

Sporting and Technical Regulations



2020 V8 Touring Car Series Sporting and Technical Regulations



Version 1

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2020 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 “2020 Kumho Tyre V8 Touring Car Series”.

S1.2 Authority / Jurisdiction

- (a) Each event in the 2020 V8 Touring Car Series (Series) shall be conducted under the provisions of the FIA International Sporting Code including Appendices; the National Competition Rules (NCR) and Circuit Race Standing Regulations (CRSR) of Motorsport Australia; the Sporting and Technical Regulations issued for this Series by Motorsport Australia; Supplementary and Further Regulations issued by the Organiser at each round; Bulletins issued by the Stewards, and any Driver Briefing Notes and instructions issued by the Clerk of the Course at an event.
- (b) This Series has been sanctioned by Motorsport Australia as an Authorised Series.
- (c) Tri State Racing Pty Ltd has been appointed as the Category Manager (CM) by Motorsport Australia for this Series.

Contact Details: Tri State Racing Pty Ltd (ABN 41 104 665 778)
6 Williams Ave
Glenelg East SA 5045
Tel. 0438 033246
Email. liam@v8touringcars.com.au

S2 ADMINISTRATION

S2.1 Personnel

- (a) The following personnel have been appointed to the Series by Motorsport Australia and/or the CM and have the authority to administer the various aspects of these regulations as detailed in the CRSR.
 - (i) Category Administrator (CA) Liam Curkpatrick
 - (ii) Technical Advisor (TA) Laurie Griffin

S3 COMPETITOR ELIGIBILITY

To be eligible to compete in the Series, each Competitor must hold a current Motorsport Australia Competitor Licence.

S4 AUTOMOBILE ELIGIBILITY

Each automobile must comply with the provisions of the 2020 V8 Touring Car Series Technical Regulations to be eligible to compete in the Series.

S4.1 Replacement Automobiles

Following the commencement of the first qualifying 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.

S5 DRIVER ELIGIBILITY

To be eligible to compete in the Series, each Driver must be a minimum of 16 years of age and hold a current Motorsport Australia Provisional Circuit Licence (PC) or higher, unless noted otherwise in the supplementary regulations for a particular round of the Series.

S5.1 Substitute Drivers

Prior to the commencement of the first qualifying 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 event subject to the approval of the Stewards.

S6 SERIES ROUNDS / REGISTRATION

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

S7 SERIES CALENDAR

The Series shall be conducted over the following rounds:

Round	Date	Circuit
1	27 – 29 March	Sydney Motorsport Park
2	5 – 7 June	Winton Motor Raceway
3	3 – 5 July	Morgan Park
4	21 – 23 August	Phillip Island
5	18 – 20 September	The Bend Motorsport Park

S8 ROUND FORMAT

The number, length and format of track sessions shall ultimately be negotiated between the CM and the event organiser prior to a round of the Series and shall be advised in the relevant Supplementary / Further Supplementary Regulations issued for an event.

S8.1 Round Format

- (a) Generally, the format for each round of the Series shall be as follows:
- (i) Practice - Two (2) x 20-minute practice session
 - (ii) Qualifying - One (1) x 20-minute Qualifying session

- (iii) Races - Two (2) x 20-minute races (approximately) expressed as a number of laps
One (1) x 25-minute race (approximately) expressed as a number of laps

S8.2 Variations to Timetable

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

S9 GRID DETERMINATION

- (a) **Race 1 & Race 2:** The grid for Race 1 and Race 2 shall be determined as detailed in the CRSR – Progressive Grid
- (b) **Race 3:** The Grid for race 3 shall be determined by the aggregate Series points awarded to each driver in races 1 & 2. Should more than one driver be on the same number of points such drivers shall be placed in order of their fastest qualifying lap time.

S10 START PROCEDURE

The start procedure for each race shall be as detailed in the CRSR –Championship Start – Standing Start except that pit crew may not access the grid and only the 1-minute board shall be displayed. This shall occur when the first automobile stops on the grid at the end of the observation lap. The formation lap shall commence when the green flag is displayed by the Starter.

S11 AWARDS AND POINTSCORE

S11.1 Prizes and Trophies

Prizes, trophies and awards shall be determined by the CM and advised to each Competitor.

S11.2 Series Pointscore

- (a) Points shall be awarded to drivers for **Race 1 and Race 2** at each round of the Series according to the table below.

Finishing Position	Points	Finishing Position	Points
1 st	40	11 th	10
2 nd	35	12 th	9
3 rd	31	13 th	8
4 th	27	14 th	7
5 th	23	15 th	6
6 th	20	16 th	5
7 th	17	17 th	4
8 th	15	18 th	3
9 th	13	19 th	2
10 th	11	20 th and over	1

- (b) Points shall be awarded to drivers for **Race 3** at each round of the Series according to the table below.

Finishing Position	Points	Finishing Position	Points
1 st	60	11 th	15
2 nd	53	12 th	14
3 rd	47	13 th	12
4 th	41	14 th	11
5 th	35	15 th	9
6 th	30	16 th	8
7 th	26	17 th	6
8 th	23	18 th	5
9 th	20	19 th	3
10 th	17	20 th and over	2

- (c) Points shall only be awarded to drivers classified as finishers in the final results of each race.
- (d) In addition to the above, three (3) points shall be awarded to the driver that sets the fastest qualifying lap time at each round of the Series.
- (e) The results for each round of the Series shall be determined by the number of points awarded to each driver at that round.
- (f) In the event of a tie at the end of any round of the Series, the final positions for that round shall 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 shall be awarded to the driver with the higher finishing position in the final race.
- (g) The driver gaining the highest points total over the five (5) rounds shall be declared the winner of the Series.
- (h) In the event of a tie at the end of the Series, final positions shall 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 shall be resolved by comparing the number of second, third or fourth places (and so on) achieved by each tied driver until each position has been determined.

