

## SPECIFICATIONS OF AUTOMOBILES

3rd Category – Touring Cars

Group 3E – Series Production Car Regulations

CONFEDERATION OF  
AUSTRALIAN MOTOR SPORT

WWW.CAMS.COM.AU

Modified Article	Date of Application	Date of Publication
2.2(a)	01/01/2019	01/01/2019
2.4(a)(i) Table 1	01/01/2019	01/01/2019
4.13	01/01/2019	01/01/2019
4.15 – <i>deleted, Refer to Article 10.2</i>	01/01/2019	01/01/2019
4.16(a)	01/01/2019	01/01/2019
5.5	01/01/2019	01/01/2019
9.1	01/01/2019	01/01/2019
9.3	01/01/2019	01/01/2019
10.1	01/01/2019	01/01/2019
10.2	01/01/2019	01/01/2019
12.2	01/01/2019	01/01/2019

**1. PREAMBLE**

The intent of these regulations is to enable competitors to suitably prepare a production automobile for competition. The purpose of freedoms granted herein is to provide for cost effective competition by increased serviceability and reducing maintenance costs whilst maintaining the inherent strengths or weaknesses of each automobile. This statement has no regulatory role and serves only to clarify the intent of these regulations.

**1.1 APPLICATION**

These regulations apply to mass-produced series production touring, sports or utility automobiles.

**1.2 MODIFICATIONS PERMITTED OR OBLIGATORY**

- (a) Each automobile must remain unmodified, in compliance with each aspect of its CAMS Group 3E Recognition Document and identical in every respect to the standard production make/model as supplied by the original automobile manufacturer. Any modification or tuning practice not permitted by these regulations is expressly forbidden. The only work which may be carried out on the automobile is that necessary for normal servicing, or for the replacement of a worn or damaged part. The limits of the modifications and fittings permitted are specified hereinafter. Apart from these, a worn or damaged part shall be replaced only by a standard production part that is compliant with these regulations.
- (b) The use of carbon fibre or carbon/Kevlar® composite, ceramic material or titanium alloy, is not permitted unless such component/material was fitted/used as a standard part by the manufacturer, or unless permitted in these regulations.
- (c) There is no limitation on the capacity of an engine, including any equivalence factor.

**1.3 REPLACEMENT OF COMPONENT**

Where these regulations permit the replacement of a component that replacement component is free, unless the replacement component is otherwise restricted by these regulations:

“Free” means that the original part, as well as its function(s), may be removed or replaced with a new part, on condition that the new part has no additional function relative to the original part.

## 2. ELIGIBILITY

### 2.1 ELIGIBLE MODELS

To be recognised by CAMS as eligible for Group 3E each make/model of automobile must be available for purchase to members of the Australian public through the normal commercial distribution network of the original manufacturer (or their authorised Australian distributor) and:

- (a) Only an automobile certified for road use in Australia and listed on the Road Vehicle Certification System (RVCS) published by the Department of Transport and Regional Services (DOTARS) is eligible for recognition in this Group. An Automobile listed under the DOTARS register of Specialist and Enthusiast Vehicles is not eligible for recognition in this Group;
- (b) the automobile price must be less than AUD\$150,000, the price being defined as the Manufacturer Suggested Retail Price (MSRP) before on-road costs (as provided on [www.redbook.com.au](http://www.redbook.com.au));
- (c) a minimum of 100 examples of the specific model/variant of the automobile must have been registered in Australia; and
- (d) an automobile that is currently being manufactured or has ceased manufacturer no longer than 5 years, ago.  
Or:
  - (e) Any automobile that has existing CAMS Recognition for Group 3E which shall remain in compliance with all other aspects of these Group 3E regulations;
  - (f) any make/model of the automobile that has previously competed in the Australian Manufacturers Championship that is not certified for road use in Australia under the Road Vehicle Certification System (RVCS) may be deemed to be eligible in this Group by CAMS; and
  - (g) an automobile that may not be compliant with any of the above shall be considered by CAMS on application.

### 2.2 CAMS GROUP 3E RECOGNITION DOCUMENT

- (a) Each automobile shall be recognised by CAMS once its eligibility compliance has been demonstrated. Group 3E Recognition shall cover the detail necessary to describe an automobile without reference to workshop manuals, dealer bulletins or similar documents. FIA homologation papers shall be accepted where they apply to an eligible automobile described above. Optional components shall only be considered for approval if the component is a genuine manufacturer option that complies with one of the following requirements:
  - (i) the component is listed on the relevant automobile's Road Vehicle Descriptor (RVD) as published by DOTARS; or
  - (ii) the component is listed and authorised by the [original](#) manufacturer in official [Australian](#) sales literature and to which a manufacturer's warranty applies.  
[If either 2.2 \(a\)\(i\) or 2.2 \(a\)\(ii\) are met, then one of the following conditions must also be met for an option to be approved:](#)
    - (iii) [The optional item is a body, paint, aerodynamic or other non-performance option, in which case the MSRP of the option will have no bearing on the MSRP of the approved automobile; or](#)
    - (iv) [The optional item is a:](#)
      - (A) [transmission; or](#)
      - (B) [brake option of which only rotors of ferrous material are permitted](#)[in which case the MSRP of the option will be added to the MSRP of the approved automobile whereby the total MSRP including these options must not exceed the price cap as per Article 2.1 \(b\).](#)
- (b) Each approved manufacturer option must be listed in the relevant automobile's CAMS Group 3E Recognition document.
- (c) Recognition shall be granted only on the basis of a complete application, including any additional evidence required, and submitted by a manufacturer/importer or by a competitor.

