GENERAL REQUIREMENTS FOR CARS AND DRIVERS

Bulletin Number: B17/001

Implementation Date: 1 January 2017

REFERENCE

CAMS Manual of Motor Sport. General Requirements for Cars and Drivers

http://www.cams.com.au/motor-sport/regulations/cams-manual/general-requirements

RATIONALE

To inform of the changes to the 2017 CAMS Manual of Motor Sport, National Competition Rules (NCR) and General Requirements for Cars and Drivers.

ACTION

Amendments to the 2017 CAMS Manual of Motor Sport NCR and General Requirements for Cars and Drivers applicable from 1 January 2017, with the following changes:

- (a) reformat into a single column style;
- (b) reformat of the article numbering where applicable;
- (c) an update of the terminology used; and
- (d) changes and additions to the regulations of the General Requirements for Cars and Drivers.

The following table is a brief of the changes and additions the General Requirements for Cars and Drivers:

KEY:

XXXX - deleted text.

XXXX – added text.

XXXX - advisory note.

Regulation	Regulation wording	Comments
Schedule A		
(n)	where fitted with ballast, the ballast shall be attached by means of minimum grade 8.8 bolts and nuts. A reinforcing steel plate of at least 75mm x 50mm x 3mm under each bolt and nut shall be present. When a single bolt is used, it shall be centrally located in the ballast. Where the ballast top face surface area exceeds the surface area size of a reinforcement plate by 2 1/2 times, then a minimum of two bolts shall be used and located	The requirements for the fitment of ballast have been moved into the Definitions - Technical section.
	evenly across the ballast. The size of the bolt shall	





	be as per industry standard for the weight of the ballast used.	
	be fitted with ballast in compliance with the	
	requirements detailed in Definitions – Technical.	
Schedule B		
(c)	be fitted with a device or devices that shall protect any longitudinal propeller shaft shall be protected from striking the ground in the event of a component failure;	Removal of the double up of the wording "shall protect" and "shall be protected".
(k)	save for 1st Category automobiles, be fitted with a bulkhead constructed from a flame - and liquid-proof material. If the material is constructed from polycarbonate clear it shall be a minimum of 6mm thick. This bulkhead shall effectively seal the cockpit from the fuel tank or re-fuelling system;	Specifying the material type to polycarbonate instead of the term "clear" to apply regulation on the basis of the type of material type. Previously in application a polycarbonate material that is not clear could have been less than the required 6mm.
(s)	for each external door handle that is not easily distinguishable or visible from the surrounding bodywork, there shall be fitted an arrow and the word 'OPEN" of a contrasting colour to the surrounding bodywork marking the location of each door handle. The arrow marking the location shall be clearly visible on approach from emergency officials. for each external door handle that is not easily distinguishable or visible from the surrounding bodywork, there shall be fitted an arrow, 50mm long, yellow or red in contrasting colour to the bodywork and the word 'OPEN, LIFT, PUSH or PULL", whichever is appropriate, marking the location and operation of each door handle. The arrow marking the location shall be clearly visible on approach by emergency officials.	Refined wording to now apply a requirement depending on the type of door opening device/s or mechanism in use that are not distinguishable or visible from the surrounding bodywork.
Schedule C		
(i)	Each automobile of the 2nd and 3rd Category shall be equipped with a battery isolation (master) switch which isolates the battery and stops the engine, and:	Format changes





