



# 2009 V8 Touring Car Series

## Sporting Regulations



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## 2009 V8 Touring Car Series Sporting Regulations

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# 2009 V8 Touring Car Series

## Sporting Regulations

### S1 TITLE and JURISDICTION

#### S1.1 Title

This Series shall only be known as and referred to as the “2009 V8 Touring Car Series.”

#### S1.2 Authority / Jurisdiction

All events in the 2009 V8 Touring Car Series (Series) will be conducted under the provisions of the International Sporting Code of the Federation Internationale de l'Automobile (FIA); the National Competition Rules (NCR) and Race Meeting Standing Regulations (RMSR) of the Confederation of Australian Motor Sport Ltd (CAMS); the Sporting and Technical Regulations issued for this Series by CAMS; Supplementary and Further Regulations issued by the Organiser at each round; Bulletins issued by the Stewards of the Meeting, and any Driver Briefing Notes issued by the Clerk of the Course at a meeting.

### S2 COMPETITOR ELIGIBILITY

To be eligible to compete in the Series, each Competitor must hold a current CAMS Competitor's Licence.

### S3 AUTOMOBILE ELIGIBILITY

Only automobiles that comply with the provisions of the 2009 V8 Touring Car Technical Regulations are eligible to compete in the Series.

#### S3.1 Replacement Automobiles

Following the commencement of the first practice session of each round of the Series, any automobile that has been entered to compete at that round may not be replaced with another automobile.

### S4 DRIVER ELIGIBILITY

To be eligible to compete in the Series, each Driver must hold a current CAMS Provisional Circuit Licence unless noted otherwise in the Supplementary Regulations for a particular round of the Series.

#### S4.1 Substitute Drivers

Prior to the commencement of the first practice session at each round of the Series, a Competitor may nominate a substitute driver who may be permitted to compete in the remainder of the meeting subject to the approval of the Stewards of the Meeting.

### S5 SERIES ROUNDS / REGISTRATION

The Series will be conducted over Five (5) Rounds as detailed in the Series Calendar below. Each race conducted as a part of the Series will count in determining the final results.

### S6 SERIES CALENDAR

The Series will be conducted over the following rounds:

Round	Date	Venue
1	25-26 April	Wakefield park
2	6-7 June	Mallala
3	27-28 June	Winton
4	29-30 August	Oran Park
5	28-29 November	Sandown

### S7 ROUND FORMAT

The number, length and format of track sessions will ultimately be negotiated and determined by the event promoter prior to a round of the Series and will be advised in the relevant Supplementary / Further Regulations issued for a meeting.

#### S7.1 Round Format

Generally, the format for each round of the Series will be as follows:

- Practice - Where possible – (normally Friday).
- Qualifying - Minimum one (1) qualifying session - (normally Saturday).
- Races - Three (3) – 15 minute races (approximately) expressed as a number of laps.

## **S7.2 Variations to Timetable**

The timetable may be varied at any time due to exceptional circumstances only with the prior approval of the Stewards of the Meeting.

## **S8 GRID DETERMINATION**

The grid for each race will be determined as detailed in the RMSR's – Progressive Grid.

## **S9 START PROCEDURE**

The start procedure for each race will be as detailed in the RMSR's – Non-Championship Start (1 Minute).

## **S10 AWARDS and POINTSCORE**

### **S10.1 Prizes and Trophies**

Prizes, trophies and awards will be as advised to all Competitors.

### **S10.2 Series Pointscore**

(a) Points shall be awarded to drivers for each race in the Series as follows:

<b>Finishing Position</b>	<b>Points</b>	<b>Finishing Position</b>	<b>Points</b>
1 <sup>st</sup>	40	11 <sup>th</sup>	10
2 <sup>nd</sup>	35	12 <sup>th</sup>	9
3 <sup>rd</sup>	31	13 <sup>th</sup>	8
4 <sup>th</sup>	27	14 <sup>th</sup>	7
5 <sup>th</sup>	23	15 <sup>th</sup>	6
6 <sup>th</sup>	20	16 <sup>th</sup>	5
7 <sup>th</sup>	17	17 <sup>th</sup>	4
8 <sup>th</sup>	15	18 <sup>th</sup>	3
9 <sup>th</sup>	13	19 <sup>th</sup>	2
10 <sup>th</sup>	11	20 <sup>th</sup> to last	1

- (b) Points will only be awarded to drivers classified as finishers in the final results of each race.
- (c) One (1) point shall be awarded to the driver that sets the fastest qualifying time at each round of the Series.
- (d) The results for each round of the Series will be determined by the number of points scored by each driver at that round. In the event of a tie at the end of any round of the Series, the final positions for that round will be determined by comparing the results of each of the tied drivers in the final race of that round. The higher place in the round results will be awarded to the higher placed finisher in the final race.
- (e) The driver gaining the highest points total over the five (5) rounds shall be declared the winner of the Series.
- (f) In the event of a tie at the end of the Series, final positions will be determined by comparing the race results achieved by each tied driver, with the driver with the highest number of first places being awarded the higher Series position. If at this stage a tie still exists, it will be resolved by comparing the number of second, third or fourth places (and so on) achieved by each tied driver until all positions have been determined.

## **S11 Event Operations**

### **S11.1 Series Registration and Entry**

The Series will operate under the CAMS Series Registration and Entry Process.

### **S11.2 Driver/Team Manager Briefings**

Each Driver and Team Manager (i.e. an appropriately authorised representative of the Competitor, other than the driver) must attend the compulsory Drivers' briefing. The time and location of this briefing will be detailed in the Supplementary or Further Regulations for the meeting. The attendance sheet must be signed by the Driver and the Team Manager to confirm attendance. Other compulsory briefings may be convened as required and will be advised to all Competitors accordingly.

### **S11.3 Impound/Parc Ferme**

- (a) Each automobile, including those remaining in pit lane, must proceed directly to the designated impound/Parc Ferme area via the most direct route (or as directed by Race Officials) at the conclusion of qualifying, without returning to pit or paddock areas and without interference from any third party (other than an Official of the Meeting).
- (b) Each automobile completing each race must proceed directly to the designated impound/Parc Ferme area (or as directed by Race Officials) at the conclusion of the race, without returning to pit or paddock areas and without interference from any third party (other than an Official of the Meeting).
- (c) Automobiles may not be removed from impound/Parc Ferme except with the express permission of the TC or the Chief Scrutineer.
- (d) Each Competitor must appoint a car controller who will be solely responsible for the stopping of, and the safe release of the automobile at all times whilst the automobile is in pit lane.