- (d) Recognition of an automobile must be granted by CAMS prior to participation in a competition for Group 3E. It is the responsibility of the applicant to complete the application and to meet any requirements of CAMS. The application fee for a CAMS 3E Recognition Document is \$250, payable on application.
- (e) Approval for recognition of an automobile for Group 3E is at the discretion of CAMS.
- (f) Once an automobile has been recognised by CAMS, and its recognition form issued, that make and specific model of vehicle shall remain eligible during its production series, even if the MSRP price of that vehicle exceeds the price cap in subsequent years post its approval, provided it is sold by the manufacturer as an Identical Automobile.

### 2.3 NUMBER OF SEATS

- (a) To be recognised as a Series Production Touring Car an automobile must have at least four seats, in compliance with the dimensions defined for touring cars by the FIA.
- (b) An automobile not meeting the above dimensions may be recognised as a 'Series Production Sports Car' or 'Series Production Utility' dependent upon its compliance otherwise.

### 2.4 RACING WEIGHT

- (a) Each automobile must comply with the racing weight specified in its CAMS Group 3E Recognition Document, this being determined by the following:
  - (i) Where the RVD published Tare weight for the automobile is:
    - (A) greater than 1450kg a percentage of weight deduction in accordance with Table 1 and adding 85kg will apply as the Racing Weight; or
    - (B) less than 1450kg the Tare weight will apply as the Racing Weight.

**Table 1**

Homologated Weight (kg)	Deduction (%)
<a href="#">Less than 1450</a>	<a href="#">NIL – TARE weight applies as Racing Weight</a>
1450 - 1499	6
1500 - 1549	7
1550 - 1599	8
1600 - 1649	9
1650 - 1699	10
1700 or greater	11

### 2.5 NON-GENUINE PARTS

There is no restriction on the use and source of supply for all fasteners, belts, gaskets, seals, flexible hoses, liquid carrying pipes, mechanical cables, bearings, clamps, spark plugs and spark plug leads, filters, batteries and battery cables, globes and LEDs, fuses and electro mechanical relays and windscreen glass provided no modification is made to facilitate the fitment of the replacement part, and the part complies with Article 1.2 and 1.3 of these regulations.

### 2.6 SUBSTITUTE COMPONENT

The use of a substitute component on a specific make/model is permitted only if it has been approved by CAMS and the substitute component is detailed in the relevant automobile's CAMS Group 3E Recognition Document.

## 3. SAFETY

Each reference to a Schedule within these regulations means a Schedule of the General Requirements for Cars and Drivers in the CAMS Manual of Motor Sport. Each automobile must comply with each Schedule.

## 4. ENGINE

### 4.1 GENERAL

Unless specified otherwise in these regulations the tolerances for machining, finishing and weighing of engine components will be in accordance with Definitions – Technical, Measuring Tolerances of the General Requirements for Cars and Drivers in the CAMS Manual of Motor Sport.

**Note:** A plastic shroud located in the engine bay, the sole purpose of which is aesthetic, may be removed.

### 4.2 ENGINE MOUNTS

It is permitted to replace the dampening or elastomer material of each engine mount provided the location, position and orientation of the engine and the attachment of the mount/s to the engine and body/cross-member remains standard.

### 4.3 CYLINDER BLOCK

- (a) It is permitted to increase the cylinder block bore diameter up to a maximum of 0.6mm over the standard bore size.
- (b) It is permitted to re-sleeve the cylinder bores of a sleeved block, or to fit a sleeve to a unitary block, provided that in each case the material used to sleeve the cylinder bore is either the same as the standard bore or is of cast iron.
- (c) It is permitted to remove material from the head gasket contact face of the cylinder block up to a maximum of 0.25mm provided the engine compression ratio remains within the automobile manufacturer's permitted tolerance.

### 4.4 CYLINDER HEAD/S

It is permitted to remove material from the head gasket contact face of the cylinder head up to a maximum of 0.25mm provided the engine compression ratio remains within the automobile manufacturer's tolerance. It is permitted to re-grind a valve seat provided that the grinding process does not remove any of the original cylinder head casting material.

### 4.5 CRANKSHAFT

It is permitted to remove a maximum of 0.25mm of material from any crankshaft bearing journal.

### 4.6 BALANCING OF ENGINE COMPONENTS

It is permitted to balance any rotating or reciprocating component of the engine only by the removal of metal. A minimum of one of the respective components or individual aspects of the component being balanced must remain standard and have no material removed.

### 4.7 CONNECTING RODS

It is permitted to replace each connecting rod of a reciprocating engine provided the replacement is of a solid, ferrous, and magnetic steel construction. Each replacement connecting rod shall:

- (i) Have the same distance between the centre of the big end and small end as the standard connecting rod; and
- (ii) Shall be equal in weight to the original connecting rod +/- 2.0%

**Note:** the connecting rod weight is inclusive of the small end bush, big end bearings and each required fastener.

### 4.8 PISTONS

It is permitted to replace each piston provided the replacement piston:

- (i) has an identically shaped crown as the standard piston;
- (ii) has the same distance between the gudgeon pin centre line and the highest point of the piston crown as the standard piston;
- (iii) is of equal weight to the standard piston, including the rings, gudgeon pin and retainer +/- 2%; and
- (iv) is not coated with any material unless the standard piston is coated by a material.

### 4.9 PISTON RINGS

It is permitted to replace each piston ring provided:

- (i) the number of rings, including compression and oil rings, remain the same as the standard piston;
- (ii) the number of components per ring remains the same as the standard piston rings (i.e. a single piece compression ring may not be replaced by a two piece 'gapless' ring); and
- (iii) the area of the piston ring which is in contact with the cylinder wall is not less than that of the standard ring.