	 (i) it shall be capable of being operated by the driver in his normal seated position; (ii) there must shall be a second switch, or a remote means of operating the main switch, from the vicinity of the base of the A pillar on the driver's side or, for an automobile with no A pillar, in a comparable position; and (iii) each external device shall be clearly marked by a symbol showing a red spark in a white-edged 	
(i)	blue triangle of minimum edge length 150mm. 11. For a non-road-registered series production- based automobile any cable-operated release bonnet mechanism must be disabled and replaced with at least two fasteners which hold the bonnet closed.	Removal of text that was incorrectly added to this regulation and repeated elsewhere in the regulation.
Schedule D	1	1
2(d)	A passenger in an <u>automobile</u> shall be required to wear apparel as <u>detailed in the CAMS Motor Sport Passenger Ride Activity (MSPRA) policy.</u>	Application of the requirements of the CAMS MSPRA policy.
2.1	³ FHR will be mandatory for Club and Multi Club level effective 01/01/2018	Update as per the AMRC decision, August 2016: Note 3: Helmet and FHR in "Race" to be applied to level A across all event levels for 2018.
2.3	Application Table Notes: 1 Level A requirements effective 1 January 2018. 2 If a single layer flame retardant overall is worn level A flame retardant underwear must be used Application Table updates: Socks updated to level A across all event levels for 2017. Balaclava updated to level A across all event levels for 2017.	Update as per AORCOM decision, August 2016: Note 1: Helmet and FHR in "Off Road" to be applied to level A across all event levels for 2018. Note 2: Mandatory use of flame retardant underwear where only a single layer suit is worn for 2017. Balaclava updated to level A (FIA 8856-2000) across all event levels for 2017.





		Socks updated to level A (FIA 8856-2000) across all event levels for 2017.
3. Apparel Standards	English standard BS 6658-85 A/FR moved to level B New standard Snell M2015 added to Level C	Inclusion of Apparel Standard labels to assist in the identification of the correct standards and the application of labelling changes by year.
4.2 (c)	Printing/Transfers: For apparel complying to the FIA 8856-2000 Standard any printing or transfer is permitted to be done only by the manufacturer. A competitor may be asked to demonstrate proof that any printing or transfer has been done only by the manufacturer.	Application of the FIA regulation to cover printing and transfers applied to apparel of the FIA standard.
4.6 (b)	In a circuit race where a refuelling operation is permitted, each person must at least wear shoes and socks, long pants and a short sleeved shirt. Each person involved in a refuelling operation or who is working within one metre of the refuelling or venting point must be attired in the following	AMRC decision to mandate the wearing of long pants for each person in pit lane during refuelling process.
Schedule E		
	Format changes from numbering to lettering	
	Production Car tyre list, Federal RSR-R	Addition of an approved tyre.
Schedule F	Format changes from numbering to lettering	
Schedule G	Format changes from numbering to lettering	
Schedule H		
	Format changes from numbering to lettering	
1.1	HAND-HELD FIRE EXTINGUISHERS:	Clarification of fastener
(a)	Each hand-held fire extinguisher shall be secured using a metal bracket attached to the automobile with only high tensile bolts or equivalent fasteners and/or sufficient clamp/s and must remain restrained under a deceleration or acceleration of	requirements including the ability to use clamps instead of bolts for extinguisher mounting.
b.	25G; and must be capable of removal by the driver (or crew, where applicable) while seated in their normal respective position for competition, unless varied by specific category regulations and without the aid of tools.	Clarify the positioning of a hand held fire extinguisher/s if fitted to a vehicle.



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4.	Rally/Road Events	Reformat of explanatory notes to more clearly define their application. No wording changes.
Table H 1	Update to Table H1 to include extinguisher requirements for a S1 or S2 Rallysprint.	Requirements for a Rallysprint in reference to the Rallysprint Standing Regulations.
	Addition of the requirement for an extinguisher for an Electric vehicle.	Reference to the requirements of the FIA for an electric vehicle and the type of extinguisher to be fitted.
Schedule I		
	Format changes from numbering to lettering	
2.2	A safety harness shall be mounted as per one of the following installed in accordance with the manufacturer's instructions, with consideration of the requirements when using a Frontal Head Restraint and application of the following:	
	 (e) The shoulder straps shall be directed to the rear and installed in such a way that they do not make an angle greater than 45° to the horizontal from the occupant's shoulder where a frontal head restraint is not used. It is highly recommended that this angle should not exceed 10°, (refer drawing I-1). (f) The maximum angles in relation to the centreline of the seat are 20° divergent or convergent (refer drawing I-2). The shoulder straps may be installed crosswise symmetrically about the centre-line of the front seat mounting points for a safety harness. 	Additional information added for use with FHR.
2.3 (d)	shoulder straps may be fixed to the safety cage or to a reinforcement bar by means of a loop, and/or be fixed to er leaning on a transverse reinforcement compliant welded between the backstays of the safety cage in accordance with Schedule J, Article 15.1 (e) of the Manual (i) When looped around a transverse bar adjustment/mounting each buckle is to be placed as close as possible to the bar to reduce lateral slip of the shoulder strap mountings.	Wording update to apply clearer regulation to improve the fitment of a safety harness.





	(ii) It is permitted to retain a shoulder strap/s	
	position, for use with FHR, using material	
	such as safety cage padding.	
4.3	Each Off Road automobile, must be equipped (for	Update as per AORCOM
	each occupant) with a safety net or arm restraints in	decision, August 2016:
	accordance with the following:	decicion, ragaet 2010.
		New section added to cover the
	(a) Each device must ensure that each arm of each crew member cannot project beyond the	application and use of Arm
	line of the bodywork of the automobile.	Restraints in Off Road.
	(b) Where an occupant is not using arm restraints	
	a window net must be used to cover each	
	opening, except for the front window opening,	
	including automobiles where exit is via an	
	opening roof panel.	
	(c) If arm restraints are used they must be worn	
	by each occupant at all times whilst the	
	automobile is moving in competition. Each	
	arm restraint must be at least of an SFI 3.3	
	standard.	
Table I-1	Addition of FIA standard 8853-2016, move FIA8853-1985 to level B and reword "B" to reflect other tables in relation to the level of competition.	Addition of new standard and clarification of existing standards that are applicable.
	in relation to the level of competition.	патаге аррпсавіе.
	Removal of FIA Standard 8854 - 1991	Removal of an out of date and no longer applicable FIA Standard. This standard is now some 10 years out of date and not able to be referenced with any FIA Standard as currently published.
Schedule J		
	Format changes from numbering to lettering	
3.2	SPEED AND MODERN REGULARITY EVENTS:	Updated to current wording.
3.3 (c)	Each Superlite vehicle shall be approved by CAMS	Addition to the Schedule for Off
	based on the criteria for a Type 3 safety cage in this	Road Superlite (formally Side by
	schedule.	Side or UTV) - to ensure each
		Safety Cage is approved to the
		regulations of Schedule J.





4.1 (e)	It is permitted to add non-compulsory bars to a safety cage structure. This shall not affect the original registration or certification of the structure. Where a non-compulsory bar is added it shall be attached as specified in these regulations.	Inclusion of this text to permit an upgrade to an existing safety cage structure in a Log Booked vehicle such as the addition of roof bracing, additional door bars, safety harness mounts and other non-compulsory members.
11.1(a)	For vehicles subject of a safety cage structure as per Article 3; Application: where the helmet of an occupant could come into contact with the safety cage structure and/or any safety cage bar that is directly above or to the side of the helmet of an occupant,	Clarification on where the padding is to be fitted.
11.2	Note: Due to a lack of readily-available and suitable safety cage protective padding within Australia, CAMS will provide a dispensation for all vehicles manufactured prior to 1 January 2012 with a 'Type 1 Solo Roll Bar' (as defined by CAMS Schedule J), to compete without protective padding as per the 2013 CAMS Manual	This Note is no longer valid.
12.3 (b)	The connection of each doorbar to the windscreen pillar reinforcement (Drawing J-17) is permitted.	Change to reflect FIA regulation for A pillar support, This item is mentioned in 12.3 (d).
	For a competition with a driver only, doorbars are required only on the driver's side.	To improve roll cage integrity intrusion bars are to be fitted on both sides of the structure.
(c)	The ends of the reinforcements must be less than 100mm from the junction between roll bars and members (not applicable to the top of the 'V' formed by reinforcements in Drawings J-15 and J-16). The configuration of J-16 shall only be used in conjunction with J-34	J-16 (rearward vee in the roof structure) can only be used in conjunction with J-34 (forward vee in the backstays) if fitted. This is in line with the FIA regulations for these members.
(d)(iv)	Its lower end shall be within 100mm of the front mounting foot. (refer Drawing J-62 for the measurement). If this reinforcement intersects the door bars, it must be split in several parts	Clarification of the connection of the A pillar support and its interaction with any door bar/s fitted.





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15.1 (e)	Safety Harness Mounting to a Transversal Member: Welded transversal members fitted on the main roll bar or between the backstays may be used for the safety harness mountings provided the installation complies with Schedule I. It is highly recommended that the requirements for FHR are observed for positioning of mountings for shoulder straps	Addition of recommendations for the use of a transvers member for the mounting of a safety harness for use with FHR.
16.	Removable members may be incorporated subject to the use of dismountable joints complying with Drawings J-47 to J-57 or a joint Homologated by the FIA or CAMS or other ASN with the approval of CAMS. Such joints shall not be welded once assembled. Any fastener used shall have a minimum quality of 8.8 (ISO standard).	Addition of a joint homologated by the FIA, CAMS or other ASN with the approval of CAMS.
	Dismountable joints complying with Drawings J-47, J-50, J-53, J-56 and J-57 shall be used only for attaching removable members and reinforcements described by Article 12.3 They are not permitted for joining the upper parts of the main roll bar, the front roll bar, the lateral half roll bars or the lateral roll bars (refer Drawings J-2, J-3 and J-4 or a joint Homologated by the FIA or CAMS or other ASN with the approval of CAMS).	Clarification of the application of dismountable joints for removable members.
Schedule K		
	A competition number shall be of a style similar to below: 1234567890	Addition of a guide as to what font styles comply.
	NOTE: Styles that comply with the above sample are "Helvetica Bold", "Zurich Bold" and "Arial Bold"	





8	Other Signage	
	(a) On the top of the windscreen on a background free as to colour and depth, subject to the lettering and devices being placed only within the upper 200mm of the windscreen surface. Specific Sporting Regulations may vary this requirement (b) On the rear window up to 85mm depth	Application of a size for a windscreen banner. Application of a size for a rear window banner.
	located at the top or bottom of the window provided that it does not interfere with the driver's visibility	window pariner.
	(c) Each electric or Hybrid Electric automobile shall display an orange triangle 150mm side with white EV lettering in the vicinity of the competition number:	Signage for an electric vehicle to ensure it can be easily identified as such by event officials.
Schedule L		
	Format changes including the introduction of article numbering.	
	(i) An endorsement in a log book shall be made only by the Chief Scrutineer or their deputy, the Stewards of the Meeting, the CAMS Technical Commissioner or CAMS or, in the case of a 5th Category log book, by an Historic Eligibility Officer. Such endorsements may be cancelled or noted as having been complied with, only by one of the persons above.	Clarifies the persons who can make an endorsement in a Log Book and the addition of the permitted use of a Log Book for other purposes related to the vehicle.
	(i) the recording of the placement and details of a component seal by a scrutineer or an eligibility officer; (ii) the recording of a fuel tank standard or inspection; (iii) the recording of an event whereby it is a requirement for the automobile to have this record for use with restricted registration in some States.	
Schedule M	Format changes from numbering to lettering	



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Schedule N	Format changes from numbering to lettering in part 1 and part 2	Schedule N part 1 has been reworded to include new terminology and to remove outdated category types. Addition of two new articles (Article 4 and 5) to apply regulation for Free Fuel Tank Design and Safety Cell Inspection with an application date of 1 January 2018.
1.1	Each 1st Category automobile with a fuel capacity in excess of 50 litres, shall be equipped with a fuel tank/s either fitted with fuel tank foam, or fitted with a FIA safety fuel cell.	
1.2	No tank filler and/or cap shall protrude beyond the coachwork. Each fuel filler must seal and prevent fuel leakage. Each air vent must be located at least 250mm to the rear of the cockpit.	
1.3	Each 1st Category automobile subject to a log book issued after 1 January 1977, and any automobile in which the fuel tank is within 100mm of the outside surface of the car, shall incorporate a crushable structure to protect it from impact. NOTE: the following specifications for the fuel tank crushable structure are recommended:	
1.4	Each 1st Category automobile which is the subject of a log book issued after 31 December 2017 shall be fitted with an FIA safety fuel cell FT3-1999, FT3.5-1999 et FT5-1999 or shall incorporate a free design fuel tank using regulations as listed in Article 4.	
2	2 ND and 3 RD CATEGORY AUTOMOBILES	
2.1	Each 2 nd and 3rd Category automobile, unless otherwise specified in the Group Regulations, may replace an original fuel tank/s with a FIA safety fuel cell or a free design fuel tank provided the fuel capacity does not exceed that specified below. Each automobile competing in a race scheduled to extend more than 30 minutes, which is not fitted with a FIA safety fuel cell, must have its fuel tank fitted with fuel tank foam.	Combining category types and rewriting the regulation.



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2.4	Each 2 nd and 3rd Category automobile which is the subject of a log book issued after 31 December 2017 shall be fitted with either an original fuel tank or a FIA safety fuel cell FT3-1999, FT3.5-1999 et FT5-1999 or shall incorporate a free design fuel tank using regulations as listed in Article 4.	Added a new reference to new regulation in this Schedule
2.5	Where dry-break fuel couplings are fitted to a Series Production automobile in which the standard fuel tank/s are retained and are totally unmodified (including baffling, fitting of foam filling and any modification to the filler neck or venting system), any consequential increase in fuel capacity shall be accepted provided that: (a) the dry-break fuel coupling/s and venting components are fitted as close as practical to the fuel tank; (b) the ID of the connecting tube between the dry- break coupling and the original filler neck of the fuel tank is not greater than the OD of the exit of the dry-break coupling/s; and (c) the filler and vent tubes between the fuel tank/s and dry-break coupling/s are as short and as direct as practical.	Rewording of this section for clarity.
2.6	From the 31 December 2017 each 2 nd and 3rd Category automobile which is fitted with dry-break fuel couplings shall have fitted: (a) a vent system with a gravity activated rollover valve; (b) a fill plate with one way valves to prevent fuel leakage;	Added a new requirement for Dry Break fittings.
3	GENERAL	
3.1	Except where the Group Technical regulations or event Supplementary Regulations require compliance with Schedule N, the conditions of Schedule N, Part 1 are recommended but not mandatory for an automobile in a Club or Multi-Club race.	Simplified wording.
3.3	Refuelling in pit lane during a race must be conducted in compliance with Part 2 of this Schedule.	Simplified wording.





4	FREE DESIGN FUEL TANK	New regulation for a free design fuel tank.
	A free design fuel tank shall: (a) be constructed of steel, stainless steel, or 5005 aluminium, a minimum 2mm thickness. Specific category regulations may vary the material type and dimensions; (b) be mounted by a cradle and strap/s or, if fixed by mounting tabs, each tab shall have a mounting reinforcement of a minimum 2mm x 150cm² with large radius comers welded to the tank; (c) contain fuel-resistant polyurethane foam, conforming to Mil Spec MIL-B-83054, SAE-AIR-4170 or equivalent. Where rapid refuelling is foreseen, anti-static foam conforming to Mil-Spec MIL-F-87260 (USAF) shall be fitted; (d) incorporate a vent system with a gravity activated roll-over valve; (e) (if the tank is remotely filled) incorporate a fill plate with one way valves to prevent fuel leakage; and (f) be internally inspected for safety foam	
	deterioration every 2 years.	
<u>5</u>	SAFETY FUEL CELL INSPECTION	New regulation for the inspection of FIA FT3, FT3.5 and FT5 fuel cells for CAMS sanctioned events.
<u>5.1</u>	Each automobile in an international competition shall comply with the FIA regulations.	



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5.2	The following regulations of this article (5.2)	
<u>5.2</u>	shall apply from 1 January 2018 and only to an	
	automobile competing in an event permitted by	
	CAMS. A FIA safety fuel cell FT3, FT3.5 and FT5	
	shall be inspected in compliance with the	
	following requirements:	
	(a) inspection of a FIA safety fuel cell bladder	
	shall become due on the FIA expiry date of 5	
	years after manufacture;	
	(b) inspection of a FIA safety fuel cell bladder shall be	
	carried out by a CAMS approved test facility every 2	
	years, refer Article 6;	
	(c) maximum life of a FIA safety fuel cell bladder shall be	
	15 years from the date of manufacture;	
	(d) a damaged FIA safety fuel cell shall not be repaired;	
	(e) proof of inspection must be produced on request; and	
	(f) inspection details shall be recorded by CAMS in the	
	Change of Details section of the log book.	
	NOTE: Category, Class or Event regulations may	
	apply additional regulations and/or a higher standard	
	for a FIA safety fuel cell.	
<u>6</u>	APPROVED FUEL CELL TEST FACILITIES	Approved test centres added to
		regulation.
		NOTE: CAMS are working with
		Manufacturers and other
		applicable industry Inspectors to
		expand the coverage across all
		States of Australia by 2018.
Definitions -T	echnical: Update/Introduction of some definitions in lin	ne with FIA terminology.
Bodywork	Bodywork is differentiated as follows:	Provide a further definition of
	(a) Completely closed bodywork;	Bodywork types.
	(b) Completely open bodywork ;	
	(c) Convertible bodywork with the hood in either	
	supple (drop-head) or rigid (hardtop)	
	material.	
Ballast	Retention of ballast shall be by a minimum of	Update to specify minimum bolt
retention	class 8.8 M6 bolts & lock nuts up to a single	standards and size of bolt.
	ballast weight of 18kg and a minimum of class 8.8	
	M8 bolts & lock nuts for a single ballast weight of	
	18kg to 65Kg. A reinforcing steel plate of at least	



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Cockpit	75mm x 50mm x 3mm under each bolt and nut shall be present. When a single bolt is used, it shall be centrally located in the ballast. Where the ballast top face surface area exceeds the surface area size of a reinforcement plate by 2 1/2 times, then a minimum of two bolts shall be used and located evenly across the ballast. Structural inner volume which accommodates the	Define the cockpit.
	driver and the passengers.	μ
Composite Materials	Material formed from several distinct components, the association of which provides the whole with properties which none of the components taken separately possesses. More specifically, these are materials where a matrix material is reinforced by either a continuous or discontinuous phase. The matrix can be metallic, ceramic and polymeric or glass based. The reinforcement can be present as long fibres (continuous reinforcement) or short fibres, whiskers and particles (discontinuous reinforcement).	Define composite materials.
Component Seal	Element used for identifying components of a vehicle for either of the following purposes: (a) control of the use or replacement of a component: (b) follow up of the number of components used or registered as required by the applicable regulations; (c) registration of a component seized for carrying out immediate or differed technical checks; (d) prevent the dismantling and/or the modification of a component or part of an assembly; or (e) any other need for the application of technical and/or sporting regulations.	Define a Component Seal in application through motor sport.



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Cylinder Capacity	Volume V generated in cylinder (or cylinders) by the upward or downward movement of the piston(s). V = 0.7854 x b² x s x n where: b = bore s = stroke n = number of cylinders	Cylinder capacity equation.
Exhaust Manifold	Part collecting together at any time the gases from at least two cylinders from the cylinder head and extending to the first gasket or single collector slip joint separating it from the rest of the exhaust system. For cars with a turbocharger, the exhaust begins after the turbocharger. Part collecting together the gases from the cylinder head and extending to the first joint separating it from the rest of the exhaust system.	FIA consistent definition.
Luggage Compartment	Any volume distinct from the cockpit and the engine compartment inside the vehicle. This volume is limited in length by the fixed structures provided for by the manufacturer and/or by the rear of the seats. This volume is limited in height by the fixed structures and/or by the detachable partitions provided for by the manufacturer, or in the absence of these, by the horizontal plane passing through the lowest point of the windscreen.	Define luggage compartment as opposed to cockpit etc.
Running Gear	The running gear includes all parts totally or partially unsuspended.	Define the term running gear.
Static Gasket	The only function of a gasket is to ensure the sealing of at least two parts, fixed in relation to each other. The distance between the faces of the parts separated by the gasket must be less than or equal to 5 mm.	Define a static gasket – identified as an area that does cause some technical concern with some categories.
Supercharging incl. Turbocharging	A mechanical device capable of producing positive (above atmospheric) pressure in the induction system, i.e., any device which effects a	Moved from the NCR Definitions – "Supercharger" in the NCR





measurable increase in the Brake Mean Effective Pressure (BMEP).

An air duct which delivers air to the engine intake is not considered to be a supercharger.

now refers to Definitions - Technical

END