Chapter 7 Competitor Vehicles and Vehicle Safety Equipment

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The Appendix numbers in this text refer to the Appendices to this Chapter except where stated. The following Appendices of this Chapter apply:

- App.1 Regulations relating to Competition Car Log Books and Vehicle Passports.
- App.2 The general Technical Regulations applying to Vehicles.
- App.3 Regulations for Roll-Over Protection Systems (ROPS).
- App.4 Regulations for Fuel Systems.
- App.5 Regulations for Electrical Systems except EV.
- App.6 Regulations for Fire Extinguishers and Systems.
- App.7 Regulations for Seats Harnesses and Headrests.
- App.8 Regulations for Exhaust Systems and Sound Testing.
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General

1. Vehicles competing in Events must conform to the Technical Regulations and any specific discipline class regulations and Championship Regulations as appropriate. If it does not conform it will not be eligible to compete. Failure to conform is a breach of the NCR and may be subject of penalty (Chapter 2) and guideline penalties at Event are provided by App. 13.

2. The deliberate presentation of a Vehicle or any component part of it that is not eligible under the applicable Technical Regulations is considered as a dishonest act offending the overarching principle of sporting fairness embodied in the Code and the NCR and will be referred to the ASN Disciplinary Officer and may result in the matter being referred to the National Court and the Competitor subject of interim suspension of Competition Licence. Non-deliberate matters will proceed in accordance with the relevant provisions of the NCR and guideline penalties are provided by App. 13.

3. The ASN reserves the right to amend these Regulations at any time on grounds of safety or in the interests of fair and orderly Competition (Chapter 1 Art.4). Without prejudice to the generality of that reserved authority the ASN will normally provide for amended Technical Regulations to be published as effective from the next ensuing calendar year. Amendments to present NCR and this Chapter are published on the ASN website. It is the Competitor’s responsibility to be aware of all applicable Regulations.

Specific Regulations

4. The general Technical Regulations applying to Vehicles are set out in App.1.

5. Specific Regulations are provided by the relevant Appendices of this Chapter and all Official Documents relating to Technical matters including Championship Technical Regulations and where applicable all discipline-related Technical Regulations and any relevant FIA Homologation.

6. Where Supplementary Regulations (SRs) leave any doubt as to the category in which a particular type of Vehicle falls for the purposes of the Competition the position shall be governed by the definitions set out in
7. **Competition Car Log Books / Vehicle Passports** are required for certain sporting disciplines as detailed in the **Specific Regulations**. **Vehicle Passports** are available from **International**, **National** and other approved **Scrutineers**. **Vehicle** inspections can be arranged by appointment with an appropriate grade local **Scrutineer**.

8. The **Specific Regulations** relating to **Competition Car Log Books** and **Vehicle Passports** are provided in **App. 1**.

9. By reciprocal arrangement the **ASN** will recognise **Log Books** issued by **Motor Sport Ireland**. Such **Log Books** are considered valid for **Competitions** within the UK.

10. As a general principal of all **Technical Regulations** it is prohibited to carry out any tuning or modification unless expressly permitted by the relevant **Regulation(s)** or a component is stated to be ‘free’.

11. **Specific Regulations** applying to **Vehicles** that are not powered exclusively by an internal combustion engine are to be contained in **Official Documents** and those **Vehicles** are additionally subject to the relevant provisions of **Apps. 2 – 10 of this Chapter**.

12. The **Regulations** for **Electrified Vehicles** are provided by **App. 11**

13. The **Regulations** for **Roll-Over Protection Systems (ROPS)** are provided by **App. 3**.

14. The **Regulations** for **Fuel Systems** are provided by **App. 4**

15. The **Regulations** for **Electrical Systems** except Electrified Vehicles are provided by **App. 5**.

16. The **Regulations** for **Fire Extinguishers** and **Systems** are provided by **App.6**.

17. The **Regulations** for seats harnesses and headrests are provided by **App. 7**

18. The **Regulations** for exhaust systems and sound testing are provided by **App. 8**

19. The **Regulations** for **On Board Cameras** are provided by **App. 9**

20. The **Regulations** for **Competition Numbers** are provided by **App. 10**

21. All **Vehicles** must comply with the **Safety Regulations** as provided by their **Specific Technical Regulations** and **Apps. 2 – 10 of this Chapter**.

22. **Vehicle** occupants wearing normal **Personal Safety Equipment** (Chapter 9) and seated in their normal position with safety harness fastened and the steering wheel in place must be able to evacuate the **Vehicle** in a maximum of 10 seconds

23. All **Vehicles** must be made available to the **Event Scrutineers** for examination and approval before taking part in any **Competition** or **Official Practice**.

24. **Specific Regulations** applying to scrutineering are provided by **App. 12**.

25. The role and powers of **Technical Officials** are provided by **Chapter 5** of these **NCR**.

26. If a **Competitor** has any doubt as to the conformity of the **Vehicle** or any component in it being used or intended to be used in **Competition** then the **Competitor** should consult and seek advice from a relevant **Scrutineer** (for example a Championship Eligibility Scrutineer) or the **ASN**.
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APPENDIX 1

Competition Car Log Books (CCLB) and Vehicle Passports (VP)

Note: These Regulations may be amended or replaced by Regulations relating to a digital Vehicle Scrutineering Record.

1. To obtain a Vehicle Passport, a registration document (where appropriate) for the Vehicle, or Vehicle identity number is required. Recent good quality colour photographs showing the Vehicle static, unoccupied and in tyre contact with the ground must be shown on the CCLB / VP. Photos for VPs must include a front 3/4 view from right side, rear 3/4 view from left side (both with number plate legible where applicable) and an engine bay view.

2. CCLB / VP continuation sheets may be obtained from the ASN.

3. CCLBs / Vehicle Passports refer to complete cars and must not be transferred with a bodyshell.

4. Any CCLB / VP issued will remain the property of the ASN, which reserves the right to withdraw or suspend it at any time, stating the reasons why.

5. CCLBs/VPs must be sent to the ASN for any of the following reasons:
   a. Issue of new VP.
   b. Change of engine type or capacity.
   c. Change of bodyshell.
   d. Change of ownership.
   e. Change of address.
   f. Vehicle disposal or dismantling.
   g. Change of Vehicle colour (with new photos).

6. CCLB continuation sheets may be obtained from the ASN.

7. CCLBs first issued prior to 31 December 2009 have now expired.

8. All other CCLBs will expire on 31st December 2025.

9. Once a CCLB has expired a new Vehicle Passport will need to be applied for.

10. Until the date of expiry a CCLB may continue to be returned to the ASN for amendment as provided above.

11. Vehicle Identification Stickers for the purposes of Event Scrutineering record keeping are required for certain sporting disciplines as detailed in the Specific Regulations.

12. Event Scrutineering records are associated to the Vehicle Identification Sticker and held centrally by the ASN. Vehicle Event Scrutineering records are accessible by selected Scrutineers.
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APPENDIX 2

General Technical Regulations

1. The following Technical Regulations are mandatory and apply to Vehicles in all forms of Competition (other than Karting). Vehicles must also comply with the appropriate Specific Technical Regulations. Where there are several regulations concerning any particular subject it shall be taken as a general principle that one does not override another unless specifically stated.

2. As a general principle in all Technical Regulations it is prohibited to carry out any tuning or modification that is not specifically permitted. The fact that some modifications are mentioned as prohibited does not imply that others are allowed.

3. Disabled Drivers (Chapter 6) are permitted to make modifications approved by the ASN solely for the purpose of enabling operation of the Vehicle control systems.

4. Scrutineering (See also Chapter 7 App. 12 Applies)

5. Before taking part in any Competition or Practice for any Competition all Vehicles must be presented to the Event Scrutineers for examination and approval

Specific elements

Chassis / Body (including aerodynamics) Must:

6. Be fitted with bodywork including a Driver (and Passenger) compartment isolated from the engine fluid filled batteries, gearbox, hydraulic reservoirs (with the exception of fire extinguishers) pressurised above atmospheric, pressure pneumatic reservoirs and accumulators, transmission shafts, chains, belts and gears brakes, road wheels, suspension components including their operating linkages and attachments, petrol/fuel tanks, oil tanks, water header tanks, catch tanks and fuel system components (other than where such components comply with Appendix 4 Arts.20 and / or 21 such as to prevent there being a hazard.

7. Except for Vehicles of Periods A-E front engine Vehicles to be fitted with a bonnet covering the engine and all its’ major components.

8. Except for Vehicles of Periods A-E exposed transmission shafts gears and chains must be guarded so as to prevent any hazard.

9. Where a radiator is not isolated from the Driver / Passenger compartment a suitable deflector must be fitted to prevent fluid directly coming into contact with the Vehicle’s occupants.

10. Except for Vehicles of Periods A to E and which in period specification were not equipped with a bonnet or casing of metal or solid flame-resistant material covering and surrounding the main engine structure have a protective bulkhead of non-flammable material between the engine and the Driver / Passenger compartment capable of preventing the passage of fluid or flame. Gaps must be sealed with suitable flame proof material that completely closes any gap at all times.

11. Magnesium is prohibited for bulkheads.

12. Have a complete floor of adequate strength rigidly supported within the Driver / Passenger compartment.

13. Not have the space normally occupied by Passengers encroached upon in such a way that may impede extrication of the Driver from that side but may have the Passenger seats removed.

2025 National Competition Rules Chapter 7 Appendix 2 General Technical Regulations
14. Except for racing cars or cars of A to D be equipped on all wheels with mudguards which present no sharp edges and cover the complete wheel (flange+rim+tyre) around an arc of 120 degrees. This minimum coverage must:
   a. be achieved with a continuous surface of rigid material within which ventilation louvres may be fitted. The tyre must not be visible when viewed from above. When viewed from the rear the tyre must not be visible above any point 50mm or more above the axle centre line
   b. extend forward ahead of the axle line
   c. extend downward behind the wheel.

15. Aerodynamic devices may only be fitted to Racing and Sports Racing Cars (unless prohibited by an Approved Formula) or where specifically permitted where FIA homologated or where complying with National type approval.

16. Such devices must not extend beyond the maximum width of the Vehicle above the maximum height of any roof or for an open car the maximum height of the ROPS.

17. For Saloon and Sports Cars such devices must not extend longitudinally from the bodywork by more than 100mm.

18. For Sports Racing Cars such devices must not extend longitudinally from the rear wheel axis by more than 1100mm.


20. If originally fitted with Driver / Passenger doors hatchback doors sliding doors opening boots or tailgates these must be secured in the closed position during Events.

21. Have effective means of ventilating closed cars.

22. Tinted glass in any window which can significantly affect through vision (in or out) or distort the colours of signal flags or lights is prohibited.

23. With the exception of Cross Country Vehicles Racing Trucks and Karts in all Vehicles with the Driver seated normally the soles of their feet resting on the pedals in the inoperative position shall not be situated to the fore of the vertical plane passing through the centre line of the front wheels.

24. Art.23 above is not applicable to Vehicles constructed prior to 1.1.99 or for those Vehicle designs which have participated in an ASN Permitted Championship prior to 1.1.99.

Seating App.7 Applies

25. Must have a normal adequate seat for the Driver (and any permitted Passenger).

26. With the occupant seated the seat must be correctly located and securely anchored within the compartment and must not tilt hinge or fold unless it is a production seat fitted with a serviceable locking mechanism preventing independent operation.

27. The seat must support and retain the Driver within the Vehicle.

28. The seat cushion (i.e. the part on which the occupant sits) when uncompressed must not be less than 152.5mm below the top edge of the adjacent body side or door.

29. Any other seats fitted must similarly comply and all seats must face forward. Vehicles of Periods A to D are exempt from this requirement.

30. If a single seater the maximum time for a Driver to get in or out of the Vehicle must not exceed 10 seconds.
Engines

31. **Paddock Safety**: In areas to which the public has access no engine shall be run with the gears engaged whilst the **Vehicle** has any driving wheels not in direct contact with the ground unless all moving parts are adequately guarded and with the exception of **Karts** a competent person is seated in the driving seat.

32. If forced induction is used the coefficient will be 1.7:1. unless stated otherwise in **Specific Technical Regulations** or **Official Documents**.

33. Must be equipped with a positive method of throttle closing by means of external spring/springs so that in the Event of failure of any part of the throttle linkage the throttle(s) are sprung closed.

34. **Vehicles** fitted with electronic throttle control as standard original manufacturer’s equipment for that **Vehicle** are exempt from Art.33 above.

Suspension

35. Must be fitted with sprung suspension between the wheels and the **Chassis** and which must be controlled to avoid fouling of wheels on **Chassis** or bodywork.

36. **Vehicles** of Periods A and B need not have sprung suspension if originally built without it.

Brakes

37. Must be fitted with brakes that are operative and capable of stopping the **Vehicle** as required.

38. Non-ferrous disc brakes are prohibited unless a **Standard Part** for that **Vehicle** or specifically authorised by the **ASN** for a class or category of **Vehicle**.

Steering

39. Must have a steering wheel with a continuously closed rim (except for Drag Race Vehicles). ‘D’ shape wheels are permitted.

40. Specifically not permitted are wheels having a noncontinuous rim shape similar to that shown in the **Diagram 2 (a)**. Along with other continuously closed rim shapes, those similar to **Diagram 2 (b)-(c)** are permitted.

41. **Vehicles of Periods A and B** may have a tiller or alternative to a steering wheel if it formed part of the original **Vehicle**.

42. Steering movement must be controlled to avoid fouling of wheels on **Chassis** or bodywork.

43. Rear wheel or four-wheel steering is prohibited unless fitted on a **Production Vehicle** by the manufacturer or permitted under the **Specific Technical Regulations** or **Official Documents**.

Wheels

44. Must have not less than four road wheels and tyres (excluding the spare).

45. Must not be fitted with any wheel spacer exceeding 25mm in thickness or of less than hub diameter. Multiple or **Laminated Spacers** and extended studs are prohibited.

46. Must have all hub nave plates and wheel embellishers removed.

**Tyres Chapter 8 may apply**

47. Must have tyres complying with **Specific Technical Regulations** and/or **Construction and Use**
Regulations (if Standard Road Tyres) for the duration of the Event.

48. Tyres if treded must have not less than 1.6mm of tread remaining at the start of a Race except Formula Ford 1600 which must have a minimum of 1mm of tread remaining at the start of a Race.

49. Where freedom of choice of tyres is left to the Competitor the responsibility rests with each Competitor to ensure that the tyres to be used are of adequate rating having regard to the potential speed of their Vehicle and the nature of the Event.

50. The fitment and / or use of pressure control valves to Wheels and / or tyres is prohibited.

51. Unless specifically permitted under the Regulations of the Event the use of chemical tyre softeners is not permitted.

52. The interior of the tyre (space between the rim and the internal part of the tyre) must be filled only with air or nitrogen. This does not preclude the use of inner tubes.

Cooling

53. Must have any fluid carrying lines or tubes carrying coolants through the Driver / Passenger compartment painted red except for HV Battery cooling lines. If lines are non-metallic then must be internally or externally metal braided hydraulic pressure hose. Where braided hose is used then all cooling lines must use anodized unions.

54. Screwed hose clips (e.g. 'Jubilee Clips') may only be used in conjunction with a suitably swaged pipe.

55. Radiator Caps should be pressure rated to suit the system and positioned or shielded in such a way that hot water or steam cannot scald the Driver of the Vehicle if they become opened or broken in an accident.

Transmission

56. Must have the transmission outside the Driver / Passenger compartment beneath the floor or secured in casings or coverings of solid material.

57. Must be equipped with a reverse gear in normal working order unless otherwise stated in Specific Technical Regulations. Racing Cars of Periods A to E are exempt from this requirement.

Front Engined Cars

58. With front engine Vehicles a propeller shaft restraint should be fitted. Either safety hooks or a rigidly fixed steel panel of not less than 18swg.

Clutch and Bell Housing Protection

59. It is recommended that a shield is placed to guard the clutch / bellhousing and to protect in case of clutch / flywheel derangement. This can be a 1/8in steel plate or sandbag type absorber as used in drag racing.

Oil Systems

60. Must have any oil lines passing through the Driver / Passenger compartment protected and if non-metallic to be of internally or externally metal braided hydraulic pressure hose.

61. Fuel Systems App. 4 Applies

62. Electrical Systems App.5 Applies (except as to Electrified Vehicles 'EV')
Weight / Ballast

63. If subject to a minimum weight that must be the weight of the Vehicle in the condition in which it crosses the finishing line (excluding Driver and Passenger) or at any time during the Competition and/or Practice (except for certain classes or formulae which include the Driver in the total weight).

64. Any ballast required must be attached to the shell/Chassis via at least 4 mounting points using bolts with a minimum diameter of 8mm each with steel counter plates of at least 400 sq mm surface area and 3mm thickness.

65. Provision must be made for the fixation of seals by Scrutineers if deemed necessary.

66. Where ballast is fitted to touring sports, sports racing or GT Vehicles it shall be fitted in the Passenger’s location.

67. Single seat racing cars are exempt from the above mounting requirements.

68. Exhusts App. 8 Applies

Safety

69. All Vehicles must comply with Safety Regulations as itemised under their Specific Technical Regulations.

70. The Vehicle occupant(s) seated in their normal position wearing normal equipment with seat belts fastened and the steering wheel in place must be able to evacuate the cockpit in a maximum of 10 seconds.

Miscellaneous Vehicles:

71. Must be of sound construction and mechanical condition and be well maintained.

72. Must have positive fastenings for all doors and all hinged or detachable parts of the bodywork.

73. Must have no temporary parts incorporated in the construction.

74. Need not be equipped with seat belts speedometer spare wheel or bumpers if the Event is held on private property unless specified to the contrary by Official Documents. Any exposed sharp ends of bumpers or other Bodywork must be protected.

75. Must not be a Vehicle of commercial type such as a van/pick-up which was initially intended solely for commercial or goods carrying unless permitted by the Official Documents.

76. Must have a minimum distance of 1830mm between the centre lines of the foremost front and rearmost rear substantial load-carrying wheels unless complying with an Approved Formula or being a standard production Vehicle.

77. Except for racing cars must be fitted with a windscreen.

78. If plastic windscreen side screens or rear windows are fitted the thickness must not be less than nominal 4mm (minimum 3.8mm). Except for Vehicle models originally in production prior to 1st January 1990 for new build Vehicles from 2022 they must be Polycarbonate with a nominal thickness of 6mm (minimum 5.8mm) for the windscreen.

79. Sports Vehicles supplied as standard with plastic side screens may retain them in their original thickness.

80. Must not have skirts bridging devices or any form of aerodynamic device between the Chassis and the ground/Track.
81. Any specific part of the Vehicle influencing its aerodynamic performance must:
   a. comply with rules relating to bodywork and
   b. be rigidly secured to the entirely sprung part of the Vehicle and
   c. remain immobile in relation to the Vehicle.

82. **Ground Clearance:** No part of the Bodywork or of the suspended part of the Vehicle can be below a horizontal plane passing 40mm above the ground (unless stated otherwise in Official Documents) the Vehicle being in normal racing trim with the occupants aboard.

83. A gauge conforming to ASN Technical requirements may be used by Scrutineers at any time during an Event to check Vehicle ground clearance. This should normally be on a recognised flat area when the Event is at a Race Circuit.

84. Must not carry or pass any liquids or gases other than air at atmospheric pressure in or through any tubes comprising part of the Chassis structure.

85. It is strongly recommended for all Competitors except Autotest participating in single Venue Competitions to have available at their paddock base and for multi-Venue Competitions to carry within their Vehicle a self-contained Spill Kit capable of effectively absorbing minor spillages of up to 1.25 litres of all Vehicle fluids – oils, fuels, coolants, battery acid. For Autotest an adequate quantity of Spill Kits must be available with the Organisers at the Event control.

86. Used Spill Kits are to be disposed of in accordance with local or National guidelines and or Venue Regulations. They must not be disposed of in general waste facilities at the Event.

87. Information devices (including but not limited to):
   a. data loggers
   b. displays
   c. instrumentation
   d. communication systems (where permitted)
   e. trip computers

   mounted within the cockpit must use a mechanical means of attachment sufficiently robust to withstand anticipated stresses and vibration and must not present any sharp edges or projections in the vicinity of the Driver's or Passenger's body or helmet. Where possible a secondary means of attachment should also be used. Suction mounts are not acceptable as the primary mounting method.

88. **On-Board Cameras App. 9 Applies**

89. **Competition Numbers App. 10 and App.14 Diagram 1 Applies**
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY EQUIPMENT

APPENDIX 3

Roll Over Protection Systems (ROPS)

Introduction
1. This Appendix is for ASN National and lower status Events.
2. Care should be taken to check FIA International requirements for Groups, Classes and Formulae which may not be covered by this section. The ASN generally aligns itself with FIA ROPS Regulations wherever possible.
3. The following are various specifications and configurations that can be used in manufacturing, preparing and installing Roll-Over Protection Systems (ROPS) into Production Cars, Touring Cars Saloon and Sports Cars (Arts.66 – 80), Sports Racing Cars (Arts.81 – 85), Single Seaters (Arts.86 – 90), and other forms of Competition Vehicles (Arts.91 – 93).
4. The details covered in this section give many permutations, the ASN mandatory requirements are the minimum acceptable.
5. The use of a rollbar to achieve or supplement aerodynamic effects is prohibited.

Definitions
6. Safety Cage: A structural framework designed to prevent serious bodyshell deformation in the case of a collision or a car turning over.
7. Rollbar: Structural frame or hoop and mounting points.
8. Rollcage: Structural framework made up of a main rollbar and a front rollbar (or two lateral rollbars), their connecting members, one diagonal member, backstays and mounting points (see Appendix 13 Diagram 14 and 15).
9. Main Rollbar: Structure consisting of a near-vertical frame or hoop located across the vehicle just behind the front seats.
10. Front Rollbar: Similar to Main Rollbar but its shape follows the windsreen pillars and top screen edge.
11. Lateral Rollbar: Structure consisting of a near-vertical frame or hoop located along the right or left hand side of the vehicle. The rear legs of a lateral rollbar must be just behind the front seats. The front leg must be against the screen pillar and dashboard such that it does not unduly impede entry or exit of Driver or Co-Driver.
12. Longitudinal Member: Longitudinal tube which is not a part of the main, front or lateral rollbar, for example, a backstay.
13. Diagonal Member: Transverse tube between a top corner of the main rollbar or upper end of a backstay and a lower mounting point on the opposite side of the rollbar or backstay.
14. Framework Reinforcement: Reinforcing member fixed to the rollcage to improve its structural efficiency.
15. Reinforcement Plate: Metal plate fixed to the bodyshell or chassis structure under a rollbar mounting foot to spread load into the structure.
16. Mounting Foot: Plate welded to a rollbar tube to permit its bolting or welding to the bodyshell or chassis structure, usually onto a reinforcement plate.
17. Removable Members: Structural members of a safety cage which are able to be removed.
18. **Harness Bar**: A transverse tubular member attached across either the main hoop or backstays to accept harness mountings.

**Specifications**

19. **ROPS** must be designed and made so that, when correctly installed, they substantially reduce the risk of injury to the occupants. The essential features of an efficient **ROPS** are that it is designed to suit the particular **Vehicle**, is of sound construction, has adequate mountings and is a close fit to the bodyshell.

20. The **ROPS** must not unduly impede **Driver** and **Co-Driver** access to the vehicle. Members may intrude into the interior space by passing through the dashboard, front side trim, rear side trim, and rear seats which may be folded down.

21. **ROPS** must not extend beyond the front upper or rear suspension mounting points of the **Vehicle** with the exception of backstays which may extend beyond the rear suspension mounting points if necessary to achieve the required 30° angle.

22. Any modification to a **Homologated ROPS** (other than fitment of **Roof Reinforcement**, **Windscreen Pillar Reinforcement**, **Doorbars** and **Harness Bars**) is prohibited.

23. Tubes must not carry any liquids or gases, other than air at atmospheric pressure, or any other item.

**Compulsory Diagonal Member**

24. Different ways of fitting the compulsory diagonal member are shown in [Appendix 13 Diagram 14 and 15](#). The combination of several members is permitted.

**Optional Reinforcing Member**

25. Each type of reinforcement (see [Appendix 13 Diagram 16 and 21](#)) may be used separately or combined with others.

**Technical Specifications**

26. **Main, Front** and **Lateral Rollbars**. These frames or hoops must be made in one piece without joints. Their construction must be smooth and even without ripples or cracks. The vertical part of the main rollbar must be as straight as possible and as close as possible to the interior contour of the bodyshell. The front leg of the front rollbar or a lateral rollbar must be straight or if it is not possible must follow the windscreen pillars and have only one bend unless a windscreen pillar reinforcement is fitted.

27. The mounting foot must not be rearward of the foremost point of the rollbar.

28. Where the main rollbar forms the rear legs of a lateral rollbar (see [Appendix 13 Diagram 15](#)), the connection to the lateral rollbar must be at roof level. To achieve an efficient mounting to the bodyshell, the original interior trim may be modified around the safety cage and its mountings by cutting it away or by distortion.

29. However this modification does not permit the removal of the complete parts of upholstery or trim. Where necessary the fusebox may be relocated to enable a rollcage to be fitted.

**Mounting of ROPS to the Bodyshell**

30. Minimum mountings are:
   a. 1 for each leg of the main or lateral rollbar.
b. 1 for each leg of the front rollbar.
c. 1 for each backstay.

31. Each leg of a main, lateral or front rollbar must be attached, via a mounting foot, by at least three bolts, minimum M8 ISO grade 8.8 and utilising a steel reinforcement plate of a material of at least the same thickness as the wall of the tube to which it is being welded (minimum 3mm) and of at least 120cm² area which is welded to the bodyshell (see Appendix 13 Diagram 22 to 27).

32. The mounting foot or leg may alternatively be welded directly to the bodyshell / reinforcement plate in accordance with Appendix 13 Diagram 22.

**Backstays**

33. These are compulsory and must be attached near the roofline and near the top outer bends of the main rollbar on both sides of the car. They must make an angle of at least 30° with the vertical, must run rearwards and be straight and as close as possible to the interior side panels of the bodyshell. Their materials specification, diameter and thickness must be as defined in Arts.60 - 67. Forward facing stays are permitted if an angle of 30° cannot be achieved with Backstays providing they do not unduly impede Driver and Co-Driver access to the Vehicle.

34. Their mountings must be reinforced by plates. Each backstay should be secured by bolts having a cumulative section area at least two thirds of that recommended for each rollbar leg mounting in Arts.30 – 34 above and with identical reinforcement plates of a least 60cm² area (see Appendix 13 Diagram 22). A single bolt in double shear is permitted providing it is of adequate section and strength (see Appendix 13 Diagram 29) and provided that a bush is welded into the backstay.

35. The mounting foot or backstay may alternatively be welded directly to the bodyshell/reinforcement plate in accordance with Appendix 13 Diagram 22.

**Diagonal Members**

36. At least one diagonal member must be fitted. Their location must be in accordance with Appendix 13 Diagram 14 or 15 and they must be straight. The combination of several diagonal members is permitted.

37. Where two diagonals in the form of a cross are used at least one of the diagonals must be a single piece tube.

38. The attachment points of the diagonal members must be so located that they cannot cause injuries. They may be made removable but must be in place during Events. The lower end of the diagonal must join the main rollbar or back-stay not further than 100mm from the mounting foot. The upper end must join the main rollbar not further than 100mm from the junction of the backstay joint, or the backstay not more than 100mm from its junction with the main rollbar.

39. They must comply with the minimum specification set out in Arts.58 – 65. A diagonal member fixed to the bodyshell must have reinforcement plates as defined in Arts.34 -36 above.

**Optional Reinforcement of ROPS**

40. The diameter, thickness and material of reinforcements must be as defined in Arts.58 - 65. They must be either welded in position or installed by means of demountable joints. Reinforcement tubes must not be attached to the bodyshell.
Transverse Reinforcing Members:
41. The fitting of two transverse members as shown in Appendix 13 Diagram 18 is permitted. The transverse member fixed to the front rollbar must not encroach upon the space reserved for the Driver or Co-Driver. It must be placed as high as possible but its lower edge must not be higher than the top of the dashboard.

Doorbars (for side protection):
42. Longitudinal members must be fitted at each side of the Vehicle (see Appendix 13 Diagram 18 and 21). They may be removable.
43. The side protection must be as high as possible but not higher than one half of the total height of the door aperture measured from its base.
44. Where two members in the form of a cross are used, at least one of the members must be a single piece tube.
45. Where configuration 12(j) is used a reinforcing gusset must connect the tubes along the horizontal length.

Roof Reinforcement:
46. Reinforcing the upper part of the rollcage by adding members as shown in Appendix 13 Diagram 19 is permitted.

Reinforcement of bends and junctions:
47. The reinforcement of the junction between the main rollbar or the front rollbar and the longitudinal members is permitted as shown in Appendix 13 Diagram 21 as is the reinforcement of the top rear bends of the lateral rollbars.
48. The ends of these reinforcing tubes must not be more than half-way down or along the members to which they are attached.

Windscreen Pillar Reinforcement:
49. A tube the upper end of which must be less than 100mm from the junction between the front (lateral) rollbar and the longitudinal (transversal) member and the lower end less than 100mm from the front mounting foot of the front (lateral) rollbar, as shown in Appendix 13 Diagram 68.
50. The tube may be bent on condition that it is straight in side view and that the angle of the bend does not exceed 20°.

51. Protective Padding: Where the Driver’s or Co-Driver’s bodies or crash helmets could come into contact with the ROPS, non-flammable padding should be provided for protection.
52. It is recommended that rollbar / rollcage tubes within 150mm of a vehicle occupant’s helmet are covered with a suitable energy absorbing material. Suitable materials are Homologated by the FIA who publish specific regulations for the fitment of such materials for Vehicles participating in International Event.
53. Removable Members: Should removable members be used in the construction of a ROPS the demountable joints used must comply with an approved type (see Appendix 13 Diagram 30 to 38 and Diagram 46). The screws and bolts must be of adequate diameter and of ISO Standard 8.8 or better. FIA Homologated demountable joints are also permitted.
54. Demountable joints must not be used as part of a main, front or lateral rollbar because they act as hinges in the
principal structure and allow deformation. Their use is solely for attaching members to the rollbars and for attaching a lateral rollbar to a main rollbar (see Appendix 13 Diagram 11). In this last case, hinged joints in Appendix 13 Diagram 30 to 38 and Diagram 46 must not be used.

**Guidance on Welding**

55. All welding should be of the highest possible quality with full penetration and preferably using a gas shielded arc.

56. Although good external appearance of a weld does not necessarily guarantee its quality, poor looking welds are never a sign of good workmanship.

57. When using heat-treated steel the instructions of the manufacturer must be followed (special electrodes, gas protected welding).

58. It is to be emphasised that the use of heat-treated or medium carbon steels may cause problems and that bad fabrication may result in a decrease in strength (caused by brittle heat-affected zones) or inadequate ductility.

**Harness Bars**

59. Minimum dimensions 38mm x 2.5mm or 40mm x 2.0mm. Cold Drawn Seamless Carbon Steel with minimum tensile strength of 350N/mm². Harness straps may be attached by looping around the tube or by threaded fixings using inserts as drawing No. 44 welded into the tubes(s).

**Material Specifications**

60. Specifications of the tubes used:

   a. **Material**
      
      Cold Drawn Seamless Unalloyed Carbon Steel, containing a maximum of 0.3% of carbon.
      
      Note: For an unalloyed carbon steel the maximum content of additives is 1.7% for manganese and 0.6% for other elements.

   b. **Minimum Yield Strength**
      
      350 N/mm²

   c. **Minimum Dimensions (Ø in mm)**
      
      i. Mandatory tubular members
         
         45 x 2.5 (1.75” x 0.095”) or 50 x 2.0 (2.0” x 0.083”)
         
         38 x 2.5 (1.5” x 0.095”) or 40 x 2.0 (1.6” x 0.083”).
         
         (For roll cages/bars approved prior to 1.1.95).
      
      ii. Optional tubular members
         
         38 x 2.5 (1.5” x 0.095”) or 40 x 2.0 (1.6” x 0.083”).

61. In selecting the steel, attention must be paid to obtaining good elongation properties and adequate weldability.

62. The tubing must be bent by a cold working process and the centreline bend radius must be at least three times the tube diameter. If the tubing is ovalised during bending, the ratio of minor to major diameter must be 0.9 or greater.

**Exceptions**

2025 National Competition Rules Chapter 7 Appendix 3 Roll Over Protection Systems (ROPS)
63. The only exceptions to the foregoing requirements for Saloon, Single Seater and Sports Cars are as follows:
   a. ROPS manufacturers may make application to the ASN for a Roll Over Protection System (ROPS) Certificate to be issued.

64. Note: ROPS manufacturers wishing to make application for such a certificate should contact the ASN Technical Department in order to obtain details of the requirements to be met and the fees payable. Subject to these requirements being met a ROPS Certificate will be raised and issued. Duly authorised copies of this certificate containing a drawing, photographs, a copy of the manufacturers declaration that the ROPS meets the required regulations should be available to Event Scrutineers.

65. Each ROPS manufactured after 1.1.97 for which the ASN or the FIA has issued a ROPS (Rollcage) Certificate must bear an identification plate which details the manufacturer and the manufacturer’s part number allocated to the cage. Details of this identity plate are to be included on the ROPS (Rollcage) Certificate.

Vehicle Categories Covered

Series Production, Touring and Sports Cars.

66. Production Cars, Touring Cars, Sports cars up to 2,000cc – Basic rollbar / rollcage complying with K1 or K2.

67. Production Cars and Touring Cars over 2,000cc – Rollbar / rollcage complying with App.13 Diagram 12 or 13.

68. Sports Cars over 2,000cc – Rollbar / rollcage complying with Appendix 13 Diagram 12 or 13 or 64.a & 64.b and Diagram 47.

69. The different possibilities of installing the optional reinforcing members to the rollcage are shown in Appendix 13 Diagram 16 to 21.

70. Each type of reinforcement (Appendix 13 Diagrams 16 to 21) may be used separately or combined with one or several others).

71. These reinforcements can be installed in each of the basic rollcages (Appendix 13 Diagram 10 to 13).

Material

72. As defined in Arts.60 - 62.

73. Note: For all the ROPS which are FIA Homologated after 1.1.2000 for Touring Cars the presence of the ROPS in the door aperture must comply with the following criteria (see Appendix 13 Diagram 63 in this section).

74. Dimension A must be a minimum of 300mm.

75. Dimension B must be a maximum of 250mm.

76. Dimension C must be a maximum of 300mm.

77. Dimension D (Measured from the upper corner of the windscreen, without the seal) must be a maximum of 100mm.

78. Dimension E must not be more than half height of the door aperture.

79. ASN Certified and non-Homologated ROPS constructed after 1.1.2001 in accordance with Appendix 13 Diagram 21 must also comply with the above dimensions.

80. Vehicles of Periods A-Z as defined within the current FIA yearbook for which a valid FIA Historic Technical Passport (HTP) has been issued – be fitted with a rollbar / rollcage as specified within the HTP issued for each individual Vehicle and with that Vehicle being in compliance with that specification.

2025 National Competition Rules Chapter 7 Appendix 3 Roll Over Protection Systems (ROPS)
Sports Racing Cars  
81. The rollbar must conform to Appendix 13 Diagram 64.a and 47.  
82. Forward facing stays are permitted for open Sports Racing Cars.  
83. Minimum height 92cm measured along the line of the driver’s spine from the bottom of the car seat.

Material  
84. Cold drawn seamless carbon steel 350N/mm².

Minimum Dimensions (mm)  
85. 45 x 2.5 (1.75in x 0.095in) or 50 x 2.0mm (2.0in x 0.083in).

Single Seat Racing Cars  
86. The rollbar must be symmetrical about the lengthwise centre-line of the car and of minimum height 900mm measured vertically from the base of the cockpit or 920mm measured along the line of the Driver’s spine from the bottom of the car seat. There must be at least one brace rearwards from the top of the rollbar at an angle not exceeding 60° with the horizontal, this brace must be the same diameter as the rollbar, if two braces are fitted to the tube the diameter may be reduced to 26mm x 2.5mm (1in x 0.095in). Where two braces are fitted, they may be rearward or forward facing.

87. The width inside the roll-over bar main tubes must be 380mm minimum measured 600mm above the base of the seat. It must incorporate a crossbrace to restrain the driver’s head and give rearward support. The top hoop radius must not be less than 100mm measured at the centre line of the tube.

Material  
88. Cold drawn seamless Carbon steel 350N/mm².

Minimum dimensions (mm)  
89. Vehicles up to 470kg:  
38 x 2.5 (1.5in x 0.095in) or 40 x 2.0 (1.6in x 0.083in).

90. Vehicles 470kg and over  
45 x 2.5 (1.75in x 0.095in) or 50 x 2.0 (2.0in x 0.083in).

Other Considerations  
91. An effective rollbar must be fitted with its top edge not less than 50mm above the helmet of the normally seated driver. It must be wider than the driver’s shoulders at that height. It must be constructed of good quality seamless steel tubing of minimum 35mm diameter and wall thickness of 2mm. It should have the top bar straight or slightly curved but no tubes meeting in an inverted ‘V’. It must be effectively braced to structural members.

92. Non-standard Vehicles are advised to fit a rollbar to the following minimum requirements.  
   a. Minimum height 72cm from the rear of the uncompressed seat cushion.  
   b. It must have minimum flat width of 38cm running into radiused corners and affording driver and if applicable Passenger equal protection.  
   c. It must be effectively mounted and braced to structural members forward and aft of the cockpit and not
less than cockpit width.

d. It must be constructed of good quality seamless steel tubing of minimum 32mm diameter and wall thickness of 1.5mm.

93. ALL aluminium alloy Roll Cages are prohibited.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY

APPENDIX 4

Fuel and Fuel Systems

General

1. **Pump Fuel** All Competitors must use Pump Fuel (see definition Chapter 8 and Chapter 1 App.1) except subject to prior written authority having been given by the ASN where permitted otherwise under Event Official Documents and Championship Regulations.

2. **Fuel Tanks and Pipes** Every effort should be made to isolate fuel tanks and pipes from the Driver / Passenger compartment.

3. The risk of fuel spillage from accident damage can be reduced by use of Safety Fuel Cells or by bag type tanks or by coating metal tanks with GRP.

4. **Tanks** should be located so that they are given maximum protection by the structure of the Vehicle.

5. Where applicable the entire fuel tank area ‘Licked’ by the open air-stream must incorporate a crushable structure as below.

6. **Vents** should be designed to avoid spillage if the Vehicle becomes inverted.

7. **Filler Fillers** should be designed and located to reduce risk of damage.

8. **Filler caps** should not be liable to open in the case of an accident. Simple screw caps are effective. The positive locking of the fuel filler cap(s) is recommended.

9. **The filler pipe** to the tank should be of minimum possible length and not protrude beyond the bodywork.

Tank Fillers, Vents and Caps

10. Tank fillers and caps must not protrude beyond the bodywork or be situated within the Driver / Passenger compartment. The caps must have an efficient locking action to reduce the risk of opening during an accident and to ensure closing after refuelling.

11. Air vents must be at least 250mm to the rear of the cockpit and must be designed to prevent the escape of fuel should the Vehicle be inverted. It is recommended that a non-return valve is incorporated in the vent system.

Crushable Structure

12. The crushable structure should be a sandwich construction based on a fire-resistant core of minimum crushing strength 25lb/sq in. It is permitted to pass water pipes through this core.

13. The minimum thickness of the sandwich construction must be 10mm.

14. The fore and aft fuel tank area, however, must provide for a crushable structure of at least 100mm thickness at its thickest point and over a length of at least 350mm after which it may be generally reduced to 10mm. The position of this widest point to be at the constructor’s discretion.

15. The sandwich construction must include two sheets of 1.5mm thick aluminium sheet having a tensile strength of 14 tons/sq in and minimum elongation of 5%.
Safety Fuel Cells
16. The FIA approved standard for Safety Fuel Cells is FIA Standard FT3-1999, FT3.5-1999 and FT5-1999. Fuel cells complying with this standard are only manufactured by authorised companies and bear the FIA Homologation Label on each cell.
17. No other cells are approved by the FIA.
18. At International Status Events, Under FIA Regulations the homologation expires once the cell is five years old. The validity of this homologation may be extended for a further two years if the cell is inspected and recertified by the original manufacturer.
19. It is recommended that any safety cell is periodically inspected on a regular basis.

Fuel Systems
20. Must have any fuel lines passing through the Driver / Passenger compartment protected and, if non-metallic, to be internally or externally metal braided hydraulic pressure hose or fuel lines complying with FIA specifications.
21. Fuel lines may only be joined by screwed sealing joints or vehicle manufacturers approved joint.
22. If fitted with fuel fillers in a closed boot, or under closure, have collector / spill trays incorporated to drain outside the Vehicle.

Fuel sampling
23. With the exception of Vehicles competing in Sprint and Hill Climb Standard Cars and Road Cars Categories, Vehicles competing in British and ASN Titled Championships for, and all Vehicles built after 01 January 2013 for, Rallycross, Car Racing, Special Stage Rallying, Sprints and Hill Climbs must be equipped with the facility to enable a fuel sample to be taken.
24. For fuel injected Vehicles the facility must be a dry break fuel sampling coupling, approved by the FIA, Competitors must carry and make available a 300mm minimum length of hose to which, where necessary, the appropriate mating part is to be attached.
25. The fuel system must have sufficient fuel for a fuel test (Chapter 8) present at any time during the Event. Breach of this Regulation will give rise to Disqualification (Chapter 2) from the Results of the Event on the principle of a breach of Technical Regulations.

Non-Pump Fuel Methanol and LPG
26. If using non-Pump Fuel a 70mm diameter 'Day- Glo' orange disc must be affixed immediately adjacent to the Competition Numbers on both sides.
27. Any Vehicle using methanol must include an ASN-approved additive which provides a distinguishable colour and smell when burning. The maximum permitted volume of additive within the fuel is 0.2%.
28. If using LPG, the entire system must conform with Construction and Use Regulations and LPG Industry Technical Association Codes of Practice in force at the date of the Event.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY EQUIPMENT

APPENDIX 5

Electrical Systems

General

Safety for Competitors and Officials is paramount

1. **Wiring** should be of high quality and suitable to its function.
2. **Wiring and systems** must be secured and well protected to reduce the risk of fire from electrical short circuits.

Batteries

3. Auxiliary Batteries should be secured within a nonconductive leak-proof compartment.
4. Except for **Racing Cars** be equipped with battery, generator, self-starter, side, tail, and brake lights. All this equipment to be in normal working order. Exceptionally when taking part in an event held totally off the Public Highway, need not comply with DfT Statutory Requirements regarding lighting or horn.
5. Have Auxiliary Batteries duly protected to exclude leakage of acid and to protect terminals from short circuiting and producing sparks.
6. If located in the Driver / Passenger compartment, where a Passenger / Co-Driver is present the Auxiliary battery must be situated to the rearwards of the base of the Driver's or Passenger / Co-Driver's seat and 'wet' batteries must be enclosed in a securely located leak-proof container.
7. Have the Auxiliary Battery earth lead, if not readily distinguishable, identified by a yellow marking.
8. If non lead acid Auxiliary Batteries are used as the main Vehicle battery, they battery pack(s) must carry the appropriate "EC" and markings and be either a Standard Part or manufactured by an ASN registered manufacturer.
9. Except for **Electrified Vehicles**, the total quantity of recuperated energy stored in the Vehicle must not exceed 200 kJ; this energy may be re-used without exceeding 10 kJ by means of 1kW maximum.

Starters

10. If required to have a self-starter, be able to demonstrate during the Competition that it is capable of starting the engine.

Radio suppression

11. Engines must be fitted with effective radio interference suppressors.

High Voltage (60V+)

12. With the exception of ignition systems any Vehicle incorporating an electrical system which may run at a voltage exceeding 60V must display the sign detailed in Drawing 1 of this Appendix next to all Competition Numbers.

Drawing 1
External Circuit Breaker

13. The circuit breaker, when operated, must isolate all electrical circuits with the exception of those that operate fire extinguishers.

14. Any re-set of the circuit breaker must be operated by a distinct different action to the trigger.

15. The triggering system for the circuit breaker on saloons should be situated at the lower part of the windscreen mounting, preferably on the Driver’s side or below the rear window.

16. On Open Cars the triggering system should be situated on the lower main hoop of the Roll-over Bar on the driver’s side or at the lower part of the windscreen mounting (as above).

17. Alternatively on Vehicles of Periods A to F the mounting point may be mounted approximately vertically below the line of the scuttle on the Driver’s side.

18. The triggering system location must be identified by a Red Spark on a White-edged Blue triangle (12cm base), with the ‘On’ and ‘Off’ positions and method of triggering (Push, Pull, or a Rotation direction indicated by an arrow) clearly marked.

Red Warning Light

19. A rearward facing red warning light of a minimum of 21 watts, with surface area minimum 20cm², maximum 40cm², or of 21 watts with a surface area minimum of 50cm² and with lens and reflector to EU Standards, must be located within 100mm of the centre line of the vehicle and be clearly visible from the rear.

20. Vehicles fitted with full width bodywork may alternatively use two lights equally located about the Vehicle centre line.

21. An alternative light unit of equal or enhanced constant luminosity or LED lights that are either homologated by the FIA or comply with relevant EU Regulations may be used.

22. The warning light must be switched on when visibility conditions are reduced, or as detailed within Championship and / or Event Regulations, or when so instructed by the Clerk of the Course.

23. Electrically operated Fire Extinguishers Refer to App. 6.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY EQUIPMENT

APPENDIX 6

Fire Extinguishers and Systems

General

Plumbed-In Fire Extinguisher Systems

1. Where a plumbed-in fire extinguisher system is required the Vehicle must be equipped with an extinguishing system in compliance with FIA Standard for plumbed-in Fire Extinguisher Systems in Competition Cars (1999) or with FIA Standard 8865-2015.

2. The system must be used in accordance with the manufacturer’s instructions and with FIA Technical Lists n°16 or n°52.

3. In Rallies the minimum quantity of extinguishant for systems of FIA Technical List n°16 must be 3 kg.

4. For Electrified Vehicles see Appendix 11 to this Chapter.

5. All extinguisher containers must be adequately protected and must be situated within the cockpit.

6. The container may also be situated in the luggage compartment on condition that it is at least 300 mm from the outer edges of the bodywork in all horizontal directions. It is prohibited to mount bottles outside the main structure.

7. It must be secured by a minimum of 2 screw-locked metallic straps and the securing system must be able to withstand a deceleration of 25g.

8. Anti-torpedo tabs are required.

9. The material of the securing system must operate within the –15°C to +80°C temperature range.

10. All extinguishing equipment must withstand fire.

11. Plastic pipes are prohibited and metal pipes are obligatory (unless specified otherwise). The system must work in all positions.

12. The system should have two points of triggering one for the driver (and Co-driver in Rallies) and one outside the Vehicle for activation by Marshals etc.

13. The Driver (and Co-Driver where applicable) must be able to trigger the extinguishing system manually when seated normally with his safety harnesses fastened and the steering wheel in place.

14. The triggering point from the exterior must be positioned close to the Circuit Breaker (or combined with it) and must be marked by the letter “E” in red inside a white circle of at least 10cm diameter with a red edge.

15. Extinguisher nozzles must be suitable for the extinguishant and be installed in such a way that they are not directly pointed at the occupants’ heads.

Electrically operated Fire Extinguishers

16. Wiring should be of high quality and suitable to its function.

17. Wiring and systems must be secured and well protected to reduce the risk of fire from electrical short circuits.

Hand-held extinguishers

18. Where a hand-held fire extinguisher is required the Vehicle must be equipped with at least one fire extinguisher.
Permitted extinguishants:
19. AFFF Clean Agent powder or any other extinguishant homologated by the FIA.

Minimum quantity of extinguishant:

**AFFF foam** (includes: FireSense Zero 2000 F-TEC etc)
- 2.4 litres

**Gas** (includes: Novec 1230 FX G-TEC/N-TEC Viro3 Zero 360 Extreme etc)
- 2.0 kg

**Powder**
- 2.0 kg

20. **All extinguishers must be pressurised** according with the manufacturer’s instructions. Powder extinguishers must be pressurised to 8 bars minimum 13.5 bars maximum.

21. All extinguishers must be equipped with a means of checking the pressure of the contents.

22. The following information must be visible on each extinguisher:
   - Capacity
   - Type of extinguishant
   - Weight or volume of the extinguishant
   - Date the extinguisher must be checked which must be no more than two years after either the date of filling or the date of the last check or corresponding expiry date.

24. All extinguishers must be adequately protected.

25. Their mountings must be able to withstand a deceleration of 25g. Furthermore only quick-release metal fastenings (two minimum) with metal straps are accepted. Anti-torpedo tabs are required. It is prohibited to mount bottles outside the main structure.

26. The extinguishers must be easily accessible for the **Driver** and the **Co-Driver**.

During events:

27. All plumbed-in extinguisher systems must be in an ‘ARMED’ condition (i.e. be capable of being operated without the removal of any safety device) at all times whilst competing or **Practicing** in races or **Speed Events** (including during post-**Event Scrutineering**) and at all times that crash helmets are worn on **Rallies** (i.e. on **Stages** etc.).

28. Any plumbed-in extinguisher system found to be incapable of being operated will be the subject of a report to the **Clerk of the Course / Stewards** for possible penalty as an offence against **Safety Regulations**.

29. Checking for correctly ‘Armed’ extinguisher systems should only be carried out by **ASN Scrutineers** and / or **Judges of Fact** nominated for that purpose.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY EQUIPMENT

APPENDIX 7

Seats, Harnesses and Headrests

General Seating
1. Have a normal adequate seat for the Driver (and Co-Driver where applicable).
2. With the occupant seated, the seat must be correctly located and securely anchored within the compartment and must not tilt, hinge or fold unless it is a production seat fitted with a serviceable locking mechanism preventing independent operation.
3. It must support and retain the Driver within the Vehicle.
4. The seat cushion (i.e. the part on which the occupant sits) when uncompressed, must not be less than 152.5mm below the top edge of the adjacent body side or door.
5. Any other seats fitted must similarly comply and all seats must face forward.
6. Vehicles of Periods A to D are exempt from this requirement.
7. If a single seater the maximum time for a Driver to get in or out of the Vehicle must not exceed 10 seconds.

Seats
8. All seats should be correctly located and securely anchored in such a way as to allow no movement in squab or backrest. When installing a Competition Seat, carry out the following checks before selection or purchase:
   a. Study the requirements of the Vehicle concerned and ask the manufacturer’s advice and recommendations.
   b. Check that the seat is suitable for the type of forces to which it could be subjected. These will include fore and aft and lateral loadings.
   c. Check that the seat carries full instructions for installation in your Vehicle.
   d. Check that suitable mounting installations are available from the manufacturer.
   e. Ask the manufacturer to confirm that the seat frame is suitable for your Motor Sport discipline.
   f. If the original seat attachments or supports are changed, the new parts must either be approved for that application by the seat manufacturer or must comply with the following specifications (see Appendix 13 Diagram 48).
9. Supports must be attached to the shell / Chassis via at least 4 mounting points per seat using bolts with a minimum diameter of 8mm and counterplates, according to Appendix 13 Diagram 48.
10. The minimum area of contact between support, shell / Chassis and counterplate is 40 sq cm for each mounting point.
11. In Series Production Cars manufacturers’ standard seat mounting points may be used.
12. If quick release systems are used they must be capable of withstanding vertical and horizontal forces of 18000N, applied non-simultaneously.
13. If rails for adjusting the seat are used, they must be those originally supplied with the homologated Vehicle or with the seat.
14. For new build Vehicles from 1st January 2021, where transverse seat mounting rails are used, they must be
compliant with Appendix 13 Diagram 66.a or homologated by the FIA or an FIA recognised ASN.

15. The end plates may alternatively be welded to the counterplate.

16. Multiple mounting holes, to a maximum of 4 at each mounting point, are permitted as shown in Appendix 13 Diagram 66b. – c.

17. Appendix 13 Diagram 66.a – c. Material specification:

18. **Tube**
   - Cold Drawn Seamless Unalloyed Carbon Steel Minimum Yield strength 350N/mm²
   - Minimum dimensions 35mm diameter x 2.5mm wall thickness

19. **Box Section (Structural)**
   - Unalloyed Carbon Steel
   - Minimum Yield Strength 350N/mm²
   - Minimum dimensions 35mm square x 2.5mm wall thickness

20. Any mounting holes drilled in the seat rails must have bushes installed, these must be fully welded. The bushes must be profiled to prevent them being pulled through, alternatively they may be of ‘top hat’ type inserted from below. Minimum bush diameter 13mm for M8 bolts, 15mm for M10 bolts. Multiple bush position are permitted.

21. The minimum overall length of the ‘U’ shape extruded section is 50mm with a 2.5mm wall thickness.

22. Each mounting point must be capable of withstanding a force of 15000N applied in any direction.

23. The seat must be attached to the supports via 4 mounting points, 2 at the front and 2 at the rear of the seat, using bolts with a minimum diameter of 8mm and reinforcements integrated into the seat.

24. The minimum thickness of the supports and counterplates is 3mm for steel and 5mm for light alloy materials. The minimum longitudinal dimension of each support is 6cm.

**Headrests**

25. On all Vehicles where it is not mandatory it is strongly recommended that a head restraint in the form of a headrest be fitted as Head Restraints below.

**Head Restraints**

26. **Head Restraints** when required to be fitted, must be capable of restraining a 17kg mass decelerating at 5g.

27. Dimensions to be 100mms x 100mms and located such that the Driver’s / Passenger’s, head / helmet is restrained and cannot move past it under rearward forces or be trapped between the rollbar and the head restraint. It is recommended that it be within 50mm of the Driver’s / Passenger’s helmet when they are normally seated.

**Harnesses (Seat Belts)**

28. All seat safety belts must be complete units sourced from a recognised manufacturer and fitted in accordance with the manufacturers’ instructions, ASN recommendations or FIA requirements. (Diagrams 49, 50, 51, 52 and 65).

29. Where the Vehicle manufacturer's standard safety belts and associated fitments are not utilised, bolts must be steel and of a minimum 7/16in UNF or M12 (grade 8.8) or, for an FIA homologated harness, as specified by the harness manufacturer.
Three point
30. Either one diagonal shoulder strap and one lap strap, or two merged shoulder straps and one lap strap bearing an ECE ‘E’ mark. With three anchorage points on the Chassis/body shell or roll over bar of the Vehicle on either side and to the rear of the Driver’s seat.

Four point
31. Two shoulder straps and one lap strap, with four anchorage points on the Chassis / body shell or roll over bar of the Vehicle, one either side of the Driver and two to the rear of the Driver’s seat.

Five point
32. Two shoulder straps, one lap strap and one strap between the legs with five anchorage points on the Chassis/body shell or roll over bar of the Vehicle, one either side of the Driver, two to the rear of the Driver’s seat and one between the legs.

Six Point
33. Two shoulder straps, one lap strap and two straps between the legs, with six anchorage points on the Chassis/body shell or roll over bar of the Vehicle, one either side of the Driver, two to the rear of the Driver’s seat and two between the legs.

34. Where safety harnesses are mandatory it is recommended that 4 or 5 or 6 point harnesses are used and are Homologated by the FIA and carry their label.

35. It is permitted to make a hole in series production seats to allow secure anchoring of seat belts.

36. International Events
All harnesses must be homologated by the FIA and carry their label.

37. For National Events where Specific Regulations require an FIA Homologated harness, harnesses Homologated by the FIA according to FIA standard 8853-2016 may be used for up to five years after the year stated on the label.

38. Harnesses Homologated by the FIA according to FIA standards 8853/98 and 8854/98 may be used until 31st December of the year stated on the label.

39. Harnesses Homologated by the FIA will display the FIA Homologation Label on the left shoulder strap.

40. It is not permitted to mix parts of seat belts. Only complete sets as supplied by manufacturers are to be used.

41. Only one release mechanism is permitted on each seat belt configuration and this must be available for the wearer to operate whilst seated in the competing position.

42. The anchorage points to the rear should be positioned so that the strap from the shoulder is as near horizontal as possible. It should not be located on the floor directly behind the Driver / Co-Driver.

43. Seat belts once involved in a serious accident must be discarded as they are likely to have stretched.

44. Belts subjected to oil, acid or heat should be replaced.

45. Elastic devices attached to the shoulder strap are forbidden.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY REQUIREMENTS

APPENDIX 8

Exhausts Silencing and Noise Testing

Exhausts
1. The exhaust system must be isolated from the Driver / Passenger compartment (e.g. beneath the floor or secured in casings of solid material).
2. No part of the exhaust system on a Racing Car with rear aerodynamic device may extend rearwards beyond the aerofoil.
3. If a Racing Car without aerodynamic device must not have exhaust pipes extending more than 600mm beyond the rear wheel axis.
4. If Rear Engined Single Seater Racing Car must have the exhaust outlet between 40mm and 600mm from the ground.
5. Have all exhaust outlets terminating behind the mid-point of the wheelbase of the vehicle and within 150mm of the outside of the bodywork periphery in plan view.
6. Side exhausts must not protrude more than 40mm.
7. For Vehicles other than Racing Cars that are not fitted with enveloping bodywork any side exhaust must not extend beyond the plane through the outside of the front and rear tyres with the front wheels in the straight-ahead position. Cars of Periods A to E and Drag Race Vehicles are exempt from these requirements.
8. Exhaust catalytic converters must be fitted to all petrol engined production-based saloon touring and Sports Cars including specialist production and kit cars manufactured after 31/12/99. They may be specified for certain other Formulae. Competitors are reminded of their obligation to maintain such equipment on a Vehicle used on the highway where government legislation requires it.

Silencing
9. The reason for Silencing (NOISE CONTROL) is to reduce environmental impact and to keep Motor Sport running. Environmental Protection legislation has increased the pressure on activities generating Noise and Local Authorities have the power to suppress any Noise source deemed to be causing a nuisance. Our system of control is acceptable to most Environmental Bodies and must be considered as part of eligibility to Compete in Events.
10. All competing Vehicles are subject to mandatory silencing unless a specific waiver for that Class or Formula is granted. Where specified as mandatory a silencer must be used irrespective of the exhaust Noise generated without it.
11. Vehicles which comply with the Technical Regulations of FIA Formulae and Championships set out in the current FIA Yearbook and other FIA approved Championships, Series and Cups which are participating in races for such Formulae Championships, Series and Cups at Events which have been entered on the FIA International Calendar are exempt from ASN Noise test requirements but must comply with the Noise test requirements set out in the appropriate Formulae Championship, Series or Cup Regulations.
12. Silencing is not mandatory in competitions catering exclusively for the following categories of Vehicle but is strongly recommended and may be made mandatory in the Official Documents at the request of the Circuit /
**Venue** owners:

a. All Vehicles of Periods A to D. (This does not include Events any part of which takes place on the Public Highway where national laws will apply.)

b. Formula 1 and other Single Seater Racing Cars of Periods E and F.

c. Drag Race Vehicles.

exhausts must not protrude to the rear of the bodywork more than 15cm.

13. For GB3, British GT and British Touring Car Championships the Noise test shall be conducted as set out within these regulations with the engine running at 3/4 maximum speed the Noise level meter at a height of 0.5 metres above the ground (± 0.1 metre) located at 45° to and 0.5 metres distant from the exhaust with a maximum permitted Noise level of 118dB(a).

14. Temporary Silencers by-pass pipes or the inclusion of temporary parts to achieve silencing requirements are prohibited. Officials may refuse to carry out Noise Checks on vehicles utilising temporary parts in exhaust systems. Organisers are empowered to disqualify in such situations.

15. Circuit / Venue owners / Organisers may impose additional restrictions including in the Official Documents.

**Noise Test Requirements (Appendix 13 Chart 1)**

16. Noise testing should be carried out BEFORE taking part in any Competition.

17. Specific Regulations apply to Rally (Chapter 13) and Kart Racing (Chapter 18).

18. The time and location of Noise testing should be advised to Competitors prior to the Event.

19. Measurements will be made at 0.5m from the end of the exhaust pipe with the microphone at an angle of 45° with the exhaust outlet and at a height of 0.5 to 1.0m above the ground.

20. Where more than one exhaust outlet is present the test will be repeated for each exhaust and the highest reading will be used. In circumstances where the exhaust outlet is not immediately accessible the test may be conducted at 2.0m from the centre line of the vehicle at 90° to the centre line of the vehicle with the microphone 1.2m above the ground.

21. Measurements should be made outdoors with no large reflecting objects (e.g walls etc.) within 3.0m (in the 0.5m test) or within 10.0m (in the 2.0m test).

22. Background Noise levels should be at least 10dB(A) below the measured level.

23. Where possible measurements should be taken as close as possible to the vehicle at the defined distances to avoid background Noise.

24. Cars of Periods A to D falling within Sections C and D should run engines at two thirds maximum RPM.

25. The 2.0m test can be made from either side of the Vehicle.

26. The highest reading registered being the one needing to comply with the maximum Noise requirements.

27. It is stressed that all participants in Motor Sport Competitors Officials Marshals etc. should be aware of and protect themselves from Noise.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY EQUIPMENT

APPENDIX 9

Onboard Cameras

1. The carrying of on-board cameras / videos for personal use is permitted unless prohibited by Event regulations. The carrying of on-board cameras / videos for commercial use is prohibited unless authorised by the Event Organiser.

2. Where Event or Championship Regulations require the fitting of a camera, the location and method of fitting should be specified.

3. Where forward facing cameras are fitted for judicial purposes they should be mounted to capture an image that provides a 'driver's eye' view that should include, where possible, the steering wheel, 'dashboard' and a view of the Course ahead with a field of vision of approximately 100 degrees. In open wheel cars and Karts both front wheels should be in view where possible. The fitting of rear-facing cameras may also be required for judicial purposes.

4. Where cameras are permitted but not mandated by the Organiser, they may be mounted in any location on the Vehicle which is considered safe by the Chief Scrutineer.

5. The mounting of any camera must be specifically approved by the Chief Scrutineer. Any mountings must use a mechanical means of attachment sufficiently robust to withstand anticipated stresses and vibration and must not present any sharp edges or projections in the vicinity of the driver's body or helmet. Where possible, a secondary means of attachment should also be used. Suction mounts are not acceptable as the primary mounting method. Where cameras are fitted by professional TV or film companies, the Chief Scrutineer has discretion to approve non-mechanical mountings.

6. For Karting the above provisions apply but the weight of the camera excluding any additional casing and mounting and associated fixings must not exceed 100gms.

7. Competitors may be obliged to use mountings and / or cameras specified and / or approved by the Organiser and these too must comply with the above Regulations.

8. Fitting of cameras to helmets is only permitted in accordance with Chapter 9 whereby only the helmet manufacturer’s integral camera can be used and the helmet with camera installed is approved under an accepted standard.

9. Fitting of on-board cameras in Road Rallies is forbidden.

10. Unless specified by the Organisers the choice of system is free but playback must be possible at the Event by regular means such as a lap top computer.

11. Clerks of the Course and Stewards should not refuse to view relevant on-board footage during any judicial process unless they consider there is a good reason why it should not be viewed (in which case such reason must be stated as part of their written decision).

12. Where the camera has not remained under the control of the Organisers the Judicial body must be satisfied as to the authenticity of such footage and must consider the weight they will give to such evidence.
13. Where a camera is mandated, if no images are available upon request (other than due to a proven defect with the equipment) sanctions may be applied in accordance with Chapter 2. The burden of proof to establish the cause of such failure shall lie with the Competitor.

14. The Clerk of the Course may also refer the matter of lack of recorded images to the Stewards of the Event for further sanctions or referral to the ASN.

15. In the Event of judicial action being instigated all relevant on-board footage must be retained until the time period for conclusion of all judicial matters has elapsed.

16. All on-board footage relied on to convict a Competitor of a breach of Regulations must be retained and forwarded to the ASN.

17. All on-board footage recovered from a Vehicle involved in a Serious Incident must be retained by the ASN Steward where appointed (otherwise by the Senior Event Official) and forwarded to the ASN with the Incident Report.

18. Where it is necessary for a Clerk of the Course to review footage after an Event such footage should normally be reviewed within a period of 7 days of the Event always subject to the Right of Review.

19. Competitors should be aware of any rights including copyright in relation to footage captured by on board cameras at an Event. Footage may not be shared or otherwise used for broadcast or commercial purposes or on social networking sites, forums or any other internet media without the permission of any rights holders.

20. Any breach of camera regulations may be subject to the penalties provided for in Chapter 2 with an option to report any matters to the Championship Stewards where appropriate.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY EQUIPMENT

APPENDIX 10

Competition Numbers

1. **Competition Numbers** must be:
   a. Visible
   b. A colour contrasted to the area in which the **Competition Number** is affixed
c. displayed on each side of the **Vehicle** (front doors, alongside the cockpit or on rear wing end plates) and on the foremost part of the nose.
d. amended and/or repositioned if required by the **Officials** of the **Event**

2. Discipline specific requirements are contained in the individual discipline Chapters to the NCR.

3. Certain types of **Competition** have special requirements which will appear in the **Official Documents** (Subject to approval by the **ASN**) (see Chapter 18 App.8 Arts.148 - 160 for **Kart Numbers** and Chapter 12 App.4 Arts.40 - 45 for **Circuit Racing**).

4. **Note.** Consideration should be given at all times to the positive identification of vehicles by the **Competition Organisers** whose decisions will be final.

5. The numbers must be of the ‘Classic’ type as shown below:
   1–2–3–4–5–6–7–8–9–0.

6. In **International Events** on both front wings an illustration of the national flag(s) of the **Driver(s)** as well as the name(s) of the latter shall be displayed.

7. If a **Vehicle** is being driven to and from the Event on the **Public Highway** then any **Competition Number** identifying the **Vehicle** during a **Competition** **MUST** be removed at the finish of the **Event**.

8. **Organisers** may use three figured numbers subject only to the specific approval of the **Chief Timekeeper**.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY EQUIPMENT

APPENDIX 11

Electrified Vehicles

Technical

1. The term Electrified Vehicle (‘EV’) is used in these regulations to cover all forms of Electrified Vehicles (including those defined in FIA Appendix J – Article 251): mild Hybrid Electric Vehicle (‘mHEV’), Hybrid Electric Vehicle (‘HEV’) / Full Hybrid Electric Vehicle (FHEV), Plug-in Hybrid Electric Vehicle (PHEV) and Electric Road Vehicle (‘ERV’) / Battery Electric Vehicle (‘BEV’).

2. High Voltage (HV) shall be as defined in FIA Appendix J Art 251 3.1.10 (from ISO 6469-1:2009): > 30V AC and ≤ 1000V AC or > 60V DC and ≤ 1500V DC.

3. An EV may contain a High Voltage (HV) or Low Voltage (LV) propulsion system.

4. As a general principle in all Technical Regulations it is prohibited to carry out any tuning or modification that is not specifically permitted. The fact that some modifications are mentioned as prohibited does not imply that others are allowed.

5. Changes to these Technical Regulations made on grounds of safety may be enforced immediately without notice.

6. These General Technical Regulations are for individual Vehicle builds. Championships for specific Vehicles not in accordance with these regulations may apply for approval which will be considered at the discretion of the ASN.

7. Permitted Electrified Vehicle Types (App.13 Chart 3)

8. These regulations apply to any modified National Type Approved or Bespoke / prototype EVs intended for Competition use. Standard and unmodified production EVs are subject to the existing requirements of the ASN and the FIA where applicable.

9. A Standard Vehicle is defined as built by the manufacturer in accordance with its homologation / type approval with no modifications or alteration of the Vehicle structure, powertrain, or electrified propulsion system. E.g., Competition seats using the original mounting points and fasteners are permitted. A ROPS requiring fastening to the Vehicle structure is prohibited.

10. A Modified Vehicle is a Standard Vehicle with non-powertrain modifications only (including fitment of safety equipment including ROPS which alters the Vehicle structure). No modifications to the internal combustion engine (ICE) and / or electrified propulsion system are permitted.

11. A Bespoke Vehicle is one designed and constructed from scratch including prototypes. Only Bespoke BEVs are permitted. Bespoke includes prototype or otherwise unique competition Vehicles.

12. A production Vehicle with the ICE powertrain replaced by an electric one is classified as Bespoke.

13. Hydrogen powered fuel-cell hybrid and electric Vehicles are prohibited.

14. These Technical Regulations cover all EVs, but not all regulations apply to all Vehicles. For example, the HV safety related requirements do not apply to an mHEV, as these operate at a nominal DC voltage of 48V which is lower than the 60V DC limit (Table 1).

15. The discipline-specific Sporting Regulations will determine which category of EVs are allowed to compete in
which discipline.

16. Except for **Standard EVs** in non-Speed Events all **EVs** must be in possession of a valid **Vehicle Passport** to compete. **Modified** and **Bespoke EVs** must undergo and pass a **Vehicle Passport** inspection irrespective of discipline or **Category**.

17. **Electric Vehicle Passports** will be issued by the **ASN**.

18. See **Arts.20 - 40 EV Passport and Inspection Process** for more details.

19. Additional requirements or restrictions from discipline and/or category specific regulations shall apply

**EV Passport and Inspection Process.**

20. Anyone considering building a **Bespoke EV** for **Competition** use must supply a project outline, including details / qualification of those engineering the **Vehicle** for review by **ASN Technical Department** prior to starting construction. On-going dialogue between the entrant and the **ASN** throughout the build process is encouraged to minimize the risk of non-compliance with these regulations when **Vehicle** is inspected.

21. **Standard EVs** may be issued with a **Vehicle Passport** without inspection upon application to the **ASN**.

22. **Modified** and **Bespoke EVs** must undergo and pass a **Vehicle Passport** inspection and be in possession of a valid **Passport** to compete irrespective of discipline or **Category**.

23. For a modified production **Vehicle**, the inspection will include a comprehensive visual inspection to ensure that installation of the **ROPS** and non-powertrain modifications have not compromised the HV system.

24. No repositioning of HV components (incl cables) is permitted.

25. For a **Bespoke Vehicle** a detailed technical inspection of the entire **Vehicle** including the **EV** system, and its safety systems will be required. An **EVP** will be issued once the **Vehicle** has passed the inspection.

26. See **Chart 3** for EVP requirements.

27. Where a **Bespoke or Modified OEM EV** is intended for a single make / one make series and all **Vehicles** are built / modified by the same organisation then only the first **Vehicle** in a batch will require full inspection. All subsequent **Vehicles** from the batch will be issued with an **EVP** following written confirmation by the build organisation that the follow-on **Vehicles** are identical to the first **Vehicle**.

28. **Electric Vehicle Inspections** must be arranged by appointment with the **ASN** and will be carried out by an **ASN** HV qualified **Technical Official**.

29. The **Entrant** must provide all data / evidence to the **ASN** 3 months prior to the **Vehicle** inspection as summarised below:
   a. **RESS impact protection details** (**Art.81**) if mounted underfloor.
   b. **RESS Structural calculations or crash test/simulation results** (**Art.83**).
   c. **UN 38.3 and MSDS for cells** (**Art.92**).
   d. **Cell chemistry details**.
   e. **BMS including cell temperature monitoring details** (**Art.96**).
   f. **Isolation Surveillance System details** (**Art.119**).
   g. **Vehicle** specific **Emergency Services Guide** (**Art.120**).
   h. **Detailed EV system schematic** (**Art.121**).
   i. **Vehicle** specific functional switching diagram (**Art.131**).
   j. **Crash HV Isolation FMEA** (**Art.145**).
k. Details of throttle fail safe system (Art.153).
l. Off-board charger details (Art.53).
m. On-board charger details (Art.155).

30. In addition to the Vehicle the Entrant must provide the following to enable the inspection to proceed:
b. Detailed Build log with photos of the HV system components and installation.
c. Photos of the EV components / features to be added to the EVP.
d. Evidence of team personnel HV qualifications.
e. An Emergency Services Guide specific to the Vehicle undergoing inspection.
f. The team HV qualified person.
g. HV tools and safety equipment required to support the inspection.
h. Example of the off-board charger to be used.

31. The Vehicle will be examined at a location mutually agreed between the Entrant and the ASN. If inspection of the EV system requires access to the underside of the Vehicle a suitable Vehicle hoist or lift will be required. The use of jacks and axle / chassis stands is not permitted. The Venue must have a mains power supply suitable for the off-board charger.

32. A second inspector may be present (for training and/or HV safety reasons) at the inspection.

33. The entrant will bear all fees arising from and the costs incurred by the inspection.

34. The entrant is responsible for ensuring that the Vehicle satisfies all the ASN EV requirements and is presented for inspection in a finished and competition-ready condition.

35. All items on the Inspection Checklist must be clearly visible to the inspector without using instruments such as endoscopes or mirrors. Visible access may be provided by removing body panels or via removable access panels. Covers on the traction battery must only be removed by the nominated team HV qualified person if requested by the technical inspector.

36. Demonstration of the correct function of the indication and safety systems and the on/off-board charging systems forms part of the inspection. Correct response to a simulated crash Event must also be demonstrated by the HV safety system.

37. The inspection of Bespoke EVs will examine all items included on the EV Inspection Checklist plus any other items the inspector may wish to examine. The exact procedures and instruments employed for inspection and testing are entirely at the discretion of the Technical Inspector.

38. The Inspection of Modified EVs will focus on ensuring that the installation of the safety items (ROPS, seat, fire extinguisher) has not damaged or disturbed any part of the EV system. It is prohibited to reposition any part of the EV system (including cables).

39. If any part of the Vehicle EV system does not comply with the requirements or is deemed to be a concern, the entrant must correct the problem and re-present the Vehicle for inspection. Minor faults may be rectified immediately, major issues will require a new inspection to be arranged and paid for.

40. The decision of the ASN inspector concerning compliance with the EV regulations is final and cannot be appealed.
**Scrutineering**

**Safety**

41. Only ASN EV qualified Scrutineers will perform safety scrutineering on EVs.
42. A valid VP or EVP must be provided at Safety Scrutineering.
43. HV Vehicle Safety scrutineering procedures will include but not be limited to visual inspection of the EV system and demonstration of the correct function of the safety and indication systems.
44. The Team HV qualified person must be present at Safety scrutineering equipped with their own set of HV safety equipment and tools as required.
45. The Vehicle specific Emergency Response Guide must be provided to the circuit/Venue/Organiser’s emergency services team before the Vehicle is allowed to compete.
46. ASN Technical Officials can require the Vehicle to be re-inspected at any time during an Event.

**Eligibility**

47. Only ASN EV qualified Scrutineers will perform eligibility scrutineering on EVs.
48. ASN Technical Officials reserve the right to request access to any set-up information or data from the Vehicle ECU(s) and other electrical devices at any time during an Event including data that proves compliance with Arts.75 and 77.
49. It is the responsibility of the Competitor to prove that the Vehicle has not exceeded any control parameter limits during an Event (e.g. maximum power, maximum voltage etc.).
50. ASN Technical Officials reserve the right to request that the Vehicle be fitted with a data logger.
51. The Team HV qualified person must be present at Eligibility scrutineering (equipped with their own set of HV safety equipment and tools as required) and be prepared to safely isolate the HV system and remove any HV components for more detailed inspection at the request of the Scrutineer.
52. Sealing requirements for HV system components will be developed and published in due course.

**Charging**

53. Off-board chargers must be commercially available and meet all UK Electrical safety requirements. Details must be supplied to the ASN 3 months prior to the Vehicle inspection.
54. Standard and Modified Vehicles must use the unmodified on-board charger, charge port and charging cable(s) supplied with the Vehicle.
55. Charging of the RESS must be done with the battery(s) in-situ.
56. Any temporary charging installation must be installed and connected to the mains supply by a trained competent person following the Code of practice for Electric Vehicle Charging Equipment Installation, 3rd edition and meet all the requirements of BS7671: 2018 (the 18th Edition wiring regulations), with particular attention paid to earthing.
57. The charging system must be automatic and must ensure that the battery cannot be overcharged or damaged if left permanently connected to the charger.
58. The use of diesel or petrol generators to provide the energy to charge EVs is strongly discouraged. ASN are working with Circuit / Venue owners to investigate provision of sustainable charging facilities.
59. In addition a Bespoke Electrified Vehicle must comply with Arts.60 - 155.
**Motor and Inverters**

60. A maximum of two motors, whose output are combined mechanically driving the wheels through a mechanical gearbox and differential are permitted. A maximum of two inverters are permitted. In **Drag Racing** there is no limit on the number of motors or inverters.

61. Only a single driven axle is permitted i.e. FWD or RWD.

62. Any system that achieves torque vectoring across or between axles is prohibited.

63. Hub / wheel motors are prohibited.

64. Only commercially available production motors and inverters are permitted.

65. Repurposing of OEM motors and inverters is permitted.

66. The inverter may be integrated with or separate from the motor. The motor may be integrated with or separate from the gearbox.

67. Brushed DC motors are permitted and motors with exposed commutators must be fitted with a commutator shield.

68. If the motor or inverter is liquid cooled, >51% water-based coolant must be used. The use of Dielectric fluid is prohibited.

69. If the motor is air cooled, all ventilation holes must be small enough to prevent the passage of a 12mm diameter spherical test object through all holes.

70. When an electrical motor casing is rotating around the stator, a scatter shield must be included to surround the rotating parts of the motor. The shield must be constructed from min 2mm steel or 3mm thickness aluminium alloy. Does not apply to motors fully enclosed in the transmission housing.

71. All motor and inverter connections that use bolted HV terminals must be fitted with moulded insulated terminal covers that are sealed to satisfy a minimum IP65 rating.

72. All HV power electronics on the **Vehicle** (including inverter, motor, charger and DC/DC converter must be designed to work safely at the maximum voltage on the Power Bus.

**Rechargeable Energy Storage System (RESS)**

**General**

73. The RESS must be comprised of a maximum of 2 separate traction battery enclosures per **Vehicle**.

74. Capacitor and flywheel energy storage systems are prohibited.

75. For **Bespoke EVs** the maximum total power going out of the RESS at any time is limited to 500kW, except for **Drag Racing** where the limit is 1MW.

76. For **National Type Approved EVs** the power out of the RESS may not exceed the homologated power.

77. For **Bespoke EVs** the maximum voltage on the Power Bus must never exceed 900V, except for **Drag Racing** where the limit is 1000V.

78. For **National Type Approved EVs** the maximum voltage must not exceed the homologated maximum voltage.

79. The RESS must include appropriately specified fuses or circuit breakers to prevent over-current in the event of short circuit. The protection devices must be located inside the RESS as close as possible to the main power bus connectors.

80. The RESS must be capable of being isolated from the Power Circuit by at least two independent systems (e.g. contactor or a manually operated Service Switch). There must be at least one manually operated system and
one automatic system (under control of the BMS or Electronic Control Unit). The Service Switch may be a High Voltage (HV) or Low Voltage (LV) device. Any HV device should be orange and designed such that no HV potential is exposed when the device is operated / removed. If HV Service switches are used, they must be fitted into each battery pack. If a LV switch is used, only one is required (preferably mounted on one of the battery packs). The location of the Service Switch(es) should be clearly marked.

**Enclosure**

81. The RESS must be installed within the survival cell, passenger compartment, engine compartment or boot of the Vehicle. Underfloor installation of the RESS is permitted if full impact protection is provided to meet the 60kN FIA impact energy requirements. Full details of the impact protection must be provided to ASN 3 months prior to the Vehicle inspection.

82. The RESS must not be used as a stressed member.

83. Calculations must be provided to ASN 3 months prior to the Vehicle inspection to confirm that mechanical and electrical safety is ensured in a crash. The RESS may be required to pass a crash test defined by ASN.

84. The RESS enclosure must be to a minimum rating of IP65.

85. Modules must be mechanically secured inside a metallic or composite enclosure. Any covers or access panels must be sealed and secured with fasteners requiring tools to remove.

86. The RESS must be designed to prevent short circuit of the conductive parts. In the event of compartment or component deformation, the design must ensure that no fluids enter the cockpit / Passenger compartment.

87. The RESS must prevent the build-up of an ignitable gas / air or dust / air concentration inside the compartment by means of a burst valve or vent tube, positioned away from the Driver. Any vent tube if fitted must discharge direct to atmosphere external to the Passenger compartment or survival cell.

88. All HV connections to the RESS must be made using either proprietary HV connectors with High Voltage Interlock Circuitry (HVIL) or the cables must pass through HV rated cable glands of suitable size to match the cable and which preserve the IP rating of the external enclosure.

89. The enclosure containing the modules must also contain the BMS voltage and temperature sensing elements associated with the modules, service switch, fuses / circuit breakers and contactors.

**Modules**

90. Off-the-shelf commercially available or repurposed production modules must be used to make battery packs. It is prohibited to assemble battery modules or packs from individual cells.

91. It is prohibited to modify the battery modules in any way.

92. The Competitor must supply documents from the module producer specifying safety relevant data, including manufacturers’ datasheet: UN38.3 report and Material Safety Data Sheet (MSDS). Including battery characteristic diagram showing the battery limits of voltage (U), power (W), temperature (T) and State of Charge (SoC). These documents must be provided to ASN 3 months prior to the Vehicle inspection. Equivalent data from a 3rd party test house may be submitted in place of manufacturers data. Evidence of test house capability must be included as part of the submission.

**Battery Management System**

93. A Battery Management System (BMS) from an approved supplier is mandatory.
94. For **Modified EVs** the architecture of and functionality of the **BMS** must not be changed from standard.

95. The **BMS** must ensure that all cells do not exceed the manufacturers stated limitations for voltage, current and temperature under any circumstances.

96. The **BMS** in all cases must monitor every serial cell for voltage and a minimum number of cells (evenly distributed throughout the modules/pack) for temperature in order that the hottest, coldest and average cell temperatures are monitored. Full details of the temperature monitoring must be provided to **ASN** 3 months prior to the **Vehicle** inspection.

97. In the event that any cell exceeds the manufacturers stated limitations for voltage and / or temperature, within 2 seconds the **BMS** must reduce power to less than 5kW in order to leave the course or automatically isolate the battery from the traction circuit if it is not safe to reduce power.

**Cooling**

98. If the **RESS** is liquid cooled, >51% water-based coolant must be used.

99. The cooling liquid must not come into direct contact with any active components within the **RESS**.

**Electrical Equipment and General Electrical Safety**

100. Specifications for general electrical safety are laid down in Appendix J – Article 253-18.1.

101. Specifications for the Power electronics (inverters, DC / DC converters, on-board charger etc.) are laid down in Appendix J – Article 253-18.5.

102. Any **Vehicle** with an electrical system operating at a voltage exceeding 60V DC or 30V AC must display the label detailed in **App.13 Diagram 6** next to all **Competition Numbers**. Label minimum size 75mm x 75mm x 75mm.

103. In cases where the voltage of the **Power Circuit** belongs to voltage class B (2.9), symbols warning of "High Voltage" must be displayed on or near the protective covers of all electrical equipment that may operate at high voltage (**App.13 Diagram 6**). The symbol background must be yellow, and the bordering and the arrow must be black, in accordance with ISO 7010. Each side of the triangle should measure at least 120mm but may be reduced to fit onto small components.

104. No HV potential should be exposed anywhere on the **Vehicle** during normal operation.

105. The design of the system must be such to ensure that a single point of failure cannot cause an electric shock hazardous to life.

106. HV Electrical cables and electrical equipment must be protected against any risk of mechanical damage (stones, corrosion, mechanical failure, etc.) as well as any risk of fire and electrical shock.

107. The voltage class B components and wiring must comply with the applicable sections of IEC 60664 on clearances, creepage distances (3.4.2) and solid insulation; or meet the withstand voltage capability according to the withstand voltage test given in ISO/DIS 6469-3.2:2010.

108. A plug must physically only be able to mate with the correct socket of any sockets within reach. All HV Power Circuit connectors must not have live contacts on either the plug or the receptacle unless they are correctly mated.

109. All parts of the electrical equipment must be protected using an appropriate IP class with min IP65 protection on all HV components.

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110. The HV traction circuit must be isolated from the Vehicle Chassis.

111. All HV cabling must comply with LV 216-2, ISO 6722 and ISO 14572 Construction of HV wiring systems for Hybrid and Electric Vehicles. All cables must be orange and shielded, either internally or by conduit and must be securely fixed to the Vehicle chassis using insulated fixings. Tie wraps are not acceptable. Cable conductor material must be copper. The use of aluminium bus bars and terminals is permitted.

112. All cable terminals must be crimped, or laser welded with a certificate of conformity if not OEM produced. The use of soldered terminals is prohibited.

113. All HV cable runs must be a single contiguous piece of cable between connectors / terminals. Any cable joins or splices must be achieved using bolted terminals securely fixed in a min IP65 rated enclosure with glands / strain relief on the cable entry points. Any covers or access panels must be sealed and secured with fasteners requiring tools to remove.

114. Any HV ancillary equipment (contactors, relays, fuses, current shunts etc.) not located in the battery enclosure(s) must be securely located in a min IP65 rated enclosure with glands / strain relief on the cable entry points. Any covers or access panels must be sealed and secured with fasteners requiring tools to remove.

115. All Class B Power Circuit connectors must not have live contacts on either the plug or the receptacle unless they are correctly mated. An automatic HVIL (High Voltage Interlock) system must be present in every HV connector and detect if a Power Circuit connector is de-mated, for example with shorter alarm contacts within the same connector and inhibit / remove High Voltage from both the plug and the receptacle. If the connector was live when de-mated, the high voltage must be switched off immediately and any residual voltage on the contacts of both the plug and the receptacle discharged to <60V DC within 4 seconds. Re-mating of the connector must not re-energise the circuit.

116. All Class B Power Circuit connectors and cabling must provide mechanism for locking, strain relief and sealing to the cable assembly.

117. All major conductive parts of the body must be connected e.g. with wires of appropriate dimension to obtain equipotential bonding.

118. No part of the Chassis or bodywork should be used as a current return path.

119. The distribution of high currents in the HV DC network must be made in a star-point configuration and not in a loop, in order to avoid potential shifts resulting from current flows. The star-point of the electrical reference potential is referred to as “Power Circuit Ground”.

120. Every part of the electrical equipment must have a minimum insulation resistance between all live components and earth of 500 Ohms per volt. The measurement of the insulation resistance must be carried out using a DC voltage of at least 100 volts.

121. Unless the function is already provided by the BMS a proprietary isolation surveillance system must be used to continuously monitor the status of the isolation barrier between the voltage class B (2.9) system and the Chassis while the HV system is energised.

122. If not part of the BMS the proprietary isolation surveillance system must be located within the battery enclosure and wired in series with the main battery contactors. If an isolation fault is detected, the system shall open the circuit breaker automatically and trigger the “Danger” state of the RESS Status Indicator. Full details of the isolation surveillance system must be provided to ASN 3 months prior to the Vehicle inspection.

123. The Competitor must provide a detailed “Emergency Services Guide” documenting all aspects of the HV system
including component locations and details of the standard and emergency HV isolation procedures. This document should be structured in the same way and have similar content to the guides provided by OEM's for production EVs and must be provided to ASN 3 months prior to the Vehicle inspection.

124. See App.13 Diagram 3 for an example of the EV System Schematic showing all components and connections. The Vehicle specific version must be provided to ASN 3 months prior to the Vehicle inspection.

125. On Vehicles without a 12v alternator, a DC / DC converter of suitable power rating must be provided to charge the auxiliary battery and electrical system.

126. The auxiliary battery must never be used to recharge the traction battery.

SAFETY EQUIPMENT.

Driver master switch

127. All Vehicles must be equipped with a general circuit breaker of sufficient capacity and which can be operated easily by a switch from the driver’s seat when the Driver is seated in a normal and upright position, with the safety belts fastened and the steering wheel in place and from the outside to cut off all electric transmission devices.

128. This switch MUST act as a General Circuit Breaker that interrupts ALL electrical transmission between the RESS and all other HV circuits by means of a spark-proof circuit breaker providing galvanic switching which MUST NOT be short-circuited by any components such as a pre-charge resistor. Low power batteries provided for low voltage circuits, for example auxiliary circuits, do not have to be isolated by the general circuit breaker provided that they are completely isolated from the main power accumulators.

129. In the event that the circuit breaker is activated, the HV potential, outside the RESS, must drop below 60V DC with 4 seconds.

130. Specifications for the General Circuit Breaker are laid down in Appendix J – Article 253 18.17.

Fire Extinguisher

131. All Vehicles must be equipped with an electrically operated plumbed in extinguishing system in accordance with App.6 Art.1. Only systems with an extinguishing medium proven to not create a conductive atmosphere and in compliance with the below list are authorised:
   • Novec 1230 or FX G-TEC FE36.

Extinguisher switches

132. The system must have three points of triggering, one for the Driver and two exterior actuators. These external actuators must be situated at the base of the main rollover structure on both sides of the Vehicle for a single seater or at the lower corners of the windscreen for a closed cockpit Vehicle.

133. A means of triggering from the outside must be combined with the general circuit breaker switches.

134. The actuators must be marked with a letter "E" in red at least 80mm high, with a line thickness of at least 8mm, inside a white circle of at least 100mm diameter with a red edge with a line thickness of at least 4mm. See App.13 Diagram 4 for an example.

135. Pressing the fire extinguisher button must also activate disconnection of the High Voltage Battery.
136. The electrical circuits for the fire extinguisher and the HV battery isolation must be electrically separated by the use of a two-pole momentary-on button that is waterproof to IP67.

137. When using a homologated fire extinguisher system designed for an ICE it is permitted to exchange the trigger buttons for alternatives that comply with the requirements listed herein.

**Marshal Neutral Switch**

138. To enable a marshal to isolate the RESS from the power bus in less than 2 seconds, external switch(es) which operate the general circuit breaker must be provided, which:

139. For a single seater, a single switch must face upwards and be recessed into the top of the survival cell no more than 150mm from the Vehicle centre line and less than 150mm from the front of the cockpit opening and less than 70mm from the extinguisher switches defined in Art.105.

140. For a saloon two switches must face upwards and be recessed into the windscreen scuttle on either side, no more than 150mm from the side of the Vehicle, 350mm from the door aperture and less than 70mm from the extinguisher switches defined in Art.105.

141. Each switch must be designed such that the power circuit cannot be energized using the external switch. The method of triggering (push, pull or rotation direction) must be clearly marked.

142. Each switch must be marked with a red spark in white edged blue triangle with a base of at least 120mm. The angle of the triangle where the spark is pointing to, must point to the button. It must be associated with a letter ‘N’ in blue inside a white circle at least 50mm in diameter and with a blue edge. The height of both symbols must be at least 100mm. See App.13 Diagram 5 for an example.

143. It is prohibited to cover the external switches in any way whatsoever.

144. In a crash all energy sources of the Power Circuit must be switched off automatically and the full RESS must be isolated. The arrangements must be validated by the Failure Mode and Effects Analysis (FMEA) which must be provided to ASN 3 months prior to the Vehicle inspection. An FIA approved Accident Data Recorder may be used to initiate the shutdown.

145. All switches (Driver Master, Neutral and Extinguisher) must operate at a nominal 12V.

146. See App.13 Diagram 3 for an example of the functional switching diagram. The Vehicle specific version must be provided to ASN 3 months prior to the Vehicle inspection.

147. Safety Indicator requirements are based on the specifications laid down in Appendix J – Article 253 18.22.

148. All indicators must have a viewing angle of at least 120° and a luminous flux of at least 8 lumens.

**HV RESS status light**

149. All Bespoke Vehicles with a HV RESS must be fitted with a HV RESS Status indicator light, which:

   a. Is a Red/Green light that indicates the safety status of the RESS.
   b. Must be in working order throughout the Event even if power on the Vehicle has failed.
   c. Indications must be visible from any point around the car, manufacturer may install multiple devices to achieve it.
   d. Remains powered for at least 15 minutes after the general circuit breaker is activated.
e. Is marked with a "HIGH VOLTAGE" symbol (see App.13 Diagram 6).

f. Has repeater indicator light on the dashboard the replicates the states of the main light. This does not have to comply with Art.85.

150. See App.13 Chart 4 for the HV RESS Status indicator states.

Ready-to-Move-light

151. All Bespoke EVs that have an EV system that is capable of propelling the Vehicle must be fitted with a Ready-to-Move light, which:
   a. Is a white light (at the front) and an orange light (at the rear) that will illuminate to indicate that the Vehicle can move if the throttle pedal is pressed.
   b. Must light up and illuminate to the front and rear of the Vehicle respectively, parallel to the centre line of the Vehicle.
   c. Will flash "on" for 0.05 seconds and "off" for 2 seconds whilst the Vehicle is charging.
   d. Will flash "on" for 0.5 seconds and "off" for 0.5 seconds if, when the system has been requested to energize and the bus voltage has not exceeded 50V.

152. See Table 4 for the Ready-To-Move indicator states.

Throttle failsafe

153. All Bespoke Vehicles must be equipped with a throttle fail safe system, which in case the throttle and brake pedal are pressed at the same time, overrides the throttle and cuts the power to the propulsion system. The details of the fail-safe system must be provided to ASN 3 months prior to the Vehicle inspection.

Bespoke Vehicle Charging

154. Bespoke Vehicles must use a charging system compliant with a recognised charging standard and be able to use public chargers (SAE J1772, IEC 62196, CHAdeMO or Combined Charging System (CCS)) and must follow standard protocols for connecting/disconnecting the charge connector and initiating/stopping the charging process. Only a single external charge port is permitted.

155. Bespoke Vehicles must use a commercially available on-board charger (if fitted) and if liquid cooled, >51% water-based coolant must be used. Details must be provided to ASN 3 months prior to the Vehicle inspection.
CHAPTER 7 COMPETITOR VEHICLE AND VEHICLE SAFETY EQUIPMENT

APPENDIX 12

Scrutineering

This Appendix must be read in conjunction with Chapters 2 – 5 and 8 and 9 as well as relevant discipline Chapters and all Official Documents.

1. Technical Officials are Officials of the Event.

2. At all times it is the responsibility of the Competitor to establish that the Vehicle presented is in conformity with the Regulations of the Event.

3. Before taking part in any Competition or Practice for any Competition requested Vehicles must be presented to the Event Scrutineers for examination and approval.

4. The fact of obtaining a Scrutineer’s approval at pre-Event scrutiny does not indicate that the Scrutineer is accepting any responsibility for the safety or the roadworthiness of the Vehicle nor does it indicate that the Vehicle complies in all respects with the Regulations. Please note that pre-Event Scrutineering or Vehicle Passport inspection by a Scrutineer is only a spot check of a limited number of key safety and eligibility features of a Vehicle’s condition. Approval does not guarantee that the Vehicle meets all applicable regulations or standards and which at all times is the responsibility of the Competitor.

5. Subsequent to pre-Event scrutiny any Vehicle involved in an accident or having been modified in any way must be represented to the Scrutineers for further examination.

6. At any time during an Event the Clerk of the Course or the Scrutineers (or where applicable to the Stewards of the Event) may order that a Vehicle be examined or re-examined even if this involves stopping a Vehicle whilst Practising or competing.

7. At the conclusion of a Competition a number of Vehicles as agreed by the Clerk of the Course and the Scrutineers or as ordered by the Stewards or as laid down in the Regulations may be required to be presented for Post-Event scrutiny. Such Vehicles will then be in Parc Ferme regardless of their actual location. No work is to be done on such Vehicles after finishing the Competition except by permission or request of the Scrutineers until after the examination is completed and the Vehicle released. It is the responsibility of the Competitor to provide appropriate tools and personnel within an agreed time to carry out the work required.

8. The post-Event scrutiny will be mainly directed at the Vehicle’s eligibility and may involve parts of the Vehicle being sealed for subsequent stripping and examination. Subject to the overriding authority of the ASN (Chapter 1 Art.4) this should normally be within a maximum of 30 days after sealing although it can be extended by mutual agreement between the Organisers and the Competitor to 50 days. Subject as stated above at the end of the season series or championship it should never exceed 30 days.

9. Vehicles or components may be sealed on the instructions of the Clerk of the Course, Stewards of the Event, the Technical Commissioners or following a Protest (Chapter 2). Sealing may be by wire seals special reactive paint or other suitable method. Such seals must not be broken except with the written permission of the person who originally affixed the seal or of the ASN or by the person designated to examine the parts in question. The Technical Commissioner or Scrutineer examining the Vehicle or component will report his findings to the Clerk of the Course for their action.
10. If a sealed Vehicle or sealed component is to be examined other than at the Event by a third party on behalf of the Organisers then the Stewards of the Event and the ASN must be notified before the date of any such examination and the ASN may impose condition on that examination.

11. Approval of a Vehicle will only be in relation to those items of the Vehicle which have been examined and will only apply to the Event which the Vehicle has just completed.

12. Where Vehicle Identification Stickers are required (App.1 Art.11 – 12) part of the scrutineering procedure is to affix an ASN sticker to the Vehicle in an appropriate position (near to the chassis identification plate if possible). Stickers may only be affixed by selected Scrutineers, or by the ASN at ASN Headquarters.

13. Once applied, Vehicle Identification Stickers must remain permanently affixed to the Vehicle. Damaged stickers can only be removed and replaced by selected Scrutineers. New and replacement stickers will be charged at the current fee.
CHAPTER 7 COMPETITOR VEHICLES AND VEHICLE SAFETY APPENDIX 14

Charts and Diagrams

Chart 1 Maximum Noise Limits
The following table gives alternative distance readings. (Noise measured in dB(A).)

<table>
<thead>
<tr>
<th>Section</th>
<th>0.5m</th>
<th>2.0m</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>105</td>
<td>93</td>
</tr>
<tr>
<td>B</td>
<td>108</td>
<td>96</td>
</tr>
<tr>
<td>C</td>
<td>100</td>
<td>88</td>
</tr>
<tr>
<td>D</td>
<td>98</td>
<td>86</td>
</tr>
<tr>
<td>E</td>
<td>100</td>
<td>88</td>
</tr>
<tr>
<td>F</td>
<td>108</td>
<td>96</td>
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<tr>
<td>G</td>
<td>110</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td>108</td>
<td>96</td>
</tr>
</tbody>
</table>
### Chart 2: Regulation Summary

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Description</th>
<th>EV Tech Regs Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1 App.1: Nomenclature and Definitions</td>
<td></td>
<td>mHEV</td>
</tr>
<tr>
<td>Chapter 7: Competitors Vehicles and Vehicle Safety Equipment</td>
<td></td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.1 - 6</td>
<td>Electrified Vehicles</td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.7 - 19</td>
<td>Permitted Vehicles</td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.20 - 40</td>
<td>EV Passport and Inspection</td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.41 - 52</td>
<td>Scrutineering</td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.53 - 59</td>
<td>Charging</td>
<td>mHEV</td>
</tr>
<tr>
<td>Bespoke BEVs</td>
<td></td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.60 - 72</td>
<td>Motors</td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.73 - 99</td>
<td>Rechargeable Energy Storage Systems</td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.100 - 126</td>
<td>Electrical Equipment and General Electrical Safety</td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts.127 - 153</td>
<td>Safety Equipment</td>
<td>mHEV</td>
</tr>
<tr>
<td>Arts 154 - 155</td>
<td>Bespoke Vehicle Charging</td>
<td>mHEV</td>
</tr>
</tbody>
</table>

### Chart 3: Permitted Electrified Vehicle Types

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Permitted EV's</th>
<th>EV Inspection</th>
<th>Vehicle Passport Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Electrified Vehicle App.11 Art.9</td>
<td>mHEV</td>
<td>HEV</td>
<td>PHEV</td>
</tr>
<tr>
<td>Modified Electrified Vehicle App.11 Art.10</td>
<td>mHEV</td>
<td>HEV</td>
<td>PHEV</td>
</tr>
<tr>
<td>Bespoke Electrified Vehicle App.11 Art.11</td>
<td>mHEV</td>
<td>HEV</td>
<td>PHEV</td>
</tr>
</tbody>
</table>

**Key:**
- mHEV = Mild hybrid
- HEV = Hybrid
- PHEV = Plug-in hybrid
- BEV = Battery electric vehicle
- LV = Low voltage (<30V AC or 60V DC)
- HV = High voltage (>30V AC or 60V DC)
- VP = Vehicle Passport (existing)
- EVP = Electric Vehicle Passport (new)

**Notes:**
1. Category or discipline specific regulations may impose further restriction on permitted vehicles
2. Submission of OEM vehicle specific Emergency Services Guide and visual inspection only
3. Full submission of all data requirements contained in EV Tech Regs plus visual and technical inspection and functional test
**Chart 4:** HV RESS Status indicator states

<table>
<thead>
<tr>
<th>Light Status</th>
<th>RESS Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Safe</td>
</tr>
<tr>
<td>Red</td>
<td>Danger (Isolation fault)</td>
</tr>
</tbody>
</table>

**Chart 5:** Ready-to-move indicator states

<table>
<thead>
<tr>
<th>Light Status</th>
<th>Vehicle Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>HV system de-energised</td>
</tr>
<tr>
<td>White always on</td>
<td>HV system energised – vehicle ready to move</td>
</tr>
<tr>
<td>White flashing</td>
<td>Charging</td>
</tr>
</tbody>
</table>
Diagram 1: Competition Numbers

Diagram 2: Steering

(A)

(B)

(C)
Diagram 3: Functional switching diagram example

Diagram 4: Fire Extinguisher Warning Symbol

Diagram 5: Marshal Neutral Switch Warning Symbol

Diagram 6: High Voltage Warning Symbol
Diagram 7

Approval Sticker Approval Sticker Approval Sticker

Diagram 8

motorsport uk
FHR approved
for motor sport
A00001
Diagram 9

HELMET STANDARDS

CMR2007          CMS2007

CMR2016          CMS2016

K2020            K2010

SA2015           SA2010

SA2020

FIA

In compliance with:
FIA Standard 8860-2010

In compliance with:
FIA Standard 8859-2010

In compliance with:
FIA Standard 8860-2018

In compliance with:
FIA Standard 8860-2018-ASIP
Safety Cage Drawings

Diagram 10

Diagram 11

Diagram 12

Diagram 13

Diagram 14

Diagram 15

Note: Diagonal may be handed to left or right

Diagram 16

Diagram 17
Diagram 18

Diagram 19

Diagram 19.a

Diagram 19.b Bar may be fitted in either orientation

Diagram 19.c

Diagram 19.d

Diagram 20
Diagram 21 Optional Reinforcing Members [6]

Diagram 22

Diagram 23

Diagram 24

Diagram 25
L must be minimum
The clamp width must be at least 25mm

\( \Theta = 14\text{mm} \) (tube\( 40\text{mm} \prec \Theta \text{ diam. ext.} \))
\( = 6\text{mm} \) (tube\( 50\text{mm} \text{ diam. ext.} \))

Diagram 34

Diagram 35

Diagram 36
Diagram 45

Mandatory minimum requirement  Maximum options permitted
Mandatory mounting points

Additionally, a further 8 points may be attached to the bodyshell.

Competitors should note that an installation to this drawing may contravene FIA Appendix K regulations. Doorbars may alternatively be as shown in Diagram 21.g or h.

Roof Reinforcement may alternatively be as shown in Diagram 19.a to 19.d.

Diagram 46
20°

Diagram 47

Diagram 48

Typical Safety Belt Installation

Diagram 49
Steel reinforcing plate fixed to the car's chassis

Diagram 50

The bolt should preferably work in shearing stress and not in traction

Plate fixed to the chassis and strengthened by a reinforced plate on the other side

Diagram 51

Reinforcing plate fixed to the car's chassis

Diagram 52
Weld to the chassis with appropriate channel-type load spreader or ...

Diagram 53

Hoop
Weld
End closed off with 
1/8" / 3mm end cap

1/4" / 6mm spreader plate

Welding goes all the way around on the top and at the bottom and half way around the top and bottom inside where accessible

Hole cut or chain-drilled in top and bottom surface of box and tube dropped in

Diagram 54

Box Beam
3" x 3" x 1/8" min
or 2 3/4" x 2 3/4" x 1/4" min
or 76.2 x 76.2 x 3.2mm

See Drawing No. Q51

... use the baseplate and angles method of securing

Diagram 56
Diagram 59

For attachment to fabricated bulkhead

Front hoop

For attachment to the chassis

Diagram 60

Additional members will be normal roll-bar tube or 1 1/2" x 1/16" box or 40 x 40 x 3mm box

Integrated Assembly

Fabricated Bulkhead

1/4" / 6mm spreader plates. Maybe separate plates or a piece of angle

Alternatively, make outrigger from 4" deep x 2" x 1/8" or 100 x 100 x 3mm box or larger

Diagram 61

2" x 2" x 1/8" / 50 x 50 x 3mm (min) box

Fabricated Bulkhead

Chassis

Outriggers

Diagram 61

Not more than 4" / 100mm between 'a' and 'b' as shown

Square plates bolted through roof (may be angled to suit roof shape)

Alternative positions of rear braces

Diagram 61
’A’ is the substantial structure forward of the driver such as to act as the front rollbar. No part of the driver’s helmet is to pass through a line struck from the top of the rollbar to this structure.
**Diagram 67**

Dimension B Height over front seats (measured between 0° and 15° towards the rear in relation to the vehicle using the test seat weight)

Dimension C Width for the front seats

Dimension D Height over the rear seats (measured as Dimension B)

Dimension E Width of rear seats.

Dimension F Distance from the centre of the hub of the steering wheel to the brake pedal (if the steering wheel is adjustable it must be placed in the median position).

Dimension G Length from the centre of the hub of the steering wheel to the bulkhead of the rear seat, or if possible to the rear face of the rear seat (maximum tilt 15°) If the steering wheel is adjustable it must be placed in the median position.

B and D are measured between the bottom of the seat compressed by the test seat weight, the axis of which is vertical, and the ceiling (padding compressed). If the seats are separate, the measurement is taken in the middle of each of the seats. In the case of longitudinally adjustable seats, the seats will be placed in the median position. If there is a bench seat in the front, the measurement is taken at 25cm from the centreline of the car.

C and E are the maximum widths measured along the vertical plane passing through the axis of the standard test seat weights placed on the seats, being able to be freely maintained over a height of at least 25cm and a length of at least 40cm. The minimum dimensions (in cm) according to the cylinder capacity (in cm³) are the following, with \( H = F + G \):

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>From 0 to 1,300</td>
<td>Free</td>
<td>90</td>
<td>Free</td>
<td>90</td>
<td>180</td>
</tr>
<tr>
<td>From 1,300 to 2,000</td>
<td>88</td>
<td>110</td>
<td>88</td>
<td>110</td>
<td>200</td>
</tr>
<tr>
<td>Over 2,000</td>
<td>95</td>
<td>120</td>
<td>95</td>
<td>120</td>
<td>210</td>
</tr>
</tbody>
</table>

**Diagram 68**

**Diagram 69**

**Diagram 70**