S12 EVENT OPERATIONS

S12.1 Series Registration and Entry

The Series shall operate under the Motorsport Australia Series Registration and Entry Process.

S12.2 Driver Briefings

- (a) Each Driver must attend the compulsory Drivers' briefing.
- (b) The time and location of this briefing shall be detailed in the Supplementary or Further Regulations for the event.

- (c) The attendance sheet must be signed by the Driver to confirm attendance.
- (d) Other compulsory briefings may be convened as required and shall be advised to each Competitor accordingly.

S12.3 Impound/Parc Fermé

- (a) Each automobile, including those remaining in pit lane, must proceed directly to the designated impound/Parc Fermé area via the most direct route (or as directed by Officials) at the conclusion of qualifying, without returning to pit garage or paddock areas and without interference from any third party (other than an Official).
- (b) Each automobile completing each race must proceed directly to the designated impound/Parc Fermé area via the most direct route (or as directed by Officials) at the conclusion of the race, without returning to pit garage or paddock areas and without interference from any third party (other than an Official).
- (c) One (1) team member per automobile may be permitted to enter the designated impound/Parc Fermé area for the purpose of checking tyre pressures and disconnection of a cool suit only. This shall be permitted at the discretion of the Chief Scrutineer or their nominee only and the team member must leave the impound/Parc Fermé area immediately once this work is complete.
- (d) An automobile may not be removed from the impound/Parc Fermé except with the express permission of the Chief Scrutineer.
- (e) Work on an automobile is not permitted in the Pit Lane after the chequered flag has been displayed at the conclusion of each session unless authorised by the Chief Scrutineer or their nominee.
- (f) Any automobile that enters the Pit Lane or is still in the fast lane after the chequered flag has been displayed must remain in the fast lane and proceed to the Parc Fermé or as otherwise directed by an Official.

S12.4 Qualifying

- (a) During qualifying, an automobile may not return to the pit garage or paddock area without the express permission of the Chief Scrutineer. Any automobile that exits pit lane and returns to the pit garage or paddock during qualifying, shall not be permitted to re-join that session.
- (b) Any Driver who is deemed to be responsible for causing a red flag to be displayed during a qualifying session shall have their fastest lap time for that session deleted.

S12.5 Pit Lane

- (a) Each Pit Crew member is required to sign a Pit Lane Indemnity Form prior to the first track session and to display identification as and if required by the event Organiser.
- (b) Each Competitor must appoint a car controller who shall be solely responsible for the stopping of, and the safe release of, the automobile at all times whilst the automobile is in pit lane.
- (c) Work on an automobile is not permitted in the fast lane at any time including whilst queued to enter the track (eg during a red flag period).

S12.6 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 release of all automobiles from the Impound/Parc Fermé established following the final race of that round of the Series without the prior express written approval of the Chief Scrutineer.

S12.7 Pit Lane Speed Limit

- (a) A speed limit of 40 km/h shall apply in pit lane at all times.
- (b) If the limit is exceeded at any time during the event the Stewards may impose a penalty.
- (c) The designated pit lane speed limit area shall be defined by the speed restriction and derestriction signs and lines at either end of the Pit Lane.

S13 TYRES

- (a) Only the control tyres listed below are permitted for use in the Series:
 - (i) **Dry weather tyres:** Kumho 280/680R17 – S700 K91
 - (ii) **Wet weather tyres:** Kumho 280/680R17 – W700 K21
- (b) At the first round of the Series for each automobile, a maximum of eight (8) dry tyres, of which eight (8) may be new, shall be allowed for each automobile for all qualifying and races. These tyres shall be marked prior to qualifying.
- (c) At each remaining round a maximum of eight (8) dry tyres may be used for all qualifying and races of which only six (6) may be new tyres. Each remaining tyre for qualifying and races must be previously marked tyres specifically for that automobile.
- (d) A driver may change to an alternative automobile during the Series but can only receive the benefit of eight (8) new tyres at a round as per S13(b) once during the Series.
- (e) 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.
- (f) 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 their nominee) for marking at the front of their respective garage/paddock bay.
- (g) Each wheel must be clearly marked with the automobile's competition number before presenting for tyre fitting.
- (h) Each Competitor is responsible for ensuring that each tyre is marked or re-marked as appropriate. If any tyre is not marked for any reason or the markings become illegible, the Competitor must notify the Chief Scrutineer immediately.
- (i) A replacement tyre shall 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.
- (j) 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.

(k) The use of any tyre heating, heat retention device or chemical treatment is prohibited.

Please note: The Chief Scrutineer shall be sole arbiter with regard to interpretation and application of these tyre regulations. Any decision made by the Chief Scrutineer in this regard shall not be the subject of any protest or appeal.

S14 FUEL

(a) For the duration of an event, each Competitor must use only the control fuel supplied by the official fuel supplier as nominated by the CM.

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

(b) Other substance/s must not be added to the control fuel.

(c) Prior to the commencement of the first track session at each round of the Series, each Competitor must purchase a minimum of fifty (50) litres of fuel per automobile entered, from the official fuel supplier.