### **S11.4 Qualifying**

During qualifying, automobiles may not return to the paddock area without the express permission of the Chief Scrutineer. If an automobile exits pit lane to the paddock during qualifying it will not be permitted to re-join that session.

### **S11.5 Pit Lane**

All Pit Crew members are required to sign a Pit Lane Indemnity Form prior to the first track session and to display identification as and if required by the meeting organiser.

### **S11.6 Removal of Automobiles from the Circuit**

Following the commencement of the first qualifying session, it is not permitted to remove any automobile from the circuit prior to the completion of the meeting without the prior express written approval of the Chief Scrutineer.

### **S11.7 Practice Starts**

Practice starts are only permitted at the pit lane exit or at the start of any formation (green flag) lap.

## **S12 TYRES**

- (a) At the first round of the Series, a maximum of six (6) new dry tyres will be marked for each automobile. At each subsequent round of the series, a maximum of four (4) new dry tyres will be marked for each automobile. With the exception of treaded tyres used on a damp or wet track, these marked tyres are the only tyres permitted to be used on that automobile during any qualifying session or race at that round.
- (b) Within one (1) hour from the completion of the final practice session at each round of the Series, each competitor must present all tyres to the Chief Scrutineer (or his nominee) for marking at the front of their respective garage/paddock bay.
- (c) Competitors are responsible for ensuring that all tyres are marked or re-marked as appropriate. If the tyres are not marked for any reason or the markings become illegible, the Competitor must notify the Chief Scrutineer immediately.
- (d) Replacement tyres will only be permitted if the Chief Scrutineer is satisfied that due to exceptional circumstances, the tyre in question can no longer be used. The Chief Scrutineer shall ensure that the tyre to be replaced has been rendered unusable and that the replacement tyre is of the same specification and of similar wear to the tyre being replaced.
- (e) Should a competitor be permitted to replace a marked tyre, the automobile concerned must start the next race at that round of the Series from the rear of the grid.
- (f) The use of any tyre heating, heat retention devices or chemical treatments are prohibited.

## **S13 FUEL**

For the duration of any meeting, competitors must only use fuel that complies with the definition of Commercial Fuel as defined in the 2009 CAMS Manual of Motor Sport.

**Please note:** With the exception of ambient atmospheric air and the specified fuel detailed, no other substance may be added to the intake charge of the engine.

## **S14 AUTOMOBILE MARKINGS**

In addition to the requirements detailed below, each automobile must comply with Appendix K of the 2009 CAMS Manual of Motor Sport:

Each automobile must display the following Series markings, appropriately attached and positioned as detailed below, at all times during each round of the Series.

- Front windscreen strip = Sponsor Name (upper portion of windscreen).
- A Kumho decal on each front mudguard or front door.
- A Sponsor Name decal above the number panel on each front door.
- A CAMS decal adjacent to the number panel on each front door.
- A V8 Touring Car decal on the end plates of the rear spoiler.



# 2009 V8 Touring Car Series

## Technical Regulations



## 1 Philosophy

- 1.1 The category is based on de-registered Holden Commodore and Ford Falcon V8 Supercars which have competed as V8 Supercars post 1996 and 5 litre V8 Ford Falcon and Holden Commodore race cars with a proven heritage as competing in the Australian Touring Car Championship post Group A and pre AVESCO V8 Supercars.
- 1.2 These Technical Regulations are largely based on the respective automobile technical requirements as documented by AVESCO/VESA/CAMS, with limited modifications designed to enhance reliability and cost effectiveness.

## 2 Eligibility

- 2.1 The requirements of these regulations apply to former Group 3A V8 Touring Cars (V8TC), which are defined as large scale Australian produced Holden Commodore and Ford Falcon, right hand drive, four door automobiles, fitted with pushrod two-valve normally aspirated V8 engines. Each automobile must have a registered history with AVESCO/VESA/CAMS. Documentation must be provided to establish a clear line of history for the nominated year the automobile is to represent. No new vehicles may be constructed.
- 2.2 Each automobile must comply with the General Requirements of Automobiles, Section 6 of the CAMS Manual of Motor Sport.
- 2.3 Each engine and the specified MoTeC engine electronic control units (ECU) must be sealed prior to the commencement of any qualifying session or race. The only seals recognised for this purpose shall be V8TC seals as fitted by approved V8TC sealers. This shall not prevent the addition of seals by event officials for judicial or scrutiny purposes.  
  
The checking for eligibility and sealing as specified in these regulations prior to competition will be performed by authorised V8TC sealing officers. The presence of a seal will not automatically protect the vehicle from being subject to a protest, or from examination by scrutineers.
- 2.4 Scrutineers in conjunction with the CTC may refer to the respective Automobile Technical Regulations as published for the nominated year by AVESCO/VESA/CAMS.

### a) Homologation

Any aspect relating to the construction and/or modification of the automobile, which is not expressly permitted in these regulations is forbidden. Permitted modifications are allowed only on the condition that the weights, specifications and/or dimensions as documented in the relevant CAMS Automobile Homologation Documents are adhered to.

During its life the V8TC category will be subject to amendments in conjunction with CAMS to maintain exciting cost effective competition.

### b) Model Eligibility

The following models of automobiles are eligible in this category:

Ford Falcon                      EF to AU

Holden Commodore    VP to VX

## 3 Minimum Weight

- 3.1 At no time may the automobile weigh less than 1350kg. Minimum weights must be achieved without the driver, fuel or drivers equipment.
- 3.2 It is permitted to complete the weight of the automobile by one of several ballasts provided that they are strong unitary blocks, fixed by means of tools and capable of being sealed by the CTC.

## 4 Freedoms Permitted

- 4.1 Where in these regulations freedom is permitted to fit specific parts:
  - a) Holes may be drilled/made to allow the passage or fixing of that part.
  - b) The minimum local modifications for clearance or mounting purposes only may be made in the surrounding area.



- 4.2 If the permitted part requires modifications to be made to “mating” parts, then those modifications are permitted.
- 4.3 Modifications permitted under these regulations are allowed only on the condition that the weights and/or dimensions contained in these regulations and the Homologation Documents are respected.
- 4.4 Unless specifically permitted in these regulations, the use of titanium or titanium alloy in any part of the vehicle is forbidden.
- Throughout the automobile, the use of any nut, bolt, screw, rivet, weld or adhesive may be replaced by the use of one of the other methods of attachment contained in this regulation.
- 4.5 Any damaged thread may be repaired by the fitment of an insert, with a similar internal diameter (eg, helicoil).

## **5 Damage Repairs**

- 5.1 Restoration of body shape and chassis geometry following accidental damage is permitted by the addition of materials necessary to affect the repairs (eg, body filler, weld metal).
- 5.2 All bodywork including any subsequent repair of race-day damage shall be to a tradesman like standard and must permit the automobile to be presented in as near to original condition as possible and is subject to approval by the Chief Scrutineer.

## **6 General**

- 6.1 All cars must comply with the relevant Appendices of these regulations and relevant CAMS Vehicle Homologation Documents.
- 6.2 The competitor is responsible for ensuring that their automobile complies with the conditions of eligibility contained in these regulations.
- 6.3 The presentation of an automobile for scrutiny will be deemed to be an implicit statement by the competitor of conformity with all the regulations contained herein.

## **7 CAMS Log Book**

- 7.1 All automobile must have a current CAMS Log Book.
- 7.2 Each automobile must correspond with the detailed description contained in the relevant homologation document and the CAMS Log Book issued for that make and model of automobile.
- 7.3 The original AVESCO/VESA/CAMS Automobile Log Book must be produced upon request.
- 7.4 No automobile for which a Log Book has been issued may compete in any meeting until both the original AVESCO/VESA and CAMS Log Books have been inspected by the CTC and subsequently approved.

## **8 Examination for Eligibility**

- 8.1 Should the CTC suspect at any time that an automobile does not comply with these regulations, the competitor, or nominated representative, must be so advised and given the opportunity to comment on the suspected or alleged ineligibility.
- 8.2 Any comment so made may be recorded by the CTC, and subsequently may be presented at any Stewards inquiry.
- 8.3 The CTC and/or Scrutineers may refer to the original V8 Supercar/CAMS Technical Regulations for the particular model vehicle being inspected. Scrutineers may also carry out scrutiny by direct comparison of vehicle components as listed in the CAMS Homologation Documents.
- 8.4 The checking for eligibility and sealing as specified in these regulations prior to competition will be performed by authorised V8 Touring Car sealing officers. The presence of a seal will not automatically protect the vehicle from being subject to a protest, or from examination by Scrutineers.

## **9 Cylinder Block**

The following conditions apply to the homologated cylinder block:

- 9.1 Only the cylinder block and heads detailed in each particular automobile's original Homologation Documents are permitted.
- 9.2 The maximum engine capacity permitted is 5000cc.
- 9.3 The bore size must be 101.473mm or greater.
- 9.4 The fitment of sleeves to the cylinder block is permitted.
- 9.5 The normal section of each cylinder must be circular.
- 9.6 The location of the cylinder block within the body shell, as measured from the front edge of the oil pan mounting flange must be as stated in the particular automobile's original Homologation Documents.
- 9.7 The axis of the crankshaft (the pitch angle of the engine) must be a minimum of 2 degrees and a maximum of 4 degrees downwards towards the rear.
- 9.8 The engine mountings are free but not their number or position.
- 9.9 The cylinder head face must remain at 90 degrees to the cylinder bore centre line.
- 9.10 It is permitted to add or remove material to or from the cylinder block, subject to:
- The integrity of the original casting of the cylinder block being respected.
  - No attempt is made to vary the basic design of the cylinder block beyond modifications permitted in these regulations.
  - It must always be possible for the cylinder block to be identified as the homologated cylinder block.

## **10 Cylinder Head/s**

Subject to respecting these regulations and the homologated dimensions, modifications to the cylinder head are free, save for the following:

- 10.1 The compression ratio must not exceed 10.0:1.
- 10.2 It is permitted to add material to the cylinder head provided that the integrity of the original casting is respected and that no attempt is made to vary the basic design of the homologated component beyond the permitted modifications and that it must always be possible for the cylinder head to be identified as the homologated part.
- 10.3 The original spark plug location must be retained in all respects.
- 10.4 It is permitted to use valves, valve spring retainers and collets manufactured from Titanium alloy.
- 10.5 Valves may only be opened by mechanical action and closed by means of coil springs.

## **11 Reciprocating Components**

Each reciprocating components are free, except that:

- 11.1 No part of the piston may protrude beyond the cylinder head face of the cylinder block when the piston is at TDC.
- 11.2 Connecting rods must be of ferrous alloy.

## **12 Inlet System**

The inlet/induction system is free, except that:

- 12.1 The engine must be naturally aspirated.
- 12.2 Water injection is prohibited.
- 12.3 Any device which alters the configuration of the manifold, induction system (eg, moveable inlet rams) or exhaust while the engine is operating is prohibited.
- 12.4 Throttle actuation must be exclusively by "butterfly" for all automobiles fitted with cylinder heads of material other than cast iron.
- 12.5 There must be a direct mechanical connection from the accelerator pedal to the throttle/s of the engine, so the energy used to activate the throttle/s must be exclusively generated and controlled by the driver's foot.

- 12.6 With the exception of the full throttle stop and idle adjuster, any device which allows the throttle to be artificially positioned by resisting the force of either the driver's foot or the throttle return mechanism is prohibited.
- 12.7 The maximum number of fuel injectors will be eight.
- 12.8 Each throttle link must be fitted with a return spring, which in the event of a failure in the throttle linkage will return each throttle to the closed position.
- 12.9 The maximum fuel pressure permitted at any time is 5.5 bar.
- 12.10 The only fuel injectors permitted are as per the following.