#### 4.10 CAMSHAFT/S

The timing of each camshaft in relation to the crankshaft is free. It is permitted to modify the standard camshaft drive components for the sole purpose of adjusting the camshaft timing.

#### 4.11 LUBRICATION

It is permitted to modify the removable portion of the oil sump provided any material added is identical and no modifications are made to facilitate the fitment. It is permitted to modify the oil pickup and to add an oil separator tank to a crankcase breather line.

#### 4.12 THROTTLE AND AIR INTAKE

- (a) Where an automobile is fitted with an electronically controlled throttle valve/s, it is permitted to replace the electronic assembly of the throttle valve/s with a mechanical assembly provided the replacement throttle valve/s respect the exact shape and dimensions of the standard assembly in each area that is in contact with the intake air for the engine.
- (b) Where a throttle valve/s is replaced it is permitted to replace or modify each part of the pedal assembly, the sole function of which is to operate the replacement throttle control valve, as well as fit a throttle cable, associated mounting bracket/s and the replacement or addition of a throttle position sensor. It is permitted to fit a duplicate throttle cable and associated mounting bracket/s.
- (c) A cruise controller unit/s may be disconnected and/or removed.
- (d) It is permitted to replace the air intake components upstream of the throttle valve/s, including the fitment of alternate design air filter assemblies and cold air intake ducting, only for a naturally aspirated engine.

#### 4.13 PULLEYS

Each pulley that is fitted to an engine ancillary (e.g. water pump, alternator) is free. It is permitted to replace a [harmonic balancer and/or](#) a drive pulley that is fitted separately to the crankshaft by way of fasteners. Each engine ancillary drive belt may be replaced provided it respects the standard type and width.

#### 4.14 SUPERCHARGED ENGINES

- (a) Each supercharged engine must comply with the maximum manifold pressure as listed in the relevant automobile's CAMS Vehicle Recognition document.
- (b) The maximum inlet manifold pressure specified in an automobile's CAMS Group 3E Recognition Document is in addition to atmospheric pressure which at all times is deemed to be 101kPa (1010 millibars).
- (c) Each supercharged engine must be fitted with a pressure monitoring data logger, as specified in the relevant championship/series/event regulations.
- (d) It is permitted to modify the boost control mechanism to achieve the specified boost pressure provided such modification is approved by CAMS and detailed in the CAMS Group 3E Recognition Document.

#### ~~4.15 ELECTRONIC ENGINE CONTROL UNIT (ECU)~~

- ~~(a) It is permitted to replace or modify each ECU provided that any modification to the original electrical connection and the automobile wiring harness required for their fitment is within 100mm of the ECU end of the original wiring harness.~~
- ~~(b) It is permitted to fit an additional engine coolant temperature sensor, air intake temperature sensor and manifold pressure sensor, provided each is wired separately to the main wiring harness. The signals generated by these sensors must not be used to control the engine and may only be used or recorded by a data logging system.~~
- ~~(c) The use of traction control/launch control is prohibited, unless the system is standard. In this case, the traction control/launch control system may only be operated by the original ECU utilising the manufacturer's standard software and standard calibration settings.~~

- ~~(d) It is permitted to use a Pit Lane Speed Limiter only for the purpose of limiting the automobile speed in Pit Lane. It is permitted to fit a method of actuation of a pit lane speed limiter.~~

#### 4.16 COOLING SYSTEM

- (a) It is permitted to replace an **engine coolant** radiator provided the width, height and position of the replacement is the same as the standard **engine coolant** radiator. The thickness of the **engine coolant** radiator is free. It is permitted to remove or modify any cooling fan shroud. No additional modifications are permitted to be made to facilitate the fitment of a replacement radiator.
- (b) It is permitted to replace any radiator cooling fan. It is permitted to replace an engine driven radiator cooling fan with an electrically driven and controlled cooling fan. The operation control of a radiator cooling fan is free.
- (c) Water pump/s are free provided they are mechanically identical to the standard pump.
- (d) It is permitted to replace a thermostat in which case its operation and method of control is free. The manner in which the radiator pressure is controlled is free.
- (e) It is permitted to fit a protective screen mounted in front of the radiator provided no additional modifications are made to facilitate the fitment.
- (f) It is permitted to fit a cooler to each of the engine, transmission, final drive and power steering oil systems provided that the sole purpose of each cooler, save for the additional volume of oil, is to reduce the oil temperature. It is not permitted to change the direction of oil flow within the engine. Each cooler and the associated components must remain inside the external bodywork of the automobile. The only modification permitted to facilitate the fitment of a cooler and associated components is the:
- (i) addition of hoses and fittings;
  - (ii) addition of a distribution (sandwich) plate;
  - (iii) relocation of the oil filter;
  - (iv) the addition of a bracket/s; and
  - (v) the drilling of holes for mounting purposes.
- (g) It is permitted to fit independent additional cooling systems to electronic and electrical components (i.e. electronic modules/controllers, electric power steering motors) by either the fitment of additional heatsink and/or air flow ducting or by the fitment of a heat exchanger system. Each additional cooling system and the associated components must remain inside the external bodywork of the automobile.

#### 4.17 EXHAUST

- (a) It is permitted to replace the exhaust system of a naturally aspirated from the mounting point for the exhaust system at the cylinder head.
- (b) It is permitted to replace the exhaust system of a mechanically driven supercharged engine downstream of the final junction point of the exhaust manifold in which case it is permitted to remove the internal matrix component of a catalytic converter only if a catalytic converter is an integral part of the retained exhaust manifold.
- (c) It is permitted to replace the exhaust system of a turbocharged engine downstream of the exit of the turbine housing. No part of a replacement exhaust system may protrude upstream of this mating surface.
- (d) It is permitted to modify a plastic component for facilitating the exhaust installation and/or fit additional heat shielding to protect plastic components.
- (e) Each exit point/s of all exhaust gasses for a replacement exhaust system must remain standard. If the standard exhaust system has multiple exit points, any replacement exhaust system must utilise at least one of the standard exit points for the exhaust gasses.
- (f) No additional modification is permitted to facilitate the fitment of a replacement exhaust system.