(d) Each automobile shall receive one (1) full fifty (50) litre drum of control fuel from the official fuel supplier on the Thursday night or Friday morning of the event, or on arrival at the circuit, subject to circuit access by the official fuel supplier.

(e) After each track session the official fuel supplier shall exchange a full drum of control fuel for an empty drum.

(f) Each automobile shall have two (2) fifty (50) litre drums of control fuel issued at their first round.

(g) Each fuel drum shall remain the property of the official fuel supplier and there shall be a \$50 charge for each additional drum required.

(h) Each fuel drum shall be labelled with the automobile's competition number and team/driver name for identification.

(i) A fuel sample may be taken from a competition automobile at any time.

(j) Each Competitor is responsible to ensure that any fuel sample from their competition automobile is able to be obtained safely and promptly upon request by the Chief Scrutineer.

(k) Each fuel sample shall be compared with that provided by the official fuel supplier. Any discrepancy shall be reported to the Stewards by the Chief Scrutineer.

(l) A specification analysis of the control fuel and fuel distribution details for each round shall be available on request from the CM.

S15 REFUELLING AND FUEL TRANSFER

(a) All refuelling and fuel transfer (including draining fuel) must be carried out in the Pit Garage or the paddock area and must conform to the following requirements:

(i) The automobile's engine must be switched off;

- (ii) A Fire Attendant must be present;
 - (iii) The automobile and each vessel where fuel is being transferred must be earthed to a suitable earth point;
 - (iv) Any draining or refuelling procedure must be carried out using “dry break” type fittings;
 - (v) All personnel handling fuel must discharge themselves of static electricity prior to participating in any refuelling or fuel transferring procedures; and
 - (vi) Any mobile phone must be switched off in the immediate vicinity of the draining or refuelling procedure.
- (b) Any device and substance, which changes the temperature of the fuel from the ambient air temperature, is prohibited.

S16 FUEL STORAGE AND HANDLING

- (a) All fuel must only be stored or transferred at a temperature within 10 degrees Celsius (plus or minus) of ambient temperature.
- (b) The maximum amount of fuel to be stored in the Pit Garage or the paddock area shall be advised in the event Supplementary or Further Regulations.
- (c) Any fuel in excess of the Pit Garage or paddock area allowance must be stored in the bunded fuel area.
- (d) Each Competitor must provide at least 2 x 4.5kg dry chemical fire extinguishers, in working order and current certification, for each of their competing automobiles.
- (e) Each area in which fuel is being stored must be:
 - (i) Adequately ventilated and have unimpeded access; and
 - (ii) Be clean and free of potentially flammable materials e.g., paper, rags, oily fabrics etc.
- (f) Non-essential personnel, such as sponsors, families, other guests of the Team, or members of the public must be removed from the immediate area of the refuelling operation until the operation is completed.

S17 SAFETY/GARAGES

- (a) When warming up an automobile’s engine the automobile must be moved outside its Pit Garage/marquee unless either an extraction fan or an exhaust extension, which directs exhaust fumes outside the Pit Garage, is used.
- (b) Only “A” boards and advertising flags may be in front of a garage/marquee. Vehicles, buggies, fuel drums etc must not be parked/stored in front of a garage/marquee.
- (c) A shade structure of any sort is not permitted to be situated adjacent to the rear of a garage/marquee and cannot be located any closer to the rear of a garage/marquee than the rear edge of the automobile’s transporter.
- (d) Event hours shall be advised by the CM prior to each event and may be published in Supplementary/Further Supplementary Regulations for the event. At all times during event hours:

- (i) Each garage/marquee door must be kept fully open to allow a constant, unimpeded line of site through the garage/marquee.
- (ii) A screen, curtain, drape, cover or other obstruction which in any way obscures any part of an automobile is not permitted in a Pit Garage/marquee, in the Pit Lane or on the grid unless it is clear any such cover is needed solely for mechanical reasons which could, for example, include protecting against fire.
- (e) Any engine, gearbox or radiator cover is not permitted whilst an engine is being changed or moved around the garage/marquee. Additionally, personnel and parts such as, but not limited to, wall panels, tyre racks, wheels, tyres, fuel rigs or tool trolleys may not be used as an obstruction.
- (f) It is permitted to place covers over a damaged automobile which has been withdrawn from the event.
- (g) It is permitted to fit and remove windscreen shades from an automobile when the automobile is in Pit Lane or on the grid.

S18 RAIN LIGHT

The rain light fitted to each automobile must be illuminated at all times whilst the automobile is fitted with wet weather tyres and is being driven on the race circuit or as otherwise directed by Race Control.

S19 AUTOMOBILE MARKINGS

- (a) Each automobile must comply with Schedule K of the Motorsport Australia Manual and the following requirements:
 - (i) The automobile's competition number must be displayed on the front windscreen, both rear side windows and the rear windscreen.
 - (ii) Display of the automobile's competition number on each side of the automobile as per Schedule K is optional.
 - (iii) Each automobile must display the Series markings, appropriately attached and positioned as shown in the Decal Placement diagram in Appendix 1.

S20 AUTOMATIC TIMING

At all times when an automobile is on the circuit at an event it must have the correct fully charged timing transmitter fitted and operating. Failure to comply may result in the display of the mechanical black flag.