<b>Brand</b>	<b>Model</b>	<b>Part Number</b>
Bosch	351/363	0280150351/0280150363
Bosch	036	0280150036
Rochester	2014	D04917104988
Rochester	2015	D049171104989

### **13 Other Engine Components**

- 13.1 Subject to these regulations, all of the other components necessary for the functioning of the engine including exhaust systems, engine management and the lubrication system are free.
- 13.2 Where a dry sump system is utilized, the engine oil pressure/scavenge pump assembly must be at the front of the cylinder block (to either side) and belt driven via an adaptor, off the nose of the crankshaft.
- 13.3 Each automobile must be fitted with crankshaft/oil tank breather/s discharging to the atmosphere and have fitted to such breather/s an oil-trap container (which must be empty at the start of competition) of at least three (3) litres capacity.
- 13.4 Camshafts are \*free, but not their number and location, which must remain as homologated, and any device which varies the valve timing whilst the engine is operating is prohibited.  
The maximum valve lift permitted is .730"
- 13.5 The crankshaft must respect the homologated crankpin phasing and throw angles.
- 13.6 The stroke of the crankshaft must be a maximum of 77.2mm and a minimum of 75.2mm.
- 13.7 The flywheel must be made of steel.
- 13.8 The flywheel ring-gear must either be an integral part of the flywheel itself or must be attached to the flywheel in the same manner as the production automobile from which the vehicle has been derived.
- 13.9 Each automobile must be fitted with only one (1) engine management system.

### **14 Engine Speed Limit**

- 14.1 The engine must not be permitted to produce power above 7000rpm.
- 14.2 Except for the operation of the Pit Lane Speed Limiter, under no circumstances may any engine management system or device provide any engine revolution limiting function under 6750rpm.

### **15 Pit Lane Speed Limiter**

- 15.1 Each automobile must be fitted with a functioning pit lane speed limiter (limiter), which must only operate as per the following:
- 15.2 The limiter must only operate using a secondary engine speed limit which must always be set below 3000rpm and must only be activated by a switch operated by the driver. The limiter must not operate above 4000rpm.
- 15.3 The switch that is used to activate the limiter must be connected directly to an engine management system input and must not be connected to any other device.
- 15.4 The limiter must be activated at all times while the automobile is moving in pit lane.
- 15.5 The engine rev limiting function used for the limiter must include a complete ignition cut of the engine.

- 15.6 Once the switch that is used to activate the limiter has been turned off, the engine management system must return immediately to the 7000rpm limit.
- 15.7 Regardless of the limiter, each Competitor always remains responsible for ensuring that the pit lane speed limiter is respected, and that the limiter does not use a road speed input for any part of its operation.

## **16 Cooling**

- 16.1 Subject to other parts of this regulation, the cooling system, including the water pump, fans, screens and catch tanks are free.
- 16.2 The water pump must be driven directly by the crankshaft via a belt and must be mounted in the same position as in the production automobile from which the automobile is derived.
- 16.3 The cooling system must be arranged so that all of the return coolant from the radiator enters the engine via the cylinder block.
- 16.4 A replacement radiator may be fitted subject to:
  - There being no modification to the bodywork
  - It being fitted in the same general location relative to the engine
- 16.5 Ducting to the front face of the radiator is permitted within the perimeter of the bodywork but not lower than the lower edge of the front air dam.
- 16.6 Ducting of air from the rear of the radiator is prohibited.
- 16.7 Engine oil radiators are free and ducting to them is permitted, subject to the radiator/s and associated ducting being located within the perimeter of the bodywork and not lower than the lower edge of the front air dam.
- 16.8 It is permitted to make the top of the radiator support panel removable solely to facilitate changing the engine.
- 16.9 No part of any ducting – whatever the purpose of such ducting – is permitted forward of a line drawn between the upper and lower edges of the rear opening in the homologated front air dam.

## **17 Exhaust System**

- 17.1 Each automobile must be fitted with an exhaust system, to comply with Schedule B of the CAMS Manual of Motor Sport.
- 17.2 No component of the chassis may be used to evacuate exhaust gases.
- 17.3 It is permitted to modify the shape of the floor pan to accommodate mufflers, but any such modifications are limited to those surfaces of the floor pan which are located:
  - Longitudinally, more than 100mm behind the joint where the front bulkhead (which isolates the engine compartment from the cockpit) meets the floor pan.
  - Laterally, between the inner edges of the sills.
- 17.4 It is permitted to:
  - Remove material from the homologated side skirt/s to permit the protrusion of the exhaust through the skirt.
  - Fold or remove the seam of the rocker panel to assist with the exhaust pipe placement, subject to only the barest work necessary to facilitate this modification being undertaken.
- 17.5 Particular attention should be paid to the retention of the original strength and rigidity of the floor.
- 17.6 The modifications may not vary the horizontal height of the floor pan by more than 100mm and may not be used for any other purpose other than to allow the fitment of mufflers.
- 17.7 No other components may impinge on the surface defined by the original floor pan.

## **18 Engine Control**

- 18.1 The ignition timing of any engine must not vary by more than six (6) degrees at any time while

the engine is above 4000rpm and above ten percent (10%) throttle opening.

## 19 Clutch

- 19.1 Each automobile must be fitted with a clutch which, subject to the requirements of this regulation, is otherwise free.
- 19.2 The clutch must only have three (3) driven plates that transmit torque directly to the input shaft of the gearbox.
- 19.3 The clutch must be controlled exclusively by the driver's foot via a mechanical and/or hydraulic actuation system.
- 19.4 The clamping force which acts on the friction surfaces must be derived solely from a diaphragm spring.
- 19.5 With the exception of the fixed pedal stops, any device which allows the clutch to be artificially positioned, or its speed of engagement to be varied by resisting the force of either the driver's foot or the diaphragm spring, is prohibited.
- 19.6 The clutch driven plate/s must be a minimum of 180mm in diameter.
- 19.7 The use of titanium and carbon fibre components is permitted.
- 19.8 Any device which allows or facilitates any aspect of clutch operation to be monitored in any way is forbidden.
- 19.9 The force required to disengage the clutch must only be applied towards the flywheel.

## 20 Gearbox

- 20.1 The gearbox must comply with all of the requirements of the gearbox dimensions contained in appendix 1 of these regulations.
- 20.2 There must be six (6) forward gears, the ratios of which must be those as per the following list:

Gear	Ratio	Tooth count
1 <sup>st</sup>	2.57:1	14/33
2 <sup>nd</sup>	1.99:1	17/31
3 <sup>rd</sup>	1.66:1	19/29
4 <sup>th</sup>	1.35:1	21/26
5 <sup>th</sup>	1.14:1	23/24
6 <sup>th</sup>	1.00:1	Constant mesh 22/24

- 20.3 The gearbox must have an operating reverse gear.
- 20.4 The input shaft must be in-line with the output shaft.
- 20.5 The maximum dimension from the cylinder block/bell housing face to the rear of the gearbox casing (excluding the extension housing) must be 645mm.
- 20.6 Each gear must be selected by the driver exclusively via a non-sequential mechanical linkage which permits "H" pattern gear change mechanisms only.
- 20.7 The use of any electronic, hydraulic or pneumatic selection device or assistance thereto is prohibited.
- 20.8 The gearbox to chassis cross members and mountings are free.
- 20.9 Dry sump gearboxes using pressurized lubrication systems are forbidden.
- 20.10 Any device which assists gear changes, by interrupting engine operation by any means other than the foot operated throttle or the engine management system controlled 7000rpm limit, is prohibited.

