after the year of Manufacture.
  - b. Damage:
    - i. Following a severe collision.
    - ii. Webbing is cut or frayed, or weakened due to actions of chemicals or sunlight.
    - iii. Buckles are bent, deformed, rusted, or improperly functioning.
- 7.1.4. Entrants are responsible for ensuring the Driver safety harnesses and all associated components are properly labeled, installed, used, and maintained.

### 7.2. Not Applicable

### 7.3. Not Applicable

### 7.4. Protective Padding

- 7.4.1. Cars must be equipped with non-flammable protective padding with a valid label demonstrating compliance with one of the following standards:
  - a. FIA Standard 8857-2001: FIA Roll Cage Padding Standard
    - i. [FIA Technical List #23](#): Roll Cage Padding Homologated by the FIA
  - b. SFI Specification 45.1: Roll Cage Padding
    - i. [Specification](#)
    - ii. [Manufacturers](#)
- 7.4.2. Installation requirements:
  - a. Padding must be located to protect the Driver (body and/or helmet) against direct contact with the safety cage in a collision.
  - b. Protective padding must be securely affixed to prevent rolling or displacement.

## 7.5. Protective Shielding

- 7.5.1. Cars may be equipped with shielding to protect the Driver against contact with cockpit equipment in a collision.
- 7.5.2. Installation requirements:
  - a. Installations must not impact cockpit exit.
  - b. Installations must be approved by IMSA.

## 7.6. Master Electrical Switches

- 7.6.1. Cars must be equipped with interior and exterior master electrical switches.
- 7.6.2. Master electrical switches must be spark-proof, and when activated must:
  - i. De-energize all electrical circuits.
  - ii. Stop the engine.
- 7.6.3. The interior master switch must be installed within the cockpit, and located so the driver may activate the switch when seated in a normal position with safety belts fastened and steering wheel in place.
- 7.6.4. The exterior master switch must be installed in the Homologated location, on the right side of the engine cover near the rollover hoop.
  - a. Exterior master switch be located such that emergency responders may activate with a single action:
    - i. Using a gloved finger, or tools such as a hook.
    - ii. Unencumbered by bodywork, windscreen wipers, or any equipment that may require multiple actions.
  - b. A method for preventing activation of the exterior master switch:
    - i. May be enabled when the Car is in Technical Inspection, in the Paddock, or located near large crowds, such as during pre-Race activities.
    - ii. Must be removed prior to participation in on-track activity.
- 7.6.5. Interior and exterior master switches must be clearly identified by a self-reflective symbol of a red spark surrounded by a white-edged, blue triangle with a base greater than 30 mm.
- 7.6.6. Starting System
  - a. It must be possible for the Driver to start the engine at any time, seated normally with seat belts fastened without any assistance.
- 7.6.7. Battery (ies)
  - a. Batteries must be located in the side pod area and must be secured and protected inside a box of insulating material. Gel filled batteries are not required to be enclosed by a protective box.

## 7.7. Fire Suppression System

- 7.7.1. Cars must be equipped with a fire extinguisher system with a valid label demonstrating compliance with one of the following standards:
  - a. FIA Standard for plumbed-in Fire Extinguisher Systems in Competition Cars (1999):
    - i. [FIA Technical List #16](#): Extinguisher Systems Homologated by the FIA
  - b. FIA Standard 8865-2015: Plumbed-in and Hand-Held Fire Extinguisher Systems
    - i. [FIA Technical List #52](#): Plumbed-in Fire Extinguisher Systems according to FIA Standard 8865-2015
  - c. SFI Specification 17.1: On Board Fire Suppression Systems
    - i. [Specification](#)
    - ii. [Manufacturers](#)

System must provide adequate fire protection for the driver's compartment, engine and fuel cell.
- 7.7.2. Extinguishing media must be compatible with all aspects and accessories of the fire suppression system.

- a. IMSA recommends voluntary compliance with FIA 8865-2016.
  - i. Mandatory compliance with FIA 8865-2016 is anticipated for 2018.
- b. All system components must be used and serviced per manufacturer specifications.
- 7.7.3. System must be securely mounted.
  - a. Nozzles must not point directly at the Driver's face.
- 7.7.4. System must include an activation mechanism proximal to the exterior master electrical switch or in the Homologated location on the dash.
  - a. Exterior activation mechanism must be located such that emergency responders may activate with a single action:
    - i. Using a gloved finger, or tools such as a hook.
    - ii. Unencumbered by bodywork, windshield wipers, or any equipment that may require multiple actions.
  - b. A method for preventing activation of the exterior activation mechanism:
    - i. May be enabled when the Car is in Technical Inspection, in the Paddock, or located near large crowds, such as during pre-Race activities.
    - ii. Must be removed prior to participation in on-track activity.
- 7.7.5. Identification
  - a. Exterior activation mechanism must be marked with a self-reflective symbol with a red edge surrounding a red "E" inside a white circle at least 100 mm in diameter.
- 7.7.6. Inspection
  - a. IMSA may require removal of the fire bottle for Technical Inspection.
  - b. Entrant is responsible to demonstrate proper system function of the interior and exterior fire suppression activation mechanisms, using the "test" mode if present.

## 7.8. Survival Cell and Frontal Protection

- 7.8.1. Each survival cell has an identification plate stamped with part and chassis numbers that must not be altered, removed or replaced.
- 7.8.2. Drilling and/or additional holes in the survival cell are prohibited without written permission from IMSA.
- 7.8.3. Only Élan Composites is authorized to perform service and/or repair of the survival cell.

## 7.9. Rollover Structures:

- 7.9.1. With the Driver seated normally with the safety belts fastened, the helmet must be at a minimum, 80mm below a line drawn between the top of the front and rear rollover structures.
- 7.9.2. As viewed from the front, the steering wheel, whatever its position, must not protrude above the front rollover structure.

DEFINITION OF CLASS

**7.10. Mazda Prototype Challenge (MPC)**

- 7.10.1. Class Structure: Mazda Prototype Challenge Cars compete in the MPC Class of the IMSA Prototype Challenge By Mazda.
- 7.10.2. Eligibility Requirements: To be eligible for participation in the Class, a Car Model must respect the Specification defined by the Homologation and Technical Eligibility requirements:
  - a. [20161221] Homologation:

<b>Homologation Authority:</b>	International Motorsports Sports Association
<b>Homologation Specification:</b>	IMSA Mazda Prototype Lites
<b>Homologation Regulations:</b>	IMSA Homologation for Mazda Prototype Lites
<b>Additional Documentation:</b>	

**ARTICLE 8. VEHICLE SYSTEMS**

**8.1. General**

- 8.1.1. All Vehicle Systems and associated sub-systems are listed in this Article.
  - a. Where change to these Vehicle Systems is permitted, regulatory text is **bold and underlined**.
  - b. Where change to these Vehicle Systems is prohibited, regulatory text is light grey.
  - c. Advisory statements are in normal text.

**8.2. Modifications to the Specification**

- 8.2.1. Entrants may execute the following changes to parameters defined by the Homologation component of the Car Model Specification, provided these Technical Regulations, all current Technical Bulletins, and the Technical Credential are fully respected:
  - a. Adjust component settings defined as adjustable.
  - b. Replace components with parts defined as optional.
- 8.2.2. Manufacturers must make any declarations listed in these Technical Regulations in the Technical Eligibility Form.
- 8.2.3. Further authorization to modify the Specification and/or As-Delivered Condition is granted via the following formal communication methods:
  - a. Published IMSA Technical Bulletin
  - b. Approved updates to the IMSA Technical Eligibility Form
- 8.2.4. Informal and/or verbal communication is not considered valid authorization.

**8.3. Servicing, Repair, and Replacement**

- 8.3.1. All servicing or repair must be made in good faith to restore the Car and all components to their originally intended form and function as defined by the Specification.
- 8.3.2. Entrants may replace damaged or worn components provided these Technical Regulations are respected.

**8.4. Dimensions**

- 8.4.1. General
- 8.4.2. Reference Surface
  - a. The reference surface is considered the flat, continuous, rigid underside of the floor, underneath the Car. It is an integral part of the main structure/survival cell.
  - b. The underside of the reference surface will serve as the reference plane for all vertical measurements.
  - c. All measurements must be made while the Car is stationary on a flat horizontal surface. (The plane of the Technical Inspection surface plate.)
- 8.4.3. Dimensions

- a. Except what is permitted in these Regulations, inside and outside measurements (length, width, overhangs, wheelbase etc.) and the general shape of the bodywork elements must be maintained as per the Homologation.

#### 8.4.4. Wheel Center Line:

- a. The center line of any wheel is deemed to be halfway between two straight edges, perpendicular to the surface on which the car rests, placed against opposite sides of the complete wheel at the center of the tire tread.

#### 8.4.5. Weight

- a. The Minimum Weight of the Car, with Driver properly attired and with no fuel on board, must be complied with at all times. Drivers must be present at the Car's Scrutineering appointment to be weighed in their required racing equipment. It may be required to pump the fuel out of the fuel cell at any time.
  - i. Minimum Weight= 668 kg (1470 lb.).
- b. IMSA scales are the official scale of measurement.

#### 8.4.6. Ballast

- a. Ballast may be used, provided it is secured in such a way that tools are required for its removal and it must be possible to affix seals. It must be secured to the main chassis structure or affixed directly to the upper surface of the aluminum engine bay floor with minimum 5/16" diameter bolts. Movable ballast is prohibited.
  - i. Refer to Elan Technical Bulletin TB0016-2007 for ballast mounting.
  - ii. Replacing any part of the car during the Race with a part that is materially heavier is prohibited.
  - iii. No weight may be removed from the Homologated structure of the Car and replaced as ballast.
  - iv. IMSA will work with the Constructors to determine the best competitive balance for the series. However, IMSA may, at its absolute discretion, determine an additional or lower weight that must be carried on each class of Car.

8.4.7. Not Applicable

8.4.8. Not Applicable

### 8.5. Chassis

#### 8.5.1. General

- a. **Entrants may execute minimum modifications for the installation of components.**
  - i. All modifications must be approved by IMSA.

### 8.6. Driver Interface

#### 8.6.1. General

#### 8.6.2. Steering Wheel

- a. Steering wheel quick-release system is mandatory.
- b. Subject to IMSA approval.

### 8.7. Bodywork

8.7.1. All bodywork must remain as homologated and alternate parts (except as provided for herein) or unauthorized modifications are prohibited.

- a. Cars must fit nose (part# DP02-30-044) equipped with front tow eye.
- b. Towing eyes must be easily identifiable and painted red.
- c. Must not be wider than the forward part of the front wheel arches.
- d. Only four (4) cables OR 7/16" OD tubing stays are permitted to secure the front splitter. The stays may be attached anywhere on the front splitter except that two (2) must be on each side.

#### 8.7.2. Rear Deck

- a. The rear deck opening, if open, must have only a NACA duct fitted and must not have a hose for engine compartment cooling. Air may only go in, not pulled out from the duct.
- b. Only part #'s DP02-40-017 / 018 or flat panels part #'s DP02-40-019 / 020 must be used on the top of the rear fender cut-out.

- c. Only part #'s DP02-40-011 / 012 or flat panels part #'s DP02-40-013 / 014 must be used in the top of the front fender cut-out.

#### 8.7.3. Rear Inner Fender

- a. Optional left (part # DP02-93-109) and right (part # DP02-93-110) rear inner fender screens permitted for Carbon Tunnel Floors to help reduce temperatures in the engine compartment.

#### 8.7.4. Air Inlet

- a. Air Inlet Blanking Panel (part # DP02-40-047) may be used in the front opening to help raise the coolant temperatures. It is permitted to trim the panel using the scribe line.
- b. The opening dimensions are 1" high by 13" wide.
- c. The opening shall be centered symmetrically in the panel. The maximum area must be a contiguous, generally rectangular shape.
- d. Under no circumstances is the Air Inlet Blanking Panel shape or position to be modified. Tape is prohibited anywhere on this panel or on the front of the car.

#### 8.7.5. Underside / Floor / Diffuser

- a. Ground clearance; No sprung part of the Car is permitted to be lower than the reference surface, except a fuel cell overflow pipe and the mandatory skid block (skid).
- b. Skid block must:
  - i- Have the same profile shape as the reference surface and must be affixed underneath the reference surface.
  - ii- Extend longitudinally at a minimum from the front edge of the reference surface to fixings attached to the transmission spacer (bell housing).
  - iii- Have a minimum uniform thickness of 6 mm. Maximum wear of 2 mm is permitted at the end of practices or qualifying and at the beginning of the Race.
  - iv- Have no holes or cut outs other than those to fit fasteners and as inspection holes for measuring thickness and / or to gain access to the reference surface.
  - v- Be wood.
  - vi- Be fixed symmetrically about the centerline of the car.
  - vii- Be a maximum of two (2) parts.
  - viii- Viewed from below, fasteners attaching the skid to the reference surface must be fitted so that the entire lower surfaces are visible from beneath the Car and are flush with the lower surface of the skid when new (eg: flat head screws).

#### c. Tunnel Floor

- i. Must use the complete Homologated Tunnel Floor part #'s DP02-40-048 Rear Diffuser, DP02-40-049 LH Tunnel Floor and DP02-40-050 RH Tunnel Floor. It is permitted to cut the lower rear section on the Left and Right hand tunnel floor to provide an opening for servicing the engine and transmission.
- ii. An optional front skid plate (part # DP02-40-075) and optional capping strips are available for the inboard (part # DP02-40-074) and outboard (part # DP02-40-073) leading edge of the tunnel floors.
- iii. One (1) additional cable stay may be added to the Carbon Tunnel Floors from the tub to an area near each radiator on both sides for extra support.

#### 8.7.6. Three - Piece Tail:

- a. The use of the three-piece tail per Elan Technical Bulletin TB0041-2012 is permitted.

### 8.8. [P] Aerodynamic Elements

#### 8.8.1. General

#### 8.8.2. Splitter

#### 8.8.3. Dive Planes

- a. Part # DP02-40-045 / 046 may be installed on the front fenders, refer to Elan Motorsports Technical Bulletin TB0013-2007. Dive planes must be 15 degrees +/- 5 degrees, zeroed from the reference surface.

#### 8.8.4. Wings

- a. The rear wing angle must be -1.0 degrees to + 9.0 degrees as measured from the reference surface. The angle is measured on the rear wing, with or without the gurney flap.

#### 8.8.5. Rear Wing Gurney

- a. A maximum 13mm high gurney (wicker) may be installed on the upper surface of the wing at the trailing edge. The gurney must be 90 degrees to the mounting surface and the height must remain constant across the entire width of the component span. Saw tooth or tapered gurneys are prohibited.

#### 8.8.6. Floor

- a. As per Technical Bulletin.

#### 8.8.7. Friction Blocks

- a. As per Technical Bulletin.

#### 8.8.8. Diffuser

- a. As per Technical Bulletin.

### 8.9. Engine System

#### 8.9.1. General

- 8.9.2. Replacement of the engine block must be reported immediately to the Technical Manager in writing. If the engine block is changed following Qualifying, the Race Director may require that the Car must start the Race from the back of the grid.

#### 8.9.3. Sealing of the Engine.

- a. The Entrant is responsible for the completeness and integrity of the seals. The seals may be checked during Scrutineering and at any other time.
- b. Only the official engine service technician or IMSA are permitted to break the seals.
- c. If the seals(s) are broken by anyone else, the engine must be rebuilt. This rebuild is performed at the cost of the Entrant.
- d. Only maintenance work not entailing damage to the seals may be carried out on the engine.
- e. Consumables / wear components on the engine (e.g. spark plugs) must only be replaced by components from the approved replacement list as provided in the engine technical manual.
- f. Any engine rebuild must be performed only by the approved engine service partner.
  - i. Elite Engines is the only service partner for engine supply and engine service for the MPC cars in the Championship. The MPC Class 2.0L MZR Engine is prepared and sealed by Elite Engines. No other engine builder is authorized to provide engines to MPC cars.
  - ii. Previously sealed engines that still have usable hours may be utilized under the following conditions.
    - (i) Engine Seal number from the top valve cover must be communicated to Elite Engines on or before Friday, February 24, 2017, by e-mail; Steve Knapp ([Eliteengines@outlook.com](mailto:Eliteengines@outlook.com))
    - (ii) Each engine must be presented to Elite Engines at the first sanctioned event (test or race) in which the Entrant competes. Elite Engines will validate the seal numbers and then re-seal the engine with new Elite Seals.
    - (iii) Each Entrant understands that this is a courtesy offered by Elite Engines and the installation of said seals in no way obligates Elite Engines to Warranty the engine being sealed for 2017 Competition.

### 8.10. Exhaust System

- 8.10.1. The maximum permitted noise value is 108 dB(A) measured on either side of the Car, 3 ft. above the ground and 50 ft. laterally from the longitudinal center line of the Car, at any RPM.
  - a. It is permitted to fabricate brackets for the exhaust, subject to IMSA approval.
  - b. The engine must not produce visible exhaust emissions under Race conditions.
- 8.10.2. Muffler:
  - a. Elan part # PY-0533 is mandatory and must be maintained in acceptable operating condition to the satisfaction of the Series Technical Manager.

- b. Exhaust Assembly consists of the Homologated Stainless steel primaries, tailpipe and muffler assembly, Elan part # DP02-62-006.

### 8.11. Oil System

- 8.11.1. A catch tank of at least 1 (1) liter capacity must be fitted to the engine breather.

### 8.12. Heat Protection Measures

- 8.12.1. Thermal insulation of cables or surfaces (e.g. brake cables, electrical looms, hoods, etc.) is permitted.

### 8.13. Engine Control Unit (ECU)

- 8.13.1. The ECU is sealed by the manufacturer and only IMSA and/or the manufacturer are permitted to break the seals.
  - a. IMSA may, at its discretion, require Competitors to surrender or exchange an ECU.

### 8.14. Drive System

#### 8.14.1. Fluids & Lubricants

- a. Unrestricted.

#### 8.14.2. Clutch

- a. Alternate sources are permitted, provided the specifications are consistent with the respective Homologations.

#### 8.14.3. Gearbox

##### a. Final Drive

- i. Only the 12:34 final drive (Crown Wheel & Pinion) is permitted.

##### b. MPC Gear Ratios: Only one (1) gear ratio set is permitted:

i.	1 <sup>st</sup>	12:33
ii.	2 <sup>nd</sup>	15:33
iii.	3 <sup>rd</sup>	15:27
iv.	4 <sup>th</sup>	16:25
v.	5 <sup>th</sup>	19:26
vi.	6 <sup>th</sup>	21:25

- c. Additional ratios may be authorized by IMSA in the Supplemental Regulations.
- d. Reverse gear: mandatory and functional at all times. It must be possible for the Driver, seated normally with seat belts fastened, to select the reverse gear while the engine is running.
- e. Flatshift Kit part# ADP02-15014 is permitted. See also Elan Technical Bulletin TB0022-2007.

#### 8.14.4. Not Applicable

#### 8.14.5. Gearbox Control Unit

- a. Installation and use of Semi-Automatic Gear Shift (paddle shift) system is required.
  - i. The only approved System and associated GCU software is the Hewland Semi-Automatic System CS-1952 specifically as supplied by Carl Haas Automobile Imports, Inc.
  - ii. The System must be installed per Manufacturer's instructions unless otherwise specifically approved by IMSA. No additional modifications to loom or pipes are permitted.

#### 8.14.6. Differential

- i. Cars, must be fitted with the Hewland Power Flow differential to the following specification:
- ii. Ramp angle Acceleration 60° (+/- 2°) or 80° (+/- 2°). Other angle combinations are prohibited.
- iii. Ramp angle Brakes 80° (+/- 2°) or 60° (+/- 2°). Other angle combinations are prohibited.
- iv. The friction and drive surface stack may be rearranged, provided that four clutch plates and six core plates are used at all times. Parts must be stock, unmodified Hewland components. Spacers/shims must be machined to set pre-load.
- v. Shims may be freely placed.
- vi. Preload: 30 Nm Maximum. Spacer surface MAY be machined.



## 8.15. Cooling System

### 8.15.1. General

### 8.15.2. Fluids

#### a. Entrants may utilize non-glycol based fluids.

### 8.15.3. Inlet Blockers

#### a. See language in bodywork section re: blockers.

### 8.15.4. Water System

#### a. In-Line Thermostat: One (1) in-line thermostat may be fitted.

#### b. Radiators/Ducts:

- i. The radiator ducts may be blocked off with a flat panel installed vertically from the top of the radiator (parallel to the radiator) to the body work. Holes may be cut in these panels.
- ii. Inlet Ducts, Elan part# DP02-40-067 (LH) and # DP02-40-068 (RH) may be installed adjacent to leading edge of radiators, vertically oriented and parallel to the chassis.
- iii. The forward-most (outboard) corner of both radiators must be located no more than twelve (12.0) inches and not less than ten (10.0) inches from the side of the chassis, measured perpendicular to the chassis.
- iv. The inside trailing edge (corner) of both radiators must be located no more than three (3.0) inches and no less than one (1.0) inch forward of the rear fuel cell bulk-head of the chassis and no more than one (1.0) inch from the side of the chassis, measured perpendicular to the chassis.

### 8.15.5. Oil Cooling System

#### a. Heat Exchanger: An approved Air to Oil Cooler (16 rows) and/or one (1) optional heat exchanger may be used and located per the Homologation. Air to Oil Cooler must plumbed in the return line between the scavenge sections of the pump and the oil tank.

## 8.16. Fuel System

### 8.16.1. Fuel Type

#### a. MPC

- i. The approved fuel for the Class is IMSA E10, as supplied by VP Fuels.
- ii. IMSA may require a fuel sample for inspection via a gas chromatograph.

### 8.16.2. Fuel Cell

#### a. Maximum Capacity

- i. The fuel cell maximum capacity for all cars is 72 Liters, regardless of ambient temperature and atmospheric pressure.

#### b. Entrants may use blocks or balls to achieve maximum fuel cell capacity:

- i. Any device, system, or procedure designed to increase, even temporarily, the total fuel storage capacity beyond the maximum is prohibited.

### 8.16.3. Fuel Lines

- a. Fuel lines between the fuel tank and the engine must include a self-sealing breakaway valve as approved by IMSA. The breakaway valve (s) must be tethered to the chassis.
- b. Lines containing fuel, oil or cooling water must not pass through the cockpit.
- c. Flexible lines must have threaded connectors and an outer braid resistant to abrasion and flame.
- d. Fuel and oil lines must have a minimum burst pressure of 595 psi (41 bar) at a maximum operating temperature of 275°F (135°C).
- e. Hydraulic fluid lines not subjected to abrupt pressure changes, with the exception of lines under gravity head, must have a minimum burst pressure of 595psi (41bar) at a maximum operating temperature of 400°F (204°C) when used with steel connectors and 275°F (135°C) when used with aluminum connectors.
- f. Hydraulic fluid lines subjected to abrupt pressure changes must have a minimum burst pressure of 1015psi (70bar) at a maximum operating temperature of 400°F (204°C)

- g. Only hydraulic fluid lines with threaded connectors and secured by means of a metallic wire are permitted inside the cockpit.
- h. Fuel pumps must operate only when the engine is running or being started.

## 8.17. Brake System

### 8.17.1. General

- a. Separate circuit: At least two (2) separate circuits operated by the same pedal are required.

### 8.17.2. Fluids & Lubricants

- a. **Unrestricted.**

### 8.17.3. Bias Assembly

- a. The only connection permitted between the two brake circuits is a mechanical system for adjusting the brake force balance between the front and rear axles.
- b. Any device or system between the master cylinders and the calipers is prohibited, except sensors to collect information, stop light switches or mechanical brake pressure controls adjustable by means of tools. These must be fitted proximate to the exit of the master cylinders.

### 8.17.4. Master Cylinders

- a. The use of the following brake master cylinders is permitted, front or rear:
  - i. Girling – Remote or integral Reservoir: bore sizes 0.625", 0.700", 0.750"
  - ii. Tilton – 75 or 76 Series: bore sizes 0.625", 0.700", 0.750", 0.812", 0.875"
- b. Remote Reservoir (if used) must be mounted directly to vertical FARB shaft; any alternate mounting must be approved by IMSA.
- c. The use of brake pedal upgrade per Elan Technical Bulletin TB0040-2011 is permitted.

### 8.17.5. Other Options

- a. The pedals may be changed to Pro Formula Mazda pedal assembly comprised of PFM Part #'s 030-520 Pedal Mount, 060-506 Clutch Pedal, 040-512 Brake Pedal and 050-504 Throttle Pedal.

### 8.17.6. Brake Lines

### 8.17.7. Calipers

- a. Caliper pistons may be replaced with Alcon part # PFI4438X654.

### 8.17.8. Rotors

- a. Permitted option: Performance Friction disc, part # 278.18.0041.01 & 278.18.0041.02

### 8.17.9. Brake Pads

- a. Brake pads must be Performance friction; with the following compound / part #'s permitted: 7745.01.16.44, 7745.05.16.44, 7745.13.16.44.
- b. Backing Plates must be ferrous.

### 8.17.10. Ducting

- a. Permitted. Air may only be taken from the existing NACA ducts in the front of the Car, one duct per wheel and may serve no other function than to direct air to the brakes. Optional rear duct part # DP02-93-020 and optional front duct part # DP02-93-031.

## 8.18. Steering System

### 8.18.1. General

- a. Must be as Homologated.
- b. Steering wheel quick release is mandatory.
  - i. Subject to IMSA Approval.

## 8.19. Suspension System

### 8.19.1. General

- a. Changing the adjustment of the springs, the dampers (shocks) and the rear anti-roll bars from inside the cockpit is prohibited.
- b. The suspension arms must not be chromium plated.
- c. Wheel bearings are free.

### 8.19.2. Springs

- a. Must be steel only.
- b. Dimensions: 4.0" long and 1.5" ID.
- c. Ten (10) spring rates are available (permitted):
  - i. Front or Rear: 800, 900, 1000, 1100, 1200, 1400, 1600, 1800, 2000, 2200 lb/in. with tolerance of +/- 2%

### 8.19.3. Dampers

- a. A maximum of one (1) damper per wheel permitted.
- b. The only permitted damper is the Sealed, Dynamic suspensions 3-way unit and must be purchased and serviced through Carl Haas Automobile Imports, Inc.
- c. Optional Damper Torque reducing bearing assembly (part#'s DP02-93-008-x2 and DP02-93-009) or any equivalent device approved by IMSA is permitted. The use of hydraulic load-centering spring perches is prohibited.

### 8.19.4. Anti-Roll Bar

- i. May be disconnected.

## 8.20. Wheels & Tires

### 8.20.1. General

- a. Must use only the Homologated OZ wheels: 10"W x 13"D Front, 12"W x 13" D Rear.
- b. All wheels must be clearly marked with the car number.
- c. Viewed from above, the wheels (as defined by the tire treadwidth) aligned for the car to proceed straight ahead, must not be visible above the plane passing through the axle centerline.
  - i. A safety spring/clip (painted red or "Day-Glo" orange) must be in place whenever the car is running.

### 8.20.2. Tires

- a. MPC: The approved tire supplier for this Class is Continental Tire.
- b. Traction compounds or any substance that might alter the physical properties of a tire as supplied by its manufacturer are prohibited.
- c. Tire warmers and any other means of artificially warming the tires are prohibited.
- d. Racing Tires: Mandatory, unless SSR or SR provide otherwise.

## 8.21. Electronics

### 8.21.1. General

### 8.21.2. Data Logger

- a. **[MPC] Entrants may install a data acquisition system where not included in the As-delivered Car.**
- b. IMSA reserves the right to download and/or view all logged data at any time.

### 8.21.3. Telemetry

- a. [MPC] Any method of wireless transmission of data to or from the Car is prohibited, with the exception of:
  - i. Autonomous lap-time display on dash.
  - ii. Pit-to-Car Voice Radios: Required in all phases of competition.
  - iii. Frequencies must be coordinated with IMSA's frequency coordinator (form at [www.imsa.com/competition-forms](http://www.imsa.com/competition-forms))
  - iv. Teams required to monitor IMSA Race Control frequency – see IMSA RULES, Appendix B.

### 8.21.4. Wiring Loom

- a. [MPC] All data acquisition equipment must use a separate visible and traceable wiring loom.

#### 8.21.5. Sensors

- a. [MPC] Any sensor is permitted provided it is not one of the following types:
  - i. Ride Height sensors of any type including laser or ultrasonic.
  - ii. Multiple axis gyros or accelerometers.
  - iii. Strain gauge pushrods.
  - iv. Tire pressure or temperature sensors.
- b. Engine Sensors:  
Only the following permitted:
  - i. Manifold pressure x One (1)
  - ii. Ambient Pressure x One (1)
  - iii. Air Temperature x One (1)
  - iv. Water Pressure x One (1)
  - v. Fuel Temperature x One (1)
  - vi. Lambda (fuel / Air Mixture) x One (1)
  - vii. Cam Sensor x One (1)
  - viii. Crank Sensor x One (1)
- c. IMSA reserves the right to access stored data during the Event.

### 8.22. Lighting Equipment:

- 8.22.1. Lighting equipment must always be in working order.
- 8.22.2. At the rear:
  - a. Two amber or red tail lights and two red "Stop" lights;
  - b. One red "Rain" or "Fog" light (minimum 21 Watt) or any equivalent device approved by IMSA and located on center line at the rear of the Car.
  - c. Tail lights may be replaced with amber or red LED lights provided they fit in the original location.
- 8.22.3. At the front:
  - a. Two operating headlights;
  - b. Headlight assembly may be replaced with a white LED Light with rubber mounted housing.

### BASIC CAR DIMENSIONS

- c. Overall length - 4179 mm maximum.
- d. Overall width - 1867 mm maximum.
- e. Maximum front overhang from front axle centerline to front of car - 788 mm.
- f. Maximum rear overhang from rear axle centerline to rear of car - 819 mm.

#### 8.22.4. Not Applicable

#### 8.22.5. ELIGIBILITY

- a. MPC Class: The only car eligible is the Elan Motorsports technologies DP02, as Homologated by the Manufacturer and fitted with the Series-approved Mazda 2.0L MZR Engine in accordance with Section 8 of these Technical Regulations. With the approval of IMSA, or as may be required by IMSA, modifications for safety or technical advancements may be incorporated from time to time.
- b. Hardware: Alternate-source hardware and fasteners are permitted, except where prohibited in these Regulations, provided they serve no other purpose and are of similar specification. Camloc-style retainers riveted to body parts are permitted. Installation of additional bodywork fasteners is subject to IMSA approval. Anti-vibration hardware is permitted, provided no further modifications are made. Titanium is prohibited.
- c. Bearings: Alternate-source bearings, seals, rod ends, and/or spherical bearings are permitted, provided they are dimensionally identical to the original part, fit existing locations and do not alter suspension geometry beyond the Homologated range of adjustment. Minimum rod end engagement of 2X shank diameter must be maintained at all times,

regardless of threaded shank length. Rod ends must be only commercially available standard rod ends of high quality steel or stainless steel. Ceramic or titanium components and/or coatings are prohibited.

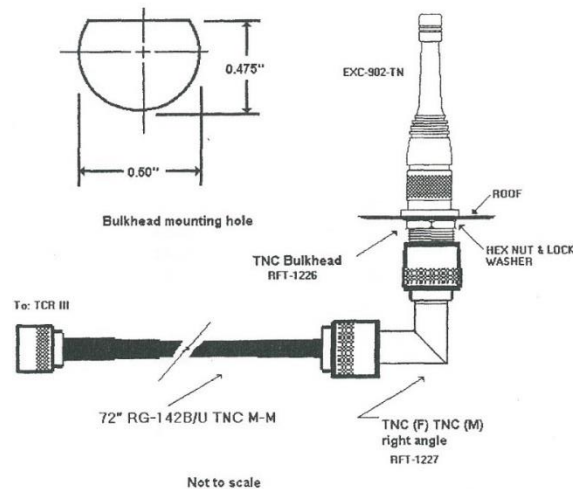
- d. Cables: Alternate-source permitted. Replacement cables must be routed through existing holes.

8.22.6. Safety Light System

- a. Cars must be equipped with the MSE Yellow Light Kit to indicate active flag status.
- b. [MPC] The Kit contains the following components:
  - i. Yellow Indicator Light
  - ii. Mounting Bracket
  - iii. Antenna
  - iv. Wiring Loom and Instructions

8.22.7. The Safety Light system must be installed and functioning during on-track activity.

- a. The Yellow Indicator Light must be prominently installed within the cockpit, in clear line of sight of the driver.
- b. Antenna Installation: The supplied antenna must be mounted:
  - i. As high as possible on the Car.
  - ii. Away from other antennae
  - iii. Following the diagram below (a ground plane is not required):



- c. Wiring Loom Installation: The Wiring Loom has a flying lead input for +12 VDC and Ground to interface with additional wiring referenced in the installation instructions.
  - i. Entrants must supply additional wiring as required.

8.22.8. An activating receiver is available from IMSA during Safety Checks at each Event and remains the property of IMSA.

- a. Entrants must surrender the receiver when required by IMSA.
- b. A lost or damaged receiver is subject to a replacement fee referenced in the IMSA Accessories form.

8.23. Timing Transponder

8.23.1. Cars must utilize MyLaps X2 or compatible (AMB TranX 260) transponder.

8.23.2. Timing transponder mounted vertically between the rear wing support uprights. It must power up when the master switch is on.