S21 MOTEC BEACON

- (a) A MoTeC lap timing beacon transmitter shall be placed at the start/finish line by the CM.
- (b) The frequency of the beacon shall be advised to each Competitor by the CM.
- (c) The Series beacon shall be positioned closest to the start/finish line and no other beacon/stand may be placed within 3 metres of this 'official' beacon.

S22 VIDEO CAMERA AND RECORDING DEVICE

- (a) Each automobile entered in the Series must be fitted with a fully operational digital video camera and recording device and any associated camera equipment to ensure the full functionality and recording capability of the camera in all practice, qualifying and racing sessions.
- (b) The camera system must be supplied by the Competitor and authorised by the CM.
- (c) Each in-car camera chip must be labelled with the automobile's competition number.
- (d) The camera and its associated equipment shall be installed in the automobile with the camera pointed in a forward direction with a field of vision sufficiently wide to record clearly, and without obstruction at all times, the Drivers view of the race track ahead.
- (e) Each Competitor shall be required to ensure that the camera is switched on and functioning in the correct manner prior to the automobile entering the Circuit for each practice, qualifying and racing session.
- (f) Access to the camera must be provided to technicians appointed by the CM at any time upon request.
- (g) No person other than personnel authorised by the CM shall interfere with the camera, other than to remove and replace the flash card. Flashcards must remain in the camera for thirty (30) minutes after any track activity.
- (h) Each Competitor is permitted access to the video images recorded by any camera in their automobile, however the footage is "strictly for private internal purposes"; that is, it cannot be sold, licensed, broadcast, published, commercially exploited or otherwise publicly displayed or distributed, including in any case via internet or social media.
- (i) When requested, each Competitor must immediately provide the flash card to the Clerk of the Course, their nominee and/or the Stewards.

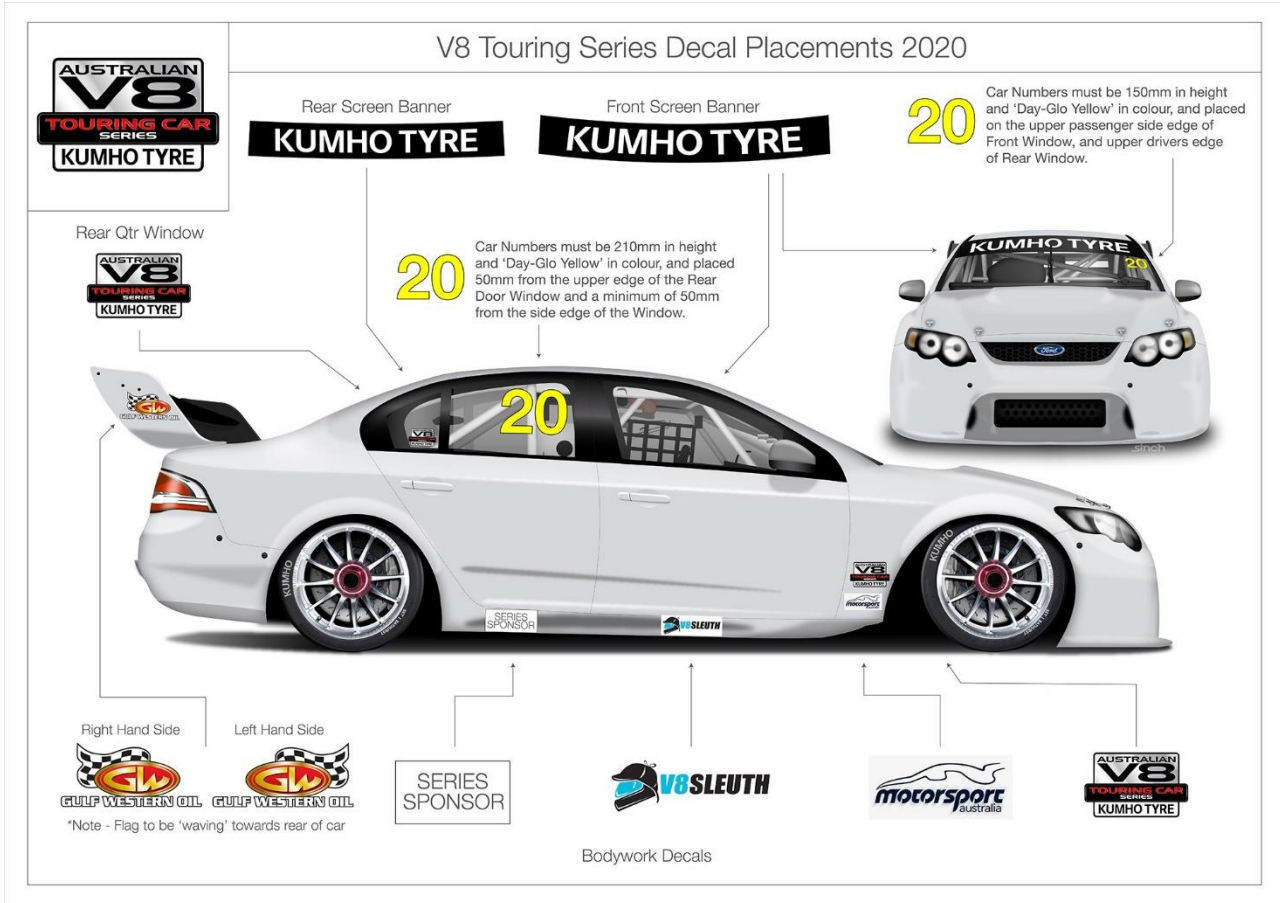
S23 RACE MANAGEMENT CHANNEL (RMC)

- (a) A race management radio is mandatory.
- (b) Each Competitor must monitor the RMC, on a strictly listening basis only, during each session and race from at least fifteen (15) minutes prior to the scheduled start time until the automobile is released from Parc Fermé.
- (c) All relevant track messages received on the RMC must be relayed to the Driver as well as the Team Manager.
- (d) The RMC frequency is 471.700 MHz 71.9 Hz.

S24 TENDER VEHICLES

- (a) The maximum height of a tender vehicle permitted to enter Pit Lane is 2 metres.
- (b) A competition number the same as the respective competition automobile must be attached to the front windscreen of each tender vehicle prior to entering Pit Lane. Each number must be the same colour, size and location as the competition automobile.

APPENDIX 1 DECAL PLACEMENT



2020 V8 Touring Car Series

Technical Regulations

T1 PHILOSOPHY

- (a) 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.
- (b) 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.
- (c) During its life the V8TC category shall be subject to amendments approved by Motorsport Australia to maintain exciting, cost effective competition.

T2 ELIGIBILITY

- (a) 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.
- (b) Each automobile must have a registered history with AVESCO/VESA/CAMS and documentation must be provided to establish a clear line of history for the nominated year the automobile is to represent.
- (c) No new automobile may be constructed.
- (d) Each automobile must comply with the General Requirements of Automobiles of the Motorsport Australia Manual.
- (e) Each automobile must run with a V8TC category approved MoTeC engine electronic control unit (ECU).
- (f) Scrutineers in conjunction with the Chief Scrutineer may refer to the respective Automobile Technical Regulations as published for the nominated year by AVESCO/VESA/CAMS.
- (g) Any aspect relating to the construction and/or modification of an 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 Motorsport Australia Automobile Homologation Documents are adhered to.
- (h) The following models of automobile are eligible in this category:
 - (i) Ford Falcon EF to FG
 - (ii) Holden Commodore VP to VE2

T3 MINIMUM WEIGHT

- (a) At no time may the Minimum Weight of an automobile be less than 1350kg.
This weight must be achieved without the driver, fuel or driver's equipment.
- (b) The minimum front axle weight of an automobile, measured at the front axle centreline, is 750kg.
This minimum weight must be achieved at all times, without fuel, driver or driver's apparel on board
- (c) It is permitted to complete the weight of an automobile by one or more ballasts provided that they are strong unitary blocks, fixed by means of tools and capable of being sealed by the Chief Scrutineer.

T4 FREEDOMS PERMITTED

- (a) Where in these regulations freedom is permitted to fit specific parts:
 - (i) Holes may be drilled/made to allow the passage or fixing of that part.
 - (ii) The minimum local modifications for clearance or mounting purposes only may be made in the surrounding area.
- (b) If the permitted part requires modifications to be made to "mating" parts, then those modifications are permitted.
- (c) Any modification permitted under these regulations is allowed only on the condition that the weights and/or dimensions contained in these regulations and the Homologation Documents are respected.
- (d) Unless specifically permitted in these regulations, the use of titanium or titanium alloy in any part of an automobile is forbidden.
- (e) 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.
- (f) Any damaged thread may be repaired by the fitment of an insert, with a similar internal diameter (eg; helicoil).

T5 DAMAGE REPAIRS

- (a) Restoration of body shape and chassis geometry following accidental damage is permitted by the addition of any material necessary to affect the repairs (eg; body filler, weld metal).
- (b) All bodywork including any repair of damage at an event 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.

T6 GENERAL

Each Competitor is responsible for ensuring that each automobile complies with the conditions of eligibility contained in these regulations and relevant Motorsport Australia Homologation Documents:

T7 CAMS LOG BOOK

- (a) Each automobile must be subject of a current Motorsport Australia Log Book.
- (b) Each automobile must correspond with the detailed description contained in the relevant homologation document and the Motorsport Australia Log Book issued for that make and model of automobile.
- (c) The original AVESCO/VESA/CAMS Automobile Log Book must be produced upon request.

T8 EXAMINATION FOR ELIGIBILITY

- (a) Should the Chief Scrutineer 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.
- (b) Any comment so made may be recorded by the Chief Scrutineer, and subsequently may be presented at any Stewards inquiry.
- (c) The Chief Scrutineer and/or Scrutineers may refer to the original V8 Supercar/CAMS Technical Regulations for the particular model automobile being inspected. Scrutineers may also carry out scrutiny by direct comparison of automobile components as listed in the Motorsport Australia Homologation Documents.
- (d) The checking for eligibility and sealing as specified in these regulations prior to competition shall be performed by V8 Touring Car personnel authorised by the CM. The presence of a seal shall not automatically protect the automobile from being subject to a protest, or from examination by Scrutineers.

T9 ENGINE

T9.1 General

- (a) Each make/model of automobile must only be fitted with a cylinder block and cylinder heads as detailed in the relevant Vehicle Specification Documents (VSD).
- (b) Each engine used during an event must comply with all the dimensions in these regulations.
- (c) The maximum Engine Capacity permitted is 5000cc +25cc.
- (d) With prior express permission in writing and with all restrictions applied by the TA a cylinder block may be bored to achieve a total capacity of 5025cc. All other engine dimensions shall still apply.
- (e) The compression ratio must not exceed 10.0:1.
- (f) The engine must not produce power above 7500 rpm.
- (g) The engine must have suitable provision for the cylinder heads, sump and distributor to be sealed to the cylinder block so that the cylinder heads, sump and distributor are not able to be removed. Once an engine has been sealed by the TA, the seals must remain intact and legible at all times. These seals must only be removed by the TA or with the express prior approval of, and subject to the conditions of, the TA.

- (h) The minimum engine component weights stated in Rules G7.4, G7.5 & G7.6 of the Supercar Operations Manual must be complied with at all times during any event. It is permitted to use components which do not comply with these minimum weights during Passenger Rides and Testing.
- (i) Each Ford engine fitted with D3 cylinder heads and each HMS Holden engine, must maintain the same positioning of the cylinder heads in relation to the cylinder bore centre line. The bore centre line must be in the same position as specified by the engine manufacturer and the sample cylinder blocks held by Supercars.
- (j) Each Ford D3 and HMS Holden inlet and exhaust valve position in the cylinder head must remain as specified by the engine manufacturer and the sample cylinder heads held by Supercars.

NOTE: A radial tolerance of 1.0 mm shall be applied to both inlet and exhaust valve centre lines with this dimension being measured at the cylinder head face.

- (k) Each automobile must only mount and locate the engine, bell housing and gearbox combination by means of the engine mounts and the rear gearbox cross member mount.
- (l) No engine component or accessory is permitted to be constructed of magnesium alloy.

T9.2 Cylinder Block

- (a) The following conditions apply to the approved cylinder block:
 - (i) The bore size must be 101.473mm or greater.
 - (ii) The fitment of sleeves to the cylinder block is permitted.
 - (iii) The normal section of each cylinder must be circular.
 - (iv) 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 relevant VSD.
 - (v) 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 with respect to the V8 Supercars "Z" datum.
 - (vi) The engine mounts are free but not their number nor position save for the following:
 - (A) It is permitted on the Ford cylinder block to utilize additional engine block mounting points. The additional engine block mounting points must be placed in the pan rail and must not be located past the second (2nd) and third (3rd) main bearing journals on either side of the cylinder block.
 - (B) It is permitted to mount the engine by the sump to the front suspension cross member complying with Schedule G7 of the Supercar Operations Manual. Each design of this type is required to be submitted to the TA prior to being implemented.
 - (C) No other component or accessory is permitted to locate or mount the engine to the chassis.
 - (vii) The cylinder head face must remain at 90 degrees to the cylinder bore centre line.
 - (viii) It is permitted to add or remove material to or from the cylinder block, subject to:
 - (A) the integrity of the original casting of the cylinder block being respected; and
 - (B) that no attempt is made to vary the basic design of the cylinder block beyond modifications permitted in these regulations.

- (ix) It must always be possible for the cylinder block to be identified as the approved cylinder block.
- (x) The camshaft lifter bores must remain in the same location as specified by the manufacturer and the samples held by Supercars on the Ford M 6010 Boss 302 and the Holden Motor Sport 22534350 cylinder blocks.
- (xi) The minimum weight of any cylinder block used shall be 70 kg. The weight of the block shall include any core/oil gallery and rear cam tunnel plugs, cam bearings and any internal oil feed scavenge lines and removable rear main seal carrier.
- (xii) A block that is less than 70 kg is permitted to have ballast weight to bring it up to 70 kg placed on either:
 - (A) the chassis rail, no further rearward than X+1855, no lower than the underside of the front chassis rail and must not protrude more than 25 mm from the inner face of the front chassis rail and be equally distributed side to side of the automobile: or
 - (B) the block itself in a position approved by the TA that does not lower the centre of gravity of the block.
- (xiii) The maximum relative density of any material used as ballast is twelve (12).

T10 CYLINDER HEAD/S

- (a) Subject to respecting these regulations and the homologated dimensions, modifications to the cylinder head are free, save for the following:
 - (i) 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.
 - (ii) The original spark plug location must be retained in all respects.
 - (iii) It is permitted to use valves, valve spring retainers and collets manufactured from Titanium alloy.
 - (iv) Valves may only be opened by mechanical action and closed by means of coil springs.
 - (v) For each Ford and Holden Motor Sport engine, the maximum inlet valve diameter is 53.97 mm (2.125 inches)
 - (vi) The minimum inlet and exhaust valve stem diameter is 7.0 mm.
 - (vii) The inlet and exhaust valve heads and stems must be solid.

T11 RECIPROCATING COMPONENTS

- (a) Each reciprocating component is free, except that:
 - (i) No part of the piston may protrude beyond the cylinder head face of the cylinder block when the piston is at TDC.
 - (ii) The minimum weight of each piston, including the piston pin but not including the piston rings or retainers, is 500 grams. Each stem must be solid.
 - (iii) Each connecting rod must be of ferrous alloy.

- (iv) The minimum weight of each connecting rod, including the connecting rod bolts, nuts and washers but not including the “big end” bearings, is 500 grams.

T12 INLET SYSTEM

- (a) The inlet/induction system is free, except that:
 - (i) The engine must be naturally aspirated.
 - (ii) Water injection is prohibited.
 - (iii) Any device which alters the configuration of the manifold, induction system (eg; moveable inlet rams) or exhaust while the engine is operating is prohibited.
 - (iv) Throttle actuation must be exclusively by “butterfly” for any automobile fitted with cylinder heads of material other than cast iron.
 - (v) 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.
 - (vi) 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.
 - (vii) The maximum number of fuel injectors shall be eight.
 - (viii) Each throttle link must be fitted with a return spring, which in the event of a failure in the throttle linkage shall return each throttle to the closed position.
 - (ix) The maximum fuel pressure permitted at any time is 5.5 bar.
 - (x) Only one fuel injector per cylinder is permitted which must inject fuel directly into the side or the top of the manifold or trumpet only.
 - (xi) The only fuel injectors permitted are as follows:

Brand	Model	Part Number
Bosch	351/*363	0280150351/*0280150363
*Bosch 363 injector supersedes Bosch 351 injector.		
Bosch	036	0280150036
Rochester	2014	D04917104988
Rochester	2015	D049171104989
Siemens	F111405	F111405

T13 OTHER ENGINE COMPONENTS

- (a) 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.
- (b) Where a dry sump system is utilised, 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.

- (c) 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.
- (d) Camshafts are free for an automobile with an 'H' pattern gearbox, but not their number and location, which must remain as homologated, nor the maximum valve lift, which is 0.730".
- (e) For an automobile with a sequential gearbox and MoTeC M800 ECU, a control camshaft is required. In this case, the maximum valve lift is 0.710" (0 lash).
- (f) Any device which varies the valve timing whilst the engine is operating is prohibited.
- (g) The crankshaft must respect the homologated crankpin phasing and throw angles.
- (h) The stroke of the crankshaft must be a maximum of 77.22 mm and a minimum of 75.18 mm.
- (i) The minimum crankshaft "big end" journal diameter is 47.45 mm.
- (j) The minimum crankshaft "main" journal diameter is 56.55 mm.
- (k) The minimum weight of any crankshaft is 16.5 kg including the spigot bearing/bush but not including any keys, bolts or other external drive components.
- (l) The flywheel must be made of steel.
- (m) 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 automobile has been derived.
- (n) The ignition distributor may be removed from its original location. The drive for the relocated distributor must be used exclusively by the distributor.

T14 ENGINE SPEED LIMIT

- (a) The engine must not be permitted to produce power above 7500 rpm.
- (b) 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 6800 rpm.

T15 PIT LANE SPEED LIMITER

- (a) Each automobile must be fitted with a functioning pit lane speed limiter (limiter), which must only operate as follows:
 - (i) 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.
 - (ii) The limiter must not operate above 4000rpm.
 - (iii) 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.
 - (iv) The limiter must be activated at all times while the automobile is moving in pit lane.
 - (v) The engine rev limiting function used for the limiter must include a complete ignition cut of the engine.
 - (vi) Once the switch that is used to activate the limiter has been turned off, the engine management system must return immediately to the 7500 rpm limit.

- (vii) 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.

T16 COOLING

- (a) Subject to other parts of this regulation, the cooling system, including the water pump, fans, screens and catch tanks are free.
- (b) 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.
- (c) The cooling system must be arranged so that all of the return coolant from the radiator enters the engine via the cylinder block.
- (d) A replacement radiator may be fitted subject to:
- (i) There being no modification to the bodywork
 - (ii) It being fitted in the same general location relative to the engine
- (e) 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.
- (f) Ducting of air from the rear of the radiator is prohibited.
- (g) 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.
- (h) It is permitted to make the top of the radiator support panel removable solely to facilitate changing the engine.
- (i) 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.

T17 EXHAUST SYSTEM

- (a) Each automobile must be fitted with an exhaust system, to comply with Schedule B of the Motorsport Australia Manual.
- (b) No component of the chassis may be used to evacuate exhaust gases.
- (c) 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:
- (i) Longitudinally, more than 100mm behind the joint where the front bulkhead (which isolates the engine compartment from the cockpit) meets the floor pan.
 - (ii) Laterally, between the inner edges of the sills.
- (d) It is permitted to:
- (i) Remove material from the homologated side skirt/s to permit the protrusion of the exhaust through the skirt.
 - (ii) 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.

- (e) Particular attention should be paid to the retention of the original strength and rigidity of the floor.
- (f) Any modification 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.
- (g) No other component may impinge on the surface defined by the original floor pan.

T18 ENGINE CONTROL

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.

T19 TRANSMISSION

- (a) Each automobile must be fitted with a clutch which, subject to the following requirements is otherwise free.
 - (i) The clutch must only have three (3) driven plates that transmit torque directly to the input shaft of the gearbox.
 - (ii) The clutch must be controlled exclusively by the driver's foot via a mechanical and/or hydraulic actuation system.
 - (iii) The clamping force which acts on the friction surfaces must be derived solely from a diaphragm spring.
 - (iv) 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.
 - (v) The clutch driven plate/s must be a minimum of 180mm in diameter.
 - (vi) The use of titanium and carbon fibre components is permitted.
 - (vii) Any device which allows or facilitates any aspect of clutch operation to be monitored in any way is forbidden.
 - (viii) The force required to disengage the clutch must only be applied towards the flywheel.
 - (ix) The machining of surfaces for the purpose of achieving clutch plate preload is permitted.

T20 GEARBOX

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

Gear	Ratio	Tooth count
1 st	2.57:1	14/33
2 nd	1.99:1	17/31
3 rd	1.66:1	19/29
3 rd (optional)	1.60:1	19/28

4 th	1.35:1	21/26
5 th	1.14:1	23.24
6 th	1.00:1	Constant mesh 22/24

- (c) The gearbox must have an operating reverse gear.
- (d) The input shaft must be in-line with the output shaft.
- (e) The maximum dimension from the cylinder block/timing cover face to the rear of the gearbox casing (excluding the extension housing) must be 1291.5 mm.
- (f) For each automobile with a “H” pattern gear box, each gear must be selected by the driver exclusively, via a non-sequential mechanical linkage which permits an “H” pattern gear change mechanism only.
- (g) For each automobile with a sequential gearbox, each gear must be selected by the driver exclusively via a mechanical linkage which permits a sequential selection device. The use of any electronic, hydraulic or pneumatic selection device or assistance thereto is prohibited.
- (h) The Hollinger RD6H and RD6S are to be used in their entirety and the only modifications permitted are industry accepted polishing and detailing which must not change the basic design or operation of the component being detailed.
- (i) It is permitted to use gears and dogs of a different manufacturer subject to them being identically similar to the original components and complying with the samples held by the CM.
- (j) All replacement parts (other than gears, dog rings, bearings and gear position sensor) shall be required to be purchased through Hollinger Engineering and conform to the parts listed in the gearbox drawing exploded views titled RD6-H and RD6-SF which are held by the CM.
- (k) The gearbox to chassis cross members and mountings are free.
- (l) Dry sump gearboxes using pressurised lubrication systems are forbidden.
- (m) A gear lever mounted switch, which must only provide a gear shift cut signal to the ECU may be fitted. This gear shift cut must only operate above an engine speed of 6250 rpm.

T21 OTHER COMPONENTS

- (a) Except for those matters contained in the relevant Motorsport Australia Automobile Homologation Document, and the gearbox and final drive ratios as listed, all other components of the drive train, including axles are free.
- (b) The final drive must not incorporate any differential action.
- (c) The crown wheel and pinion must be of hypoid design and must conform to the requirements of the final drive specifications contained in the relevant Motorsport Australia Automobile Homologation Document.
- (d) 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.
- (e) 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.

- (f) The use of drop gears are not permitted anywhere in the rear axle assembly.

T22 REAR AXLE ASSEMBLY

- (a) The rear axle assembly is free save for the following:
- (i) The minimum weight of the rear axle assembly is 115 kg which is the unsprung weight of the unit as it would be used in practice, qualifying and racing. This weight shall be measured with:
 - (A) the complete rear wheels removed; and
 - (B) all ancillary components (eg shock absorbers, lateral suspension and anti-sway bar links, electrical wiring, lubrication hoses etc) disconnected at the joint nearest the axle housing; and
 - (C) the longitudinal suspension trailing arms attached at both the body/chassis unit and the rear axle housing; and
 - (D) all pivot arrangements moving freely; and
 - (E) the tail shaft connected at both ends.
 - (ii) The tail shaft must be made of ferrous material.
 - (iii) The tail shaft must have a minimum weight (not including the centre bearing mounting system) of 9.7 kg.
 - (iv) The maximum tube size of the tailshaft shall be 2.25 inches (nominal).
 - (v) Universal (Cardan Joints) or CV joints (Rzeppa CV joints) are the only joints permitted to be used in the tailshaft assembly.
 - (vi) Only two final drive ratios are permitted as per the following:

Circuit	Ratio	Tooth count
Sydney Motorsport Park	3.5:1	35/10
Mallala	3.5:1	35/10
Phillip Island	3.25:1	39/12
Queensland Raceway	3.5:1	35/10
Sandown	3.5:1	35/10
Wakefield Park	3.5:1	35/10
Winton	3.5:1	35/10
The Bend Motorsport Park	3.5:1	35/10

T23 TRACTION CONTROL

- (a) Traction control is prohibited.
- (b) The Chief Scrutineer in their sole discretion, which shall 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.

- (c) 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.
- (d) 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.

T24 SUSPENSION

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

T25 REAR AXLE LOCATION

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

T26 PIVOT POINTS

Each suspension pivot point 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).

T27 ANTI ROLL BARS

- (a) Any anti-roll bar must be of the same basic design as those fitted to the production automobile on which the automobile is based.
- (b) Adjustment of the stiffness of an anti-roll bar from within the cockpit is permitted.
- (c) An anti-roll bar may be mounted to the body shell or to the rear axle housing.
- (d) Each link connecting the anti-roll bar to the suspension or the body shell must be of a fixed length.
- (e) A rocker, which varies the motion ratio between the anti-roll bar and body shell or suspension, is permitted.

T28 SHOCK ABSORBERS

- (a) Each shock absorber is free except that adjustment of any unit from the cabin is forbidden.
- (b) Each shock absorber must function independently of each other, ie no connections are permitted between units.

- (c) Material may be removed from a MacPherson strut tower solely in order to facilitate the use of an adjustable shock absorber.
- (d) Each shock absorber mount 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, each shock absorber mounts must remain fixed as stated in the relevant homologation documents.
- (e) The use of any electronically adjustable shock absorber is forbidden.
- (f) Only one (1) shock absorber per wheel is permitted.
- (g) 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.

T29 FRONT CROSS MEMBER

- (a) 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).
- (b) The suspension pivot points must not be altered from the homologated body shell save for those freedoms allowed in Article T26. The cross-member must utilize the two (2) rear mounting points as provided for this purpose in the production automobile from which the automobile was derived.

T30 REINFORCEMENT BARS

- (a) 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 not being greater than 100mm unless the bar is a transverse strut homologated/approved with the roll bar.
- (b) 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.

T31 ROLL CENTRE ADJUSTMENT

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

T32 RIDE HEIGHT ADJUSTMENