



**Technical  
Regulations**

**RACE CARS**



## **TECHNICAL REGULATIONS – RACE CARS CATEGORIES**

(The regulations are subject to change, which will be published via Additional Supplementary Regulations – ASR)

### **1. GENERAL**

#### 1.1. Eligible cars

- Any 4-wheeled production based car, kit cars or limited production sports car. FIA-spec competition-prepared cars. Saloon-based, minimum production 2500 units per calendar year. No supercars.

#### 1.2. Sub-categories

Low Volume Sportscars will be classified in Open category.

- Open category: Above 1900cc.
- 1800 category: 1900cc and below.
- 1600 category: 1600cc and below.
- Super Saga category: original PROTON Saga LM chassis bodyshell with 4G15 engine block & cylinder head.

Approval for entry is at the discretion of the Promoters.

### **2. DEFINITION OF RACE CARS CATEGORY**

#### 2.1. Defining what is a 'Race Cars' category vehicle:

- Specifically-prepared for competition with stripped-out bodyshell.
- Equipped with a welded or bolted-in roll cage which complies to AAM and FIA specifications, and is welded to the body and chassis at more than 6-points. The rollcage may be constructed to increase bodyshell rigidity with additional strengthening points to the pillars and suspension pick-up points.; refer to 5.1 for details.
- May be stripped of any interior equipment such as carpets, door trims, centre consoles, etc. Dashboard/instrument panel is not required. Replacement door panels permitted. Window glass may be replaced with acrylic Perspex plastic or similar. Windscreen must remain glass.
- To be equipped with FIA-spec fire extinguisher of minimum specification:
  - o DCF (CF3 BR): 4.9kg
  - o NAF 83: 3.2kg
  - o NAF P: 3.2kg
  - o AFF: 2.4kg
  - o Powder: 2.0kg
- Organiser's decision to accept or decline a car's categorisation shall be final.

#### 2.2. Additional defining regulations for 1600 category:

- The model must be for public sale or produced in the year 2006 and after. The Organiser will have the right to grant special dispensation for cars which do not fit the above criteria. Eligible cars must be mass-produced, Series Production Saloon cars, having at least 4-seats and in accordance with the dimensions defined by the FIA for Touring Cars (Group A).
- Should be model chosen not have the correct capacity engine, the competitor could upon application to the organiser fit another engine and transmission from the manufacturer range provided it does not exceed 1600cc. Larger engines that are de-stroked or sleeved will not be accepted. The decision by the organiser to approve, reject or modify such application is final.
- Only cars with two-wheel drive (Front or Rear wheel drive) are eligible. Cars with forced induction are not eligible.



- Hybrid cars having swept volume under 1600cc are allowed. Hybrid cars are defined by vehicles having two power sources to power the vehicle. The control system on these vehicles is free; however, the other mechanical parts of the car are subject to this regulation.
- The transmission must be derived from the manufacturer's range of production car transmission. New mounts are permitted. The number and attachment points to the bodyshell must remain as standard production.

### 2.3 Additional defining regulations for Super Saga category:

- It being 4-wheeled production PROTON Saga or PROTON Saga Iswara car. The chassis designation "LM"
- All variants and models of this particular vehicle are valid
- Engine is limited to the 4G15 and 4G13 engine block and original cylinder heads that were used in production PROTON Saga 4G13 and 4G15. Internally the engine may be modified.
- Engines must be naturally-aspirated. Forced induction of any kind is not permitted.

## 3. GENERAL MODIFICATIONS

3.1. Modifications made to the vehicle cannot compromise the safety or structural integrity of the vehicle.

### 3.2. Fuel tank & supply

- Original OEM fuel tank may be replaced with a fuel cell The fuel cell must be of FIA specification.
- an inboard FIA specification fuel surge tank is allowed
- Petrol lines inside the vehicle, if any, must be certified safety fuel lines.
- A fire-proof bulkhead and/or protective cover and/or compartment must enclose the fuel pump.
- A pre-event inspection and approval is necessary and if they meet the organisers safety standards, will be registered and approved. An appointment minimum 1-week prior to the event is required.
- Spare wheel well may be cut and covered. Cover must be metal and must be welded to the body. No plastic or ABS or composite material permitted.

### 3.3. Engine & Transmission mounting and location

- May be altered as necessary. New engine mountings must be securely engineered and welded

### 3.3. Gear box

- The gearbox may be changed or modified
- Gear ratios may be modified. Final Drive ratio may be modified. Dog Engagement & Straight Cut gears are permitted.
- Limited-Slip Differentials (LSD) are permitted

### 3.4. Brakes

- Stainless steel braided brake hoses are required.

### 3.5. Suspension

- Modifications to the car's suspension are permitted.

## 4. INTERIOR

4.1. Interior may be stripped of any interior equipment such as carpets, door trims, centre consoles, etc. Dashboard/instrument panel is not required. Replacement door panels permitted.

## 5. SAFETY EQUIPMENT

5.1. A bolt-in or welded-in Safety cage must be installed.

- It must be secured at minimum six (6) points on the floor with secure bolts or welded plates.



Mounting points are the base of the A Pillar, B Pillar and the rear wheel arch or rear suspension turret.

- A driver side impact bar is compulsory. Minimum 1 diagonal bar between the A-pillar and B-pillar safety cage support. Recommended minimum 2 diagonal bars.

## 5.2. Safety cage specifications.

Minimum specifications for MSF Racing legal rollcages as published are:

- Material type: Mild steel  
Pipe diameter: 1 3/4 inch  
Pipe thickness: 0.118 inch

- Material type: Cold drawn stainless steel  
Pipe diameter: 40mm  
Pipe thickness: 2mm

- Mount plates  
Mount plate size: 5" x 6"  
Mount plate thickness: 0.125 inch  
Reinforce plate thickness: 0.125 inch

- Welding: full welding around the diameter of the tubing. It is not permitted to grind or plate the welding.

## 5.3. Compulsory general safety items

5.3.1. Cut-off switches for electrical and fuel systems are compulsory with an external switch/lever.

A sticker identifying the electrical cut off switch must be affixed near the switch.

5.3.2. Competition safety harness & Competition bucket seat is recommended.

5.3.3. A Fire Extinguisher must be fitted of minimum specification:

- DCF (CF3 BR): 4.9kg
- NAF 83: 3.2kg
- NAF P: 3.2kg
- AFF: 2.4kg
- Powder: 2.0kg

## 5.4. Items in passenger compartment

5.4.1. Any battery placed within the passenger compartment must be of sealed Dry cell type. It must be installed securely within a secure box with lid cover.

5.4.2. Oil Catch tank within Engine bay must be of non-flammable material ie alloy or steel material

- must be securely mounted
- must be enclosed with no leaks or gaps
- must have hoses that are securely attached
- plastic bottles are not permitted.

## 5.5. General safety

5.5.1. No fluid leaks of any kind.

5.5.2. No loose items within engine bay.

5.5.3. Poorly engineered and poorly attached bars inside the cabin are not allowed.

## 6. BODYWORK

6.1. Composite material for the listed bodyparts are allowed, all parts must still retain the OEM



factory body look and style. Parts replaceable are:

- Front Bonnet
- Rear Bootlid
- Front wings / fenders
- Front bumper
- Rear bumper.

Floorboard, roof, bulkhead, and any other part of the fundamental steel monocoque chassis body may not be cut and replaced with anything other than metal for the purposes of lightening.

#### 6.2. Windows

- Front windscreen is to be 2-layer glass.
- other side and rear windows may be replaced with acrylic Perspex plastic or similar

6.3. Headlights and tail lights are recommended to be taped up.

6.4. All exterior lights must be functional.

- Both OEM headlights location must have functional headlamps
- Additional spot/fog lights are allowed.
- All Tail/Rear lights must be functional. Brake Lights must be functional.

6.5. Front and rear Tow Hooks must be attached and Arrow Stickers in fluorescent Red must be affixed.

6.6. Tyres must not protrude beyond OE bodywork. However if the wheel protrudes beyond bodywork additional wheel arches MUST be installed.

Wheel arches must cover from top of wheel & tire and reach to the bottom of vehicle floorpan level. Refer to diagram 2016b and 2016c below.

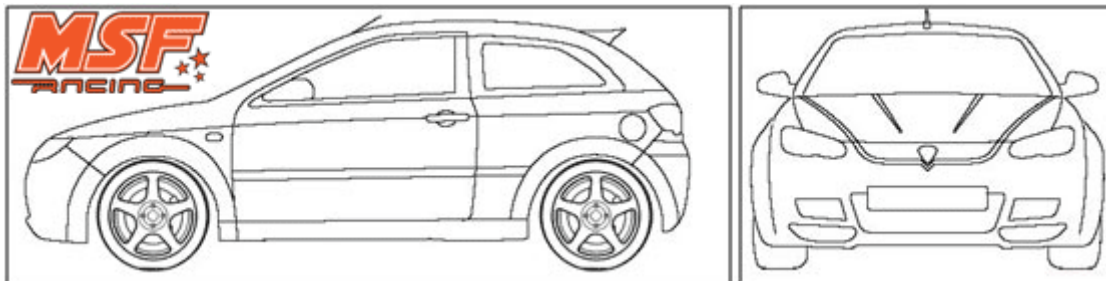


Figure 2016b & 2016c

## 7. DRIVER ATTIRE

7.1. Drivers are required to wear proper auto/motor Helmets. Minimum requirement is SIRIM Approved. No Bicycle Helmets allowed. It is highly recommended to use helmet which use double-D type strap fasteners.

7.2. Drivers are required to wear proper racing attire: Flame Retardant club-level Racing suit complying minimum SFI 3.2A/1 and/or EN533. Similar Flame Retardant shoes and gloves required.

7.3. Use of Hand And Neck Restraint (HANS) device is recommended.

7.4. Prohibited wear are Shorts, slippers or open-toe shoes.

## 8. POWERTRAIN

8.1. The maximum engine capacity permitted is the allowed capacity as stated below for each Category +0.5% for tolerance.

- 1600 category is 1600cc + 8cc



- 1800 category is 1900cc + 9.5cc
- Open category and Super Saga category engine capacity is not regulated.

#### 8.2. General information

- Nitrous Oxide system is not allowed in any category
- The numbers of attachment points to the bodyshell must at minimum be the same as or more than that of the vehicle's standard production bodyshell

#### 8.3. Permitted engine capacity

Engine capacity calculations for Race Cars category will be based existing FIA concepts and equivalency formulas as follows:

- Forced induction engines will be subject to an equivalency factor of 1.7
- Rotary engines will be subject to an equivalency factor of 1.9.

#### 8.4. Race Cars Open

- Above 1900cc;
- Engine conversion permitted; attachment points to the bodyshell must be strengthened and properly engineered and fabricated.

#### 8.5. Race Cars 1800

- Maximum capacity up to 1900cc.
- Engine conversion permitted; attachment points to the bodyshell must be strengthened and properly engineered and fabricated.

#### 8.6. Race Cars 1600

- The numbers of attachment points to the bodyshell must remain as standard production.
- Reverse heads not permitted.
- Single throttle body only with a maximum diameter of 60mm; multiple individual throttle bodies not permitted.
- Oil sump may be modified. Dry sump systems not permitted.
- Forced-induction not permitted

#### 8.7. Super Saga

- Engine is limited to the 4G15 and 4G13 engine block and original cylinder heads that were used in production PROTON Saga 4G13 and 4G15. Internally the engine may be modified.
- Reverse heads not permitted.
- Oil sump may be modified. Dry sump systems not permitted.
- Forced-induction not permitted

#### 8.8. Fuel information

- Nitrous Oxide system is not allowed in any category.
- Fuel blends that contain oxidisers and oxygenates in any alcohol forms (methanol, nitro-methanol, ethanol, butanol, etc) are allowed.

Ethanol blends are allowed.

100% methanol is not permitted.

- Water-methanol injection into the intake manifold is not a fuel, and is permitted

### 9. TIRES

9.1. All categories - with no exceptions - are to use the control tyre in the sizes described below.



9.2. Race Cars 1600 to use either of the following:

- Hankook Ventus RS4 Z232 size 195/50-15
- Hankook Ventus RS3 Z222 size 195/50-15

9.3. Race Cars 1600 to use either of the following:

- Hankook Ventus RS4 Z232 size 195/50-15
- Hankook Ventus RS3 Z222 size 195/50-15

9.4. Race Cars 1800 to use either of the following:

- Hankook Ventus RS4 Z232 size 195/50-15
- Hankook Ventus RS3 Z222 size 195/50-15

9.5. Race Cars Open tyre sizes are not restricted. To use either of the following:

- Hankook Ventus Z221
- Hankook Ventus RS4 Z232
- Hankook Ventus RS3 Z222

## 10. AERODYNAMIC DEVICES

Aerodynamic devices and equipment refers to:

- Rear Spoilers and Front spoilers
- Frontal Canard fins
- Front Splitter
- Rear Diffuser
- Wing End Plate
- Rear Wing
- Side Skirt
- Gurney Flap
- Vortex Generator fins

### 10.1. Front Aero

Aerodynamic devices mounted in the front shall not be wider (laterally extended) than the width of the front wheel arches when viewed from the front.

- STREET CARS: Front aerodynamic devices must not extend beyond 50 mm from the front edge of the front bumper/nose.
- RACE CARS: Front aerodynamic devices must not extend beyond 100 mm from the front edge of the front bumper/nose.



### 10.2. Width of ALL Aero (Front, Sides, Rear, Wings)

No part of the aerodynamic device can be wider than or protrude beyond the width of the wheel arches when viewed from the front.



### 10.3. Aerodynamic Devices Material

- All aerodynamic devices must be manufactured from either Wood, Plastic, or Composite materials (eg, fiberglass, carbon fiber, Kevlar fiber).
- Metal may not be used for anything other than Rear Wing and rear wing stands/ mounts.
- There must be no sharp edges to all aerodynamic devices that would cause injury to humans and passers-by.

### 10.4. Rear Wing

Only the rear wing, wing end plate, and legs/stands/mounts of the rear wing can be made of any material.

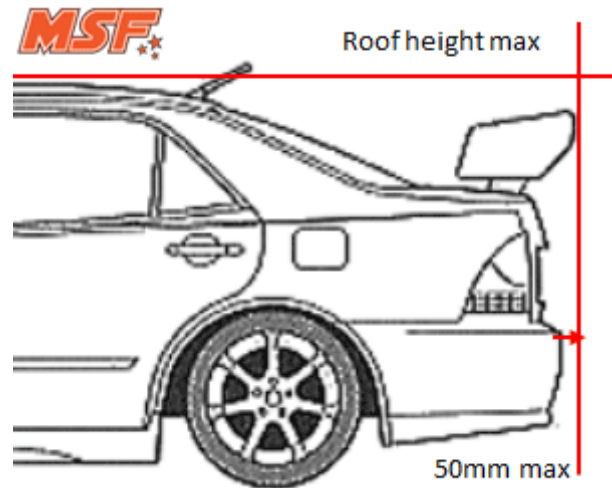
- SEDAN / 3 Box design vehicles: Rear wing height must not exceed the height of the vehicle roofline.
- HATCHBACK / 2 Box design vehicles where there is no suitable length of metal bootlid along the horizontal plane: Rear wing height must not exceed 50mm above the vehicle roofline.

### 10.5. Rear Aero

- Rear aerodynamic devices must not extend beyond 50mm of the end of the rear bumper







### 11. COMPETITION NUMBER & VEHICLE PRESENTATION

11.1. Competitors are obliged to carry the MSF partners' logos in the mandatory sticker areas.

11.2. Official MSF Sticker Board of MSF Series Sponsors must be located in the area below the front windows behind the front wheel.

11.3. Official MSF Tyre Partner sticker must be placed on the wheel arches, either front or rear arches on both sides.

11.4. Official MSF Title Sponsor sticker must be placed on the front windscreen area.

11.5. Other official MSF Partner stickers must be placed at the front or rear wings on both sides.

11.6. Competition numbers are to be placed in 2 locations:

- Door Numbers: Must be placed on each front Door. Each Number to be a minimum A3 Size (11" Wide x 16" High). All number must be of a contrasting colour to the car and reflective stickers are recommended.

- Windscreen Numbers: Must be placed on the left front of windscreen, below Category Partner sticker. Must be 6" high in Arial Narrow font using White or fluorescent Yellow sticker.

11.7. Competitors & team own sponsors may be located at all other locations such as:

- Front Bonnet.
- Roof.
- Rear Door/fender.
- Rear Bootlid or Tailgate.
- Front & Rear bumpers.

11.8. A rejection fee of RM 1,000.00, for every deleted Partner /Sponsor sticker, is required of any Competitor that does not apply any MSF Partner /Sponsor stickers.



## Mandatory Sticker Placement

### 2016

**Category Sponsor** (clixster)

**Fluorescent Car Number** (69)

**MSF Series Sponsors**

**MSF Official Tyre** (Achilles)

**Title Sponsor**

**69** | 16 INCHES

11 INCHES 11 INCHES

**Sticker Placement Guidelines**

Drivers must support any and all official MSF Partners by displaying Partners logos in the mandatory sticker areas  
 Official MSF Partners sticker board be located in the patch below front windows behind the front wheels  
 Official Tyre Partner sticker must be placed along wheel arches  
 Official MSF Category Partner stickers will be located at top of windscreen  
 Door Numbers : on the side of car must be located on the front door. Each number must be minimum A3 size (11" wide, 16" high); so a two-digit number would be 22" wide and 16" high. Multiple numbers must be separated from one another by at least 1".  
 All numbers must be of a contrasting colour to the car and reflective stickers are recommended.  
 Windscreen Numbers: on the left front of the windscreen, 6 inches high, Arial Narrow, in White or preferably Bright Yellow colour  
 Team and Driver's sponsor stickers may be located at all other locations not used by the allocated SNF areas: front bonnet, roof, rear doors and fender, rear boot, front and rear bumpers  
 A Rejection Fee of RM 500 is required if do not wish to stick any of the stickers. A failure to display the required stickers will result in Disqualification.

Sticker Placement for MSF Racing Series Cars 2016/7. [CLICK FOR LARGER IMAGE](#)

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