## 21 Other Components

- 21.1 Except for those matters contained in Appendix 1, and the gearbox and final drive ratios as listed, all other components of the drive train, including axles are free.
- 21.2 The tailshaft/s must be made of ferrous material.

- 21.3 The final drive must not incorporate any differential action.
- 21.4 The crown wheel and pinion must be of hypoid design and must conform to the requirements of the final drive specifications contained in Appendix 1.
- 21.5 Additional oil radiators and pumps for the gearbox and final drive assembly are allowed within the external perimeter of the bodywork, and air may be ducted to them but no aerodynamic benefit may be derived from such ducting and the external appearance of the Automobile must be maintained.
- 21.6 Axle drive shafts must be co-axial to each other and be parallel to the ground for a distance of 600mm each side of the longitudinal centre line of the automobile.
- 21.7 The use of drop gears are not permitted anywhere in the rear axle assembly.

## 22 Rear Axle Assembly

- 22.1 The rear axle assembly is free except for the following matters.
- 22.2 The longitudinal suspension trailing arms must be attached at both the body/chassis unit and the rear axle housing and all pivot arrangements must move freely.
- 22.3 The tailshaft must remain connected at both ends.
- 22.4 The only final drive ratios permitted are as per the following list:

Circuit	Ratio	Tooth count
Bathurst	3.25:1	39/12
Phillip Island	3.25:1	39/12
Eastern Creek	3.5:1	35/10
Sandown	3.5:1	35/10
Oran Park	3.7:1	37/10
Mallala	3.7:1	37/10
Winton	3.7:1	37/10
Wakefield Park	3.7:1	37/10
Symmons Plains	3.5:1	35/10

## 23 Traction Control

- 23.1 Traction control is prohibited.
- 23.2 The CTC in his sole discretion which will not be subject to any protest or appeal, has the right to deem any form of program, device, system, component/s, mechanism/s as traction control.
- 23.3 In order to provide wheel speed information for the exclusive use of display and data acquisition instruments it is permitted to fit two (2) of the non-driven wheel hub assemblies with the necessary equipment, but under no circumstances may this signal or any other signal which provides a ground speed reference, be connected to the engine management system.
- 23.4 The engine management system must not receive input from any device, which measures acceleration of the chassis, nor is it permitted to have such a device fitted internally to the engine management system.

## 24 Suspension

- 24.1 The suspension is free except that the type of suspension and springing medium must always be as stated in the relevant homologation documents.
- 24.2 The number and position of the homologated suspension pivot points must be used in their entirety and exclusively.

## 25 Rear Axle Location

- 25.1 The lateral location of the rear axle may be by Panhard rod or Watts link only, the mounting points for which are free.

## 26 Pivot Points

- 26.1 The suspension pivot points on the body/chassis may be re-located within a 20mm radius of the

homologated points and such points must be used as the pivot point for the suspension (eg no extension or relocation of this part of the suspension is permitted).

## **27 Anti-Roll Bars**

- 27.1 Anti-roll bars must be of the same basic design as those fitted to the production automobile on which the automobile is based.
- 27.2 Adjustment of the stiffness of an anti-roll bar from within the cockpit is permitted.
- 27.3 Anti-roll bars may be mounted to the body shell or to the rear axle housing.
- 27.4 All links connecting the anti-roll bar to the suspension or the body shell must be of a fixed length.
- 27.4 A rocker, which varies the motion ratio between the anti-roll bar and body shell or suspension, is permitted.

## **28 Shock Absorbers**

- 28.1 Each shock absorber is free except that adjustment of any unit from the cabin is forbidden.
- 28.2 All damper units must function independently of each other, ie no connections are permitted between units.
- 28.3 Material may be removed from MacPherson strut towers solely in order to facilitate the use of adjustable shock absorbers.
- 28.4 The shock absorber mounts on the body/chassis may be re-located within a 20mm radius of the homologated point except where MacPherson strut suspension is specified. Where MacPherson strut suspension is specified, the shock absorber mounts must remain fixed as stated in the relevant homologation documents.
- 28.5 The use of electronically adjustable shock absorbers is forbidden.
- 28.6 Only one (1) shock absorber per wheel is permitted.
- 28.7 Only four (4) shock absorber characteristics that can be adjusted from outside of each shock absorber are permitted, but this number does not include shock absorber gas pressure adjustment.

## **29 Front Cross-Member**

- 29.1 The detachable front suspension cross-member is free, on the condition that it is possible to remove it from the automobile (no attachment by welding).
- 29.2 The suspension pivot points must not be altered from the homologated body shell. The cross-member must utilize the two (2) rear mounting points as provided for this purpose in the production automobile from which the vehicle was derived.

## **30 Reinforcement Bars**

- 30.1 Reinforcement bars from the suspension pivot points to the body shell (or chassis) may be installed subject to the distance between a suspension fixation and the anchorage point of the bar may not be greater than 100mm unless the bar is a transverse strut homologated/approved with the roll bar.
- 30.2 In the case of a MacPherson strut suspension or similar, an upper bar may be fitted provided that the maximum distance between the anchorage point of the bar and the upper articulation point does not exceed 150mm.

## **31 Roll Centre Adjustment**

- 31.1 Any device which allows the front or rear roll centre of an automobile to be altered or adjusted from the cockpit is forbidden.

## **32 Ride Height Adjustment**

- 32.1 Any device or system which does, or has the capacity to do, adjust the ride height of a moving automobile is forbidden.

## **33 Suspension Adjustment**

- 33.1 Where these regulations permit the adjustment of the suspension of an automobile, the force

required to make such an adjustment must only be generated and controlled by a member of the team permitted to work on the automobile while the automobile is stationary, or by the driver, seated normally in the automobile with the safety harness correctly fastened.

### **34 Wheels**

34.1 The complete wheel is free provided that its upper part, located vertically over the wheel hub centre, is covered by the bodywork when measured vertically.

34.2 The maximum width of the complete wheel is 305mm.

The maximum rim diameter is 17".

The maximum diameter of the complete wheel is 680mm.

The minimum weight of any bare wheel is 9kg.

All measurements must be made with at least 1.8 bar pressure in the tyre.

34.3 Where the wheel is fixed using a central nut, a safety clip/spring must be in place on the nut while the automobile is on the track.

The clip/spring must be replaced/reset after each wheel change.

The clip/spring mechanism must be coloured red or orange.

34.4 Where centrelock wheel fixing (single wheel nut) is used, it is not permitted for the centrelock nut to be retained either in the wheel or the wheel gun. The nut must be fully detached from the replacement wheel while it is being fitted to the vehicle during any wheel changing operation.

If using centrelock wheel fixing (single wheel nut) the centrelock spindles and nuts must conform to the following:

- The centrelock spindle thread must be M72 x 2.5 (left or right hand as appropriate).
- The angle of any taper where the wheel nut engages with the wheel must be 90 degrees.

34.5 Brake fans fitted to the wheels are not permitted.

### **35 Brakes**

35.1 Each automobile must be fitted with a dual circuit braking system operated by the same pedal. The pedal shall normally control all the wheels. In case of leakage at any point of the brake system, its pipes or any kind of failure in the braking system, the pedal must still control two (2) wheels.

35.2 Pedals and pedal boxes are free, and the firewall and/or floor pan may be locally modified only to the extent required to facilitate the fitment of master cylinders and/or pedal boxes.

35.3 The complete brake hydraulic system (including calipers, lines and hydraulic cylinders) is free except for the following restrictions:

- The maximum number of pistons in each caliper is restricted to six (6).
- Only one (1) brake caliper and two (2) brake pads per wheel are permitted.
- No system will be permitted on an automobile which can retract the caliper pistons for the purpose of pad change.

35.4 Brake caliper bodies must only be made of aluminium materials with a modulus of elasticity no greater than 80 Gpa. The brake caliper pistons may be made of titanium alloy.

35.5 Brake rotors (discs) must be made of ferrous metal and conform to the following specifications:

- The maximum brake rotor diameter must not exceed 376mm.
- The maximum brake rotor thickness must not exceed 35.56mm.

35.6 In order to provide air for the cooling of the brakes of each wheel, it is permitted to fit a duct to each, the intake of which must be situated wholly within the perimeter of the bodywork and not below any point on the lower edge of the front air dam.

A system which sprays a mist of water into such air ducts is permitted.

35.7 Brake calipers incorporating liquid cooling/recirculating systems are prohibited.



- 35.8 The fitment of a handbrake/brake lock is optional.
- 35.9 Brake anti-lock systems are prohibited.
- 35.10 Maximum brake pad thickness must not exceed 30mm.
- 35.11 The braking system pressure in both front calipers must remain equal at all times.

### **36 Steering**

- 36.1 The steering is free including the steering wheel, column, tie rods, rack, etcetera, save that the original mechanical principal (eg rack and pinion, recirculating ball) must be retained.
- 36.2 If the original steering column is utilised, the steering lock device must be removed.
- 36.3 Power steering may be added or deleted.
- 36.4 Four-wheel steering is prohibited.

### **37 Electrical system**

- 37.1 A battery master isolation switch is mandatory and must:
  - Disconnect all electrical circuits, battery, alternator, horns, ignition, electrical controls etcetera.
  - Stop engine.
  - Be spark proof and able to be triggered from inside and outside the automobile.
  - The external trigger must be situated near the lower part of the front windscreen, on the driver's side, and be marked by a red spark in a white edged blue triangle with a base of at least 120mm.
- 37.2 The electrical circuits including cables, fuses and relays are free.
- 37.3 The battery and its location are free save that it must not be placed in the passenger compartment.
- 37.4 The alternator and its drive system are free.
- 37.5 All lighting and signaling devices must remain operational and as originally provided in the production automobile from which the automobile is derived, save that it is permitted to disconnect and remove the rear number plate lights, side indicator lights, reversing lights and all interior lights.  
The hazard function of the indicator lights may be removed.
- 37.6 The starter motor is free except that it must:
  - Be exclusively electrically powered.
  - Engage directly with the flywheel as in the production automobile from which the automobile was derived.
  - Be capable of starting the engine at all times.The starter motor may be mounted in front of, or behind, the flywheel, the ring gear of which must comply with regulation 13.8.  
At all times the driver – when seated and secured in the automobile as for competition – must be able to activate the starter motor without outside or external assistance.
- 37.7 A high intensity rain light as specified by the CTC must be fitted into the highest part of the rearward face of the boot lid.  
The rain light must be mounted so its face is at 90 degrees to the road surface.
- 37.8 Unless the specific permission is first obtained from the CTC computers of any description, other than computers which are an integral part of the automobile, are forbidden to be taken onto the grid by any person at any time.
- 37.9 It is permitted to replace the front windscreen with a front windscreen incorporating a heating element.
- 37.10 Each automobile must only be fitted with one (1) data-recording unit in addition to any data

recording capacity of the engine management system or any unit specifically required or approved by the CTC.

- 37.11 Unless otherwise specified, each automobile must only be fitted with one (1) of each of the sensors in regulations 37.12 and 37.13 which must only perform the function stated in each of the respective Regulations, and no other sensors are permitted.

The sensors listed in regulations 37.12 and 37.13 are in addition to any other switches, carrier detect signal for telemetry or any sensors specifically required or approved by the CTC.

The data gathered from the sensors listed in regulations 40.12 and 40.13 may then be recorded, displayed or transmitted by any means permitted under these regulations.

37.12 Engine sensors

Crankshaft position	Oil temperature
Camshaft position	Fuel pressure
Throttle position x2 (*see note below)	Fuel temperature
Coolant temperature	Fuel usage
Coolant level	Lambda x 2
Coolant pressure	Manifold air pressure
Oil pressure	Air temperature

\*Note – Only one (1) throttle position sensor may be connected to the engine management system at any time.

37.13 General sensors

Front wheel speed – front x 2	Suspension position x 4
Steering angle	Brake light
Power steering pressure	Brake rotor temperature (front & rear)
Power steering temperature	Brake line pressure (front & rear)
Gearbox oil temperature	Cockpit temperature x 2
Differential oil temperature	Battery Voltage
G – force – longitudinal	Beacon input
G – force – lateral	Brake balance bar position
G – force – vertical	

- 37.14 Only a single direction electronic data link to be sent from the automobile’s engine management system to any other data logging or display system within an automobile is permitted.

- 37.15 At any time only the following signals may be sent to or from an automobile:

Signal	Send to vehicle	Send from vehicle
Any signal exclusively for television	Yes	Yes
Telemetry (transmission of data)	No	Yes
Driver voice communication	Yes	Yes
Driver visual communication	Yes	Yes

### 38 Bodywork

The following regulations apply to the homologated body shell, including bodywork:

- 38.1 All bodywork and body shell panels/components must remain unmodified and must be of the same shape, material and thickness as the production automobile on which homologation is based.
- 38.2 Specific modifications to the body shell panel/components are allowed only to the extent permitted under these regulations.
- 38.3 Only the parts listed in the Delete Panel list in the relevant homologation documents for each

automobile may be removed from the production body shell.

- 38.4 Any repair work must conform to all requirements in these regulations.
- 38.5 Strengthening of the fully sprung components of the chassis and bodywork is allowed provided that the material used follows the original shape and is in contact with it.
- 38.6 Weld flanges may be removed from the front chassis rails and the joint butt welded.
- 38.7 Reinforcement of the body shell using carbon fibre composites will be restricted to internal cockpit surfaces only, and the maximum thickness of any reinforcement in this area will be 4mm, excluding the thickness of the parent metal.

The area which can be reinforced is defined by: the inner surface of the front bulkhead, below a vertical line corresponding with the lower edge of the front windscreen and extending rearward to a lateral line across the floor of the automobile, approximately in the centre of the front doors.

No body cavities may be filled with any substance that is deemed to increase the rigidity of the automobile, save for the driver's door, which may have the window glass and regulator removed and the resultant cavity filled with polyurethane foam.

Notwithstanding the above, reinforcement of the floor by carbon fibre composites is prohibited.

Any non-metallic insulating and/or sound deadening material may be removed.

- 38.8 It is permitted to make the minimum modifications to the production body shell in and around the rear axle assembly only in order to provide sufficient clearance for the rear axle assembly to achieve maximum wheel travel.

### **39 Exterior**

- 39.1 Homologated aerodynamic aids and exterior components, which may be of carbon fibre construction, must be identical to the samples held by the CTC, and be used exclusively and in their entirety.
- 39.2 For the purpose of providing clearance to front suspension components or the fuel tank, it is permissible to remove material from the front/rear under tray provided that the cut area is suitably reinforced.
- 39.3 The rear spoiler "wing" must be the same type and shape as was present when the automobile was originally homologated.
- 39.4 The sealing of holes in the cockpit, engine and luggage compartments and in the mudguards is allowed. The material and method used are free and any holes in the exterior bodywork may be closed or sealed by the use of adhesive tape only.
- 39.5 Windscreen wiper motors, their position and the blades and mechanism are free subject to there being at least one (1) windscreen wiper provided in the driver's line of vision. The windscreen washer device, the washer bottle and their location is free.
- 39.6 External decorative strips, the maximum vertical height of which is less than 25mm, may be removed.
- 39.7 The fitting and use of pneumatic jacks and the necessary modifications for their fitment is permitted, but no "compressed air" bottle can be carried on board.
- 39.8 All external air line fittings must be located in or near the "B" pillar and must be recessed so they are not likely to cause injury, and the air jacks must always be manually operated from the pit garage side of the automobile during any pit stop.
- 39.9 All external lights with lenses made of glass must be covered by a transparent film applied to the glass which must effectively prevent any broken glass from being spread onto the racetrack. Headlamp covers may be fitted solely to protect the headlamp glass, and must effect no improvement to the vehicle's aerodynamic efficiency.
- 39.10 The registration plate mountings may be removed.
- 39.11 In order to comply with the requirements of regulation 37.1, the mudguard sheetmetal may be

“stretched” by the minimum amount necessary to give 10mm clearance on the tyre whilst respecting the homologated body width.

39.12 Any components which act as vibration insulators (eg engine mounts, gearbox mounts, and cross-member mounts) may be replaced with components of similar dimensions and free material.

39.13 All original closing mechanisms on the bonnet and boot lid must be rendered inoperative, and the fitting of at least two (2) separate fasteners for the front bonnet and rear boot lid are compulsory, notwithstanding the hinging arrangements. The fasteners must be of adequate strength and limited extensibility which must simultaneously hold the bonnet and boot lid closed.

39.14 The windscreen must be of laminated glass.

39.15 All tools necessary for the removal of the front and rear bumper bars must be securely attached to the passenger side anti intrusion bar.

39.16 All automobiles must be equipped with at least one (1) front and rear towing eye and comply with Schedule C of the CAMS Manual of Motor Sport.

39.17 If because of damage it is necessary to remove the front windscreen, the rear windscreen must also be removed, and the driver then must wear either a full-face helmet and visor or goggles.

39.18 Any window mounted “NACA Duct” must only be used for cooling the driver and must therefore only have the effect of circulating air within the cockpit.

#### 40 Cockpit

40.1 The driver’s seat must be replaced by another of a type homologated by the FIA to the 8855 or 8855/99 standard, and which incorporates a head restraint and has no mechanical adjustment of the rake of the squab.

**Note:** The validity of these seats expires five (5) years from the date of manufacture shown on the seat. An additional two (2) years waiver may be granted by the manufacturer provided the seat is returned to the manufacturer for inspection.

Where the standard seat mountings are not retained or the vehicle does not comply with the Australian Design Rules for seat mountings, the seat must be mounted by not less than four (4) 8mm bolts, and where they are affixed to the unreinforced section of the floor pan, these attachment points must be reinforced by the use of plates of not less than 75mm x 50mm x 3mm.

The mounting of the seat directly to the safety cage is highly recommended.

No part of the replacement driver’s seat may be located rearward of a vertical plane as specified in the relevant homologation documents.

All other seats may be removed. Any replacement seat may be manufactured in carbon-fibre and/or carbon fibre/Kevlar combination.

40.2 All carpets, padding, insulation material and lining may be removed from the cockpit. The original interior door trim may be re-manufactured provided the external shape is similar. The interior door trim may be locally modified to permit the fitment of a safety cage.

40.3 The original heater and/or air conditioning unit may be removed together with its associated equipment.

40.4 Pipes carrying fluid through the cockpit must be of adequate strength and quality and must have no connections other than those on the front and/or rear bulkhead. Pipes carrying fluids to authorised accessories, e.g. power steering, may have connections within the cabin.

40.5 The driver’s compartment must be sealed from both the engine and luggage compartments to prevent the passage of flame and/or fluids into the driver’s compartment in the event of any leakage. This sealing must include the vehicle’s “C” pillars.

#### 41 Dashboard

41.1 Components of the dashboard below a horizontal plane at the top of the glove box lid may be removed. Fascia panels containing instruments, switches, and controls may be replaced by

others of free design.

41.2 The centre console may be removed.

41.3 Instruments are free, but only the minimum modifications necessary may be made to the dashboard to facilitate the fitting of instruments.

#### **42 Doors**

42.1 The side anti-intrusion bars may be removed from the doors subject to the safety cage structure providing lateral protection in the same general area.

42.2 Polyurethane foam may be added to the door cavity of the driver's door.

42.3 The window regulator mechanism may be removed from all doors.

42.4 The inner door panels may be removed from all doors except for the driver's door.

#### **43 Rear Vision Mirrors**

43.1 Each automobile must be fitted with at least two (2) rear vision mirrors which have a reflecting surface of at least 5000 square mm, and the mirrors must provide an unobstructed view to the rear of the vehicle.

One such mirror must be fitted internally and at least one fitted externally on the driver's side of the vehicle.

#### **44 Tail shaft Loops**

44.1 Each automobile must be fitted with full circle tail shaft loops which must be constructed so that in the event of tail shaft breakage, the tail shaft, its components and mountings will be effectively prevented from contact with the ground.

The tail shaft loops must be made of steel strap of 30mm x 5mm minimum and be securely attached to a reinforced area of the body shell.

#### **45 Additional Accessories**

45.1 All accessories which have no influence on the automobile's behavior are allowed, for example equipment which improves the aesthetics or comfort of the automobile's interior (lighting, heating etc). In no case may these accessories increase the engine power or influence the steering, transmission, brakes or road holding even in an indirect fashion.

45.2 The horn may be removed or replaced.

45.3 Other than the coachwork/bodywork, and the homologated aerodynamic aids, no part of the automobile is permitted which, in the opinion of the CTC, actually or potentially increase down force, and no appeal or protest will lie against the written opinion of the CTC in this regard.

45.4 With the exception of clutch fluid reservoirs, windscreen washer bottles, driver's drink bottles and driver cool suits, all fluid reservoirs must be mounted outside of the cockpit.

#### **46 Windows**

46.1 Subject to freedoms permitted in these regulations, all windows must remain identical to those of the production automobile upon which the automobile is based, windows must not be coloured or tinted.

#### **47 Fuel Tank**

47.1 Each automobile must be fitted with a fuel tank conforming to the FIA specification FT3, FT3.5 or FT5.

**Note:** The validity of these tanks expires five (5) years from the date of manufacture shown on the tank. An additional two (2) year waiver may be granted provided the tank is returned to the tank manufacturer for inspection.

47.2 Fuel tanks must be mounted either side, under or through the floor of the luggage compartment.

No part of the fuel tank may be situated forward of the rear axle centre line.

47.3 All openings in the fuel tank must be located in the top surface of the tank.

The fuel tank must be vented externally of the bodywork.

- 47.4 The total capacity of the entire fuel system must not exceed 120 litres.
- 47.5 Any gap between the fuel cell and its housing must be filled with semi rigid energy absorbing material such as polyurethane
- 47.6 A fuel collector pot of free design and material with a maximum capacity of eight (8) litres is permitted.
- 47.7 Each automobile must be fitted with fuel lines made of suitable material which is of adequate strength and durability: e.g. metal tube or braided hose.
- 47.8 Each automobile must be fitted with a system that cuts off the power supply to all fuel pumps after a maximum of six (6) seconds absence of crankshaft revolution.

#### **48 Safety Equipment**

- 48.1 Each automobile must be fitted with a fire extinguisher system in full working order, which complies with the FIA Standard for Plumbed in Fire Extinguisher Systems in competition vehicles, and Schedule H of the CAMS Manual of Motor Sport.
- 48.2 All fire extinguisher systems must be:
- A minimum of 4.0 litres in capacity.
  - Either activated electrically or mechanically.
  - Fitted as per the manufacturer's instructions.
  - Capable of being activated by the driver in his normal driving position or by a trackside marshal operating a remote actuator located at the lower driver's side edge of the windscreen.
  - Mounted on the left hand side of the automobile either inside the cockpit or under the rear passenger floor.
- 48.3 Each automobile must be fitted with a safety harness for each seat fitted in the vehicle. The safety harness/es must comply at least with the requirements of FIA Standard 8853 or 8854, 8853/98 or 8854/98 and must be fitted and worn as required by Meeting Regulations and Schedule I of the CAMS Manual of Motor Sport.
- Note:** The validity of these harnesses expires five (5) years from the date of manufacture shown on the harness. No extensions can be granted.
- 48.4 In all seat belt/harness mountings, the following must be observed:
- Floor mounting points must be reinforced with a plate of at least 75mm x 50mm on the underside of the body.
  - Harness rear mounting points must be to a substantial part of the automobile's structure, reinforced as may be appropriate.
- 48.5 The safety harness of any automobile involved in any accident must be inspected by the CTC at the relevant meeting. If appropriate, the CAMS Log Book will be endorsed with a requirement by the CTC that the safety harness be replaced. At the automobile's next meeting, the CTC must be satisfied that the safety harness has been replaced.
- 48.6 Each automobile are required to have fitted a driver's side window net, and where any automobile is used to carry a passenger while on the racetrack, the automobile must be fitted with a passenger's side window net. All window nets must comply with Schedule I of the CAMS Manual of Motor Sport.
- 48.7 Each automobile must be fitted with roll over (safety cage) protection.

#### **49 Tyres**

- 49.1 Only the controlled Kumho 280/680R17 – S700 slick tyre and 280/680R17 – W700 wet weather tyre may be used.