#### 4.18 AIR CONDITIONING COMPONENTS

It is permitted to remove from the engine compartment any component associated with an air conditioning system.

## 5. TRANSMISSION

### 5.1 MOUNTS

It is permitted to replace the dampening or elastomer material of the transmission mount/s provided the location, position and orientation and the attachment of the mount/s to the transmission and body/cross-member/s remains standard.

### 5.2 GEARBOX

It is permitted to replace each shift fork, shift hub key and shift bushing provided no additional modification is made to facilitate their fitment. It is permitted to fit an extension to the gearbox breather.

### 5.3 FLYWHEEL AND CLUTCH

- (a) It is permitted to replace a flywheel provided the replacement is of a ferrous metal material. Should the original flywheel include a ring gear for the starter then the replacement shall also include the ring gear for the starter.
- (b) It is permitted to replace a clutch provide that the replacement clutch retains the same number of driven plate/s, and that the operation of the diaphragm is the same as standard. It is permitted to replace the clutch release bearing. The replacement clutch must otherwise operate with the original clutch actuation mechanism.

### 5.4 DIFFERENTIAL AND FINAL DRIVE ASSEMBLY

It is permitted to replace or modify the action of each final drive differential unit and the central differential or drive unit of an all-wheel drive transfer case. It is permitted to replace a removable cover plate of a final drive assembly. Each drive ratio of each final drive differential unit must remain as standard. It is permitted to add an extension to the differential breather.

### 5.5 ELECTRONIC TRANSMISSION CONTROL UNITS

It is not permitted to use an electronically or automatically controlled or adjusted drive system, unless such a system is fitted as standard ([Refer to Article 10.2 Electronics](#)). ~~in which case, the system may only be operated by the standard electronic transmission control unit utilising the manufacturer's standard components and wiring. The configuration and calibration settings of these systems may be modified.~~

## 6. SUSPENSION

### 6.1 GENERAL

It is permitted to adjust the suspension geometry within the range of adjustment provided for by the manufacturer and/or by those permitted within these regulations.

### 6.2 COIL SPRINGS

It is permitted to replace a coil spring in which case the length, wire diameter, external diameter and type (i.e., linear or progressive) of each coil spring is free, provided that each spring is made from a ferrous material. It is permitted to use a keeper spring fitted in series with a primary spring. It is not permitted to replace a coil spring with any other type of primary spring, e.g. a leaf spring.

### 6.3 SPRING SEAT

It is permitted to replace a coil spring seat which is not permanently attached to the chassis or body work. It is permitted to fit an adaptor, to facilitate ride height adjustments, to a permanently attached spring seat provided no material is removed and the spring seat remains concentric with the original seat.

### 6.4 LEAF SPRINGS

It is permitted to replace a leaf spring in which case the length, width, thickness, number of leaves and vertical curvature is free. It is not permitted to replace a leaf spring with any other type of primary spring, e.g. a coil spring.

### 6.5 TORSION BARS

It is permitted to replace a torsion bar that is used as the primary springing mechanism provided that the replacement is made from a ferrous material. It is not permitted to make any other modification to facilitate the fitment of a replacement torsion bar. It is not permitted to replace a torsion bar with any other type of primary spring, e.g. a coil spring.

## **6.6 SUSPENSION DAMPERS**

- (a) It is permitted to replace a suspension damper provided that the number, type, working principle and the attachment points remain unchanged.
- (b) It is permitted to fit an external hydraulic canister to a suspension damper provided that no additional modifications are made to facilitate its fitment, except for the drilling of holes and the addition of a bracket for mounting purposes.
- (c) It is permitted to replace an elastomer bush fitted to a suspension damper with a 'Uniball' joint/s.
- (d) It is permitted to replace in its entirety a standard suspension damper assembly which forms an integral part in the attachment of the wheel hub assembly to the chassis/body work (i.e. MacPherson strut). It is not permitted to make any additional modification to facilitate the fitment of a replacement suspension damper assembly. Each replacement suspension damper assembly must be fully interchangeable with the standard unit.

## **6.7 ATTACHMENT POINTS**

- (a) It is permitted, for an independent suspension system, to relocate, in a horizontal and lateral plane, the mounting point/s of the lower and upper control arms to a maximum distance of 25mm each side. It is permitted for the track of the modified axle to be increased to a maximum of 50mm.
- (b) It is permitted to replace the upper insulating/bearing block of a MacPherson strut, provided that the original and unmodified attachment points on the bodyshell are utilised.
- (c) It is permitted to reinforce each suspension attachment point provided the material used follows the original shape and is in contact with the standard attachment point throughout.

## **6.8 SUSPENSION BUSHES**

- (a) It is permitted to replace each elastomer suspension pivot point bush and Sub frame mounting bush with a bush made from another elastomer material.
- (b) Should a suspension bush incorporate an outer metal shell and/or a central crush tube, each of these components will be regarded as part of the bush. Each outer shell or central crush tube must respect the dimensions of the standard bush. The central crush tube may be offset from the standard position within the bush provided that the central crush tube is completely surrounded by elastomer material and not in direct contact with the outer shell. Any increase to the track as a result of a change in the bush/s must not exceed the permitted increase to a maximum of 50mm as per Article 6.7(a).
- (c) Should a suspension bush be integrated with a secondary component, such as a suspension arm, only the elastomer material shall be regarded as the bush.

## **6.9 RIDE HEIGHT**

Each fully sprung part of the automobile, except for the exhaust system, must be at least 100mm above the ground when measured at any point within the wheelbase. The automobile ride height shall be measured with the driver, and all normal and necessary equipment fitted.

## **6.10 STEERING**

- (a) It is permitted to add an extension to or shorten each steering tie-rod in order to provide adjustment of the steering toe angle.
- (b) It is permitted to render the locking system of an anti-theft steering lock inoperative.
- (c) It is permitted to replace the steering wheel provided the rim of the replacement steering wheel remains within 50mm of the location of the rim of the original steering wheel. It is permitted to fit a quick release mechanism for the steering wheel.

## **6.11 STABILISER BARS**

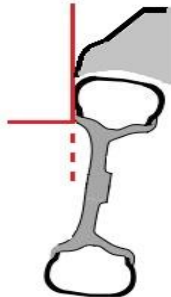
- (a) It is permitted to replace an original stabiliser bar with a single one-piece stabiliser bar that utilises only the original stabiliser bar mounts.
- (b) It is permitted to replace the elastomer of a stabiliser bar bush.
- (c) It is permitted to replace the link from a stabiliser bar to another suspension component.
- (d) A replacement stabiliser bar may be adjustable in which case the adjustment is only permitted by the use of tools and whilst the automobile is stationary.



- (e) Where a stabiliser bar has another function, such as a suspension control, it is only permitted to change the thickness of the stabiliser bar provided its method of mounting and interaction with each other suspension component is unchanged.

## 7. WHEELS AND TYRES

Each wheel and tyre must be fitted so that the upper part of the tyre, down to the flange over the wheel hub centre must be within the perimeter of the automobile when viewed vertically from above, see Drawing 1.



Drawing 1.

### 7.1 WHEELS

- (a) It is permitted to replace a wheel, subject to a replacement wheel complying with the maximum diameter and maximum width for each listed axle and each RVD Variant as listed on the relevant automobile's RVD, subject to the following additions:
- (i) Each automobile with a racing weight of 1,650kg or greater is permitted to utilise a wheel which is up to one (1) inch wider than the maximum width listed on the relevant automobile's RVD; and
  - (ii) Each automobile with a maximum wheel width listed on the relevant RVD that ends with a measurement of 0.5 of an inch is permitted to increase or decrease that wheel width by 0.5 inch.
- (b) It is permitted to fit a maximum of one metallic spacer behind each wheel.
- (c) It is permitted to replace each wheel attachment fastener provided the number of fasteners remains standard, the diameter of the replacement fastener is equal to or greater than the standard fastener and no additional modification is made to facilitate the fitment of a replacement fastener. It is permitted to replace a bolt fastener with a stud and nut fastener provided that the diameter of the thread is not less than that of the replaced.
- (d) It is not permitted for any wheel fastener to be retained by any device, system, procedure, construction or design the purpose and/or effect of which shall allow any fastener to be retained within the wheel during the process of the wheel being fitted to or removed from the car.
- (e) It is permitted to replace each wheel nut provided that the replacement is of a ferrous material and the outer end is not enclosed.
- (f) It is permitted to fit a device that solely monitors tyre conditions (e.g. pressure and temperature).
- (g) It is not permitted to use any device that automatically controls or changes the tyre pressure of each tyre fitted.

### 7.2 TYRES

- (a) Where the Sporting Regulations for a championship/series/competition/event do not establish a control tyre, each car shall only use a tyre listed on the Production Car Tyre List, in accordance with Schedule E.
- (i) It is permitted for each automobile with a maximum wheel diameter listed on the relevant RVD that does not allow fitment of a control tyre as is mandatory within a relevant championship/series/event sporting regulations increase or decrease the maximum wheel diameter by one (1) inch. Such a wheel size shall be detailed in the relevant CAMS Group 3E Recognition Document.

- (b) Each tyre fitted to a particular automobile must be the same type. In the case of an automobile which is recognised as fitted with a different size wheel rim on the front and rear axles, each tyre on the same axle must be of the same type.

**Note:** the term 'Type' refers to the size, construction and compound of a given tyre.

- (c) At the commencement of any practice, qualifying or competition, no tyre may be used on which any tread wear indicator be exposed, or in the case of a tyre that has a dimpled tyre wear indicator, the tyre must not be worn below that indicator. With the exception of the shoulder of a tyre, in each area of a tyre where there is no tread wear indicator, the original tread pattern must be clearly visible.

## **8. BRAKES**

### **8.1 ANTI-LOCK BRAKES (ABS)**

- (a) It is permitted to render an ABS system inoperative by:
  - (i) the disconnection of electrical power to the electronic operating system. If this method is utilised it is permitted to mount a driver operated switch to perform this function; or
  - (ii) the replacement of the main ABS actuating system by the fitment of a junction block. No modification to a brake line is permitted.

### **8.2 ELECTRONIC BRAKEFORCE DISTRIBUTION (EBD)**

Where an automobile is fitted with EBD, it is permitted to either replace the original master cylinder with a mechanically identical unit incorporating a mechanical proportioning valve, or add a mechanical proportioning valve to a brake line provided such a valve is not adjustable within the cockpit.

### **8.3 POWER-ASSISTED BRAKING**

- (a) It is permitted to render the vacuum assist of the braking system inoperative. It is permitted to modify the servo unit by replacing an internal valve system, each diaphragm and each pushrod with a solid rod linking the standard and unmodified brake pedal to the master cylinder.
- (b) It is permitted to fit an additional vacuum reservoir tank provided that the tank is mounted under the floor pan of the automobile. No additional modification is permitted except for the drilling of holes for mounting purposes and the addition of a one-way valve and vacuum line/s.
- (c) It is permitted to add only a brace to provide additional support to the brake master cylinder/s. The only modification permitted to facilitate the fitment of a master cylinder brace is the addition of fasteners and the drilling of holes for mounting purposes.

### **8.4 PADS**

It is permitted to replace each brake pad with a brake pad of free design and material compound. .

### **8.5 ROTORS**

- (a) It is permitted to replace each brake rotor and mounting hat provided that:
  - (i) the diameter of each brake rotor must not be greater than that of the standard brake rotor;
  - (ii) the width of each brake rotor must be within +5mm, -2mm of the width of the standard brake rotor;
  - (iii) each brake rotor must be made entirely of a ferrous material; and
  - (iv) each separate mounting hat may be of a non-ferrous material.

### **8.6 CALIPERS**

- (a) Front brake caliper:
  - (i) Where the standard front brake caliper contains fewer than four pistons, it is permitted to fit a replacement brake caliper provided the maximum number of pistons per caliper is four.
  - (ii) Where the standard front brake caliper contains four or more pistons, it is permitted to fit a replacement brake caliper provide the maximum number of pistons remains the same as the standard brake caliper.
- (b) Rear Brake caliper:
  - (i) Where the standard rear brake caliper contains fewer than two pistons, it is permitted to fit a replacement brake caliper provided the maximum number of pistons per caliper is two.

- (ii) Where the standard rear brake caliper contains two or more pistons, it is permitted to fit a replacement brake caliper provide the maximum number of pistons remain the same as standard.
- (c) Each caliper piston must be circular in section.
- (d) Only one brake caliper is permitted per wheel and each caliper must be mounted using the standard mounting points, however an adapter bracket may be utilised.

## 8.7 PARK BRAKE

It is permitted to render the park brake inoperable by the removal of those components, the sole purpose of which is to operate the park brake.

## 8.8 BACKING PLATES/DUST SHIELDS

It is permitted to remove a brake/hub backing plate/dust shield. It is permitted to modify or replace the brake/hub backing plate/dust shield to facilitate the fitment of brake cooling duct/s.

## 8.9 BRAKE COOLING

It is permitted to remove a blanking plate or covers or a fog lamp assembly (and associated hardware) located in the lower section of the standard front bumper bar, solely for the purpose of providing additional cooling air to the front brakes.

## 8.10 BRAKE DUCTS

- (a) It is permitted to fit a single duct to the braking system of each front wheel, solely to direct ambient air from an existing unmodified opening in the standard front bumper bar to each front brake rotor. Each brake duct must be wholly contained within the external shape of the standard bodywork and must not be visible when viewed from the front of the automobile (except through an opening in the front of the duct).
- (b) Each brake duct must not exceed 80mm inside diameter except for the brake duct fitting:
  - (i) within 150mm of the external surface of the standard front bumper bar; and
  - (ii) within 80mm of the brake rotor.

## 9. FUEL SYSTEM

### 9.1 FUEL TANK

- (a) It is permitted to fit a single replacement fuel tank, provided the replacement fuel tank is to FIA FT3-1999 specification, and:
  - (i) [The replacement fuel tank may be installed in the same general location as the original; or](#)
  - (ii) [The replacement fuel tank may be installed in the luggage compartment. No additional modifications are permitted to facilitate the fitment of a replacement tank other than the drilling of holes of the minimum necessary dimensions, for mounting purposes, the addition of brackets and for the passage of fuel lines; or](#)
  - (iii) [A replacement fuel tank may be installed in the area of the rear seat floor section. In the case of an automobile with a tailshaft two tanks are permitted, one each side of the tailshaft. When fitting replacement fuel tank/s in this area, the following will apply:](#)
    - (A) [It is permitted to modify the floor, by removal of material, to install a fuel tank/s;](#)
    - (B) [The maximum dimensions of the modification in the floor are 1300 x 500mm;](#)
    - (C) [The chassis side rails cannot be modified;](#)
    - (D) [The forward most wall of the fuel tank/s must be at least 50mm rearward of the plane passing through the rearmost points of the obligatory diagonal member/s of the safety cage main roll bar;](#)
    - (E) [The rear wall of the fuel tank/s must be in front of the furthest rearward mounting point of the safety cage;](#)
    - (F) [The bottom of the fuel tank must be at least 80mm above the lowest point of the chassis;](#)

- (G) [An airtight and watertight 1mm thick steel panel between the tank and the cockpit must be fitted; and](#)
  - (H) [Up to two airtight and watertight inspection hatches in the steel panel are permitted \(in addition to an inspection hatch to check the tanks validity date\) with a maximum total surface area of 800cm<sup>2</sup>. Any additional penetration for the purpose of fuel hoses must also be sealed to the cockpit.](#)
- (b) The entire fuel system shall be at all times be isolated from the cockpit unless supplied otherwise as standard. Should a fuel tank be installed in the luggage compartment [or cockpit](#), a fireproof and liquid-proof bulkhead must separate the cockpit from the fuel tank. In the case of twin-volume automobiles it is permitted to use a non-structural partition wall made from a material in accordance with the requirements of a bulkhead constructed from a flame and liquid-proof material, compliant with Schedule B, between the cockpit and the fuel tank.
- (c) It is permitted, when using a standard tank, to add an additional fuel tank of up to a maximum capacity of 30 litres, which must be of a safe design and highly recommended to be of FT3-1999 specification and provided it:
- (i) is fitted within a sealed compartment separate to the cockpit; and
  - (ii) does not permit the maximum fuel tank capacity, as detailed in Table 2, to be exceeded.
- (d) The maximum capacity of the fuel tank which shall include the capacity of an additional fuel tank and/or an anti-surge container must be in accordance with Table 2:

**Table 2**

Effective Engine Capacity (cm <sup>3</sup> )	Maximum Fuel Tank Capacity (litres)
1000 and under	50
1001 - 1600	60
1601 - 2000	70
2001 - 3000	80
3001 - 4000	90
4001 and over	100

**Note:** Effective Engine Capacity shall be calculated in accordance with the CAMS NCR.

## 9.2 FUEL PUMP/S

- (a) When using a standard fuel tank fitted with an internal electric fuel pump it is permitted to add a power supply for each pump, and:
- (i) It is permitted to replace an internal electric fuel pump and/or add a secondary internal fuel pump;
  - (ii) it is permitted to fit an additional external fuel pump to supply the engine;
  - (iii) it is permitted to fit one anti-surge container of a maximum capacity of 4 litres. The capacity of the anti-surge container is considered in the maximum capacity of the fuel tank, refer Article 9.1 (d);
  - (iv) the pressure of the fuel supply to the engine must remain standard; and
  - (v) each permitted fuel pump and anti-surge container must be securely mounted, protected from damage and not within the cockpit.
- (b) When using a replacement fuel tank it is permitted to add a power supply for each fuel pump, and:
- (i) it is permitted to fit an additional external fuel pump to supply the engine;
  - (ii) it is permitted to fit one anti-surge container of a maximum capacity of 4 litres. The capacity of the anti-surge container is considered in the maximum capacity of the fuel tank, refer Article 9.1 (d);

- (iii) it is permitted to fit two (2) additional electric fuel pumps and a fuel pressure regulator the sole purpose of which is to supply fuel to the anti-surge container;
- (iv) the pressure of the fuel supply to the engine must remain standard; and
- (v) it is permitted to mount each component, including an additional fuel pump and anti-surge container, outside of the replacement fuel tank, provided they are securely mounted, protected from damage, within a sealed compartment and isolated from the cockpit.

### 9.3 DRY-BREAK FITTINGS FOR REFUELLING

- (a) [The use of a Dry-Break refuelling system compliant with Schedule N is compulsory for each event that permits refuelling during a race.](#)
- (b) It is permitted to modify a standard fuel tank to accept a dry-break refuelling system.
- (c) The filling and vent point may either be located inside the luggage compartment, on the boot lid or rear hatch, on the rear valence panel or on a rear quarter panel. If the filling and vent point is not isolated from the cockpit special care is required in considering its location to ensure it is protected from damage in an incident.
- (d) In each case the filling and vent fittings shall be mounted as close as practical to the fuel tank. All associated plumbing must be no larger than the outside diameter of the exit of the dry-break and vent bottle bulb. The route of the filler and vent bottle pipes must be as short as practical.
- (e) [Where a dry-break filling and vent point is fitted through a fixed glazed panel, it is permitted to replace that panel with one that allows for the mounting of the refuelling nozzles. The replacement panel must be of the same shape as the glazed panel being replaced but must be made from a clear polycarbonate material of at least the same thickness as the glazed panel.](#)

### 9.4 FUEL

Only Pump Fuel is permitted as detailed in Schedule G. With the exception of ambient atmospheric air and the permitted fuel, no other substance may be added to the intake charge of the engine.

## 10. ELECTRICAL EQUIPMENT

### 10.1 DATA STORAGE DEVICE

- (a) It is permitted to use data storage devices, including a multi-display dashboard which has the ability to store car data. The only [additional](#) inputs which are permitted are as follows:
  - (i) G forces (3-axis);
  - (ii) 2 x wheel speed;
  - (iii) a trigger device for lap timing;
  - (iv) a brake light;
  - (v) engine RPM;
  - (vi) 2 x exhaust gas oxygen sensors;
  - (vii) temperature inputs used solely to measure fluid temperatures of engine and drive line components, exhaust temperatures and intake air temperature;
  - (viii) pressure inputs used solely for the purpose of measuring fluid pressures of engine and drive line components;
  - (ix) throttle position/s;
  - (x) manifold pressure;
  - (xi) fuel usage;
  - (xii) steering angle; and
  - (xiii) engine operating parameters.
- (b) The software for the data storage device must not have the ability to read sensors other than those permitted above [or factory original sensors](#).
- (c) It is not permitted to use of any form or type of real time telemetry or the transmission of any data other than a lap trigger signal to or from the car.

## 10.2 **ELECTRONICS**

- (a) Wiring and electronic modules/control units (i.e. ECU) are free under the following conditions:
  - (i) Each factory original sensor must remain in the standard location, unless otherwise permitted elsewhere in these regulations (e.g. air temp sensors, engine speed sensors, wheel speed sensors, etc.).
  - (ii) Each factory original electro-mechanical device (i.e. fuel injectors, boost control valves, throttle bodies) must remain unmodified and in the standard location unless permitted elsewhere in these regulations or otherwise approved by CAMS and detailed in the relevant recognition document.
  - (iii) It is not permitted to use any sensor save for those originally fitted by the factory (other than for data logging as per Article 10.1).
  - (iv) Only the factory original ABS unit is permitted to be used and must remain unmodified however it is permitted to remove or bypass the ABS unit.
  - (v) Only those factory original electronic systems (i.e. traction control, launch control, transmission control) and their functions, as fitted to the original automobile, may be used in which case the control unit and configuration of these functions is free, save for ABS as per Article 10.2 (a) (iv).
- (b) The following electronic systems do not need to be maintained:
  - (i) Interior lighting
  - (ii) Stability control systems
  - (iii) Supplementary Restraint systems
- (c) Driver control dials, switches, and buttons are free.
- (d) Security and anti-theft devices:
  - (i) Each security system should be removed in its entirety; and
  - (ii) Each boot, bonnet and/or door electronic actuation or locking mechanism should be removed and replaced with a mechanical alternative.
- (e) It is permitted to use a Pit Lane Speed Limiter only for the purpose of limiting the automobile speed in Pit Lane. It is permitted to fit a method of actuation of a pit lane speed limiter.

## 11. **BODYWORK**

### 11.1 **GENERAL**

- (a) It is permitted to reform the wheel arch beading against the inside of the wheel arch and remove the plastic inner guard liners. It is permitted to remove a plastic shroud fitted under the body of the automobile that is licked by the airflow.
- (b) It is permitted to fit additional forward facing lamps and associated components only for a competition to be held at night and provided that:
  - (i) the total number of forward facing lamps does not exceed six (6) including any standard light;
  - (ii) each additional forward facing lamp must not be fitted any higher vertically than the highest point of the original head lamp/s.
  - (iii) only wiring, switch/es and relay/s necessary for the operation of permitted lamp/s may be added; and
  - (iv) no modifications are made to enable the fitment other than the drilling of holes and the addition of brackets for mounting and wiring purposes.
- (c) It is permitted to fit additional LED based strip lamp/s of a colour other than RED to the bodywork of the automobile only for a competition to be held at night.
- (d) It is permitted to fit a protective cover to a forward facing lamp provided that it has no influence on the aerodynamics of the automobile.
- (e) Soundproofing material and trim fitted to the underside of the bonnet that is not visible from the outside may be removed.

## 11.2 JACKING

- (a) Each jacking point may be strengthened by the addition of metal plate/s, relocated and/or increased in number provided that each jacking point does not exceed a single surface area of more than 150mm x 150mm, and is fitted within the bodywork.
- (b) It is not permitted to use or fit any type of on-board jacking system to the automobile.

## 11.3 WINDOWS

- (a) Each window must remain as fitted to the automobile as standard.
- (b) The original glazing material of each window shall be retained, unless otherwise permitted in these regulations.
- (c) On an automobile with four doors it is permitted to fit an insert of a clear polycarbonate material in part of the glazed area of each rear door. The polycarbonate material may incorporate a single ventilation duct. The original window glass must be retained and must secure the polycarbonate material insert.
- (d) On an automobile with two doors with a glazed area supported by a frame it is permitted to fit an insert of clear polycarbonate material in part of the glazed area of each front door. The polycarbonate material may incorporate a single ventilation duct. The original window glass must be retained and must secure the polycarbonate material insert.
- (e) On an automobile with two doors with a glazed area which is not supported by a frame it is permitted to replace only each rear quarter glazed area with a clear polycarbonate material. The polycarbonate material must incorporate a single ventilation duct.
- (f) On an automobile with a sunroof it is permitted to replace the glazed area of the sunroof with an alternate polycarbonate or composite material, each of a minimum thickness of 3.8mm. It is permitted to remove the sunroof mechanism, in which case the sunroof must be fixed in place.

## 12. INTERIOR

### 12.1 DRIVER'S SEAT

The seat for the driver may be replaced by one that is compliant with the FIA 8855/99 standard or FIA 8862 – 2009 Standard. The seat may incorporate carbon fibre or carbon/Kevlar® material. The use of a seat that complies with the FIA 8862 – 2009 Standard, or a seat that complies with the FIA 8855/99 Standard and which incorporates a side head support structure, is strongly recommended.

### 12.2 COCKPIT

- (a) The following components may be removed from the cockpit:
  - (i) roof padding and lining;
  - (ii) carpets and insulating material, including soundproofing material bonded to interior panels;
  - (iii) front passenger and rear seats;
  - (iv) components solely associated with the air conditioning system;
  - (v) restraint systems and supplementary restraint systems;
  - (vi) boot lining including linings in the boot space of a single volume vehicle, spare wheel and wheel changing equipment; and
  - (vii) information and entertainment systems and associated wiring.
- (b) It is permitted to remove or modify the components associated with the vehicle heating or climate control system. A windscreen internal demisting fan system or a heated screen system must be retained, whereby this system shall be free.
- (c) It is not permitted that any such deletions from the cockpit shall result in any additional modifications. Any void/s created by such removal of components must be closed in a professional manner using suitable panel/s.
- (d) The following components must be retained within the cockpit:
  - (i) Dashboard, each void or opening made by the permitted removal of a component must be filled;
  - (ii) Glove box/es;

- (iii) Centre console to a rear most point defined by a lateral line across the rear most point of the front seat for the driver, except for any arm rest or storage box which may be removed;
- (iv) Steering column/shaft cover and surround panels; and
- (e) A door trim shall be fitted to each door. Each door trim may be partly or completely replaced with a trim from an alternate material, [that may be carbon fibre or carbon/Kevlar® composite](#).
- (f) The only additional components which are permitted in the cockpit are:
  - (i) safety equipment and structures;
  - (ii) tool kit;
  - (iii) additional instruments;
  - (iv) electronic equipment;
  - (v) driver cooling system;
  - (vi) ballast;
  - (vii) driver ventilation equipment;
  - (viii) Driver drink system;
  - (ix) Radio system for two –way communication between the driver and their team; and
  - (x) Driver identification light and transponder.
- (g) None of the above items may be installed in a manner which will actually or potentially hinder the driver's vision, hinder the ability for the driver to extricate from the automobile or affect the engine power or influence the steering, transmission, brakes, or roadholding of the automobile in a direct or indirect manner. Each of the items shall be suitably secured.
- (h) Each [mechanical](#) control must retain its standard function although it is permitted to adapt each control to affect its use and accessibility (e.g. a longer handbrake lever, an additional flange on the brake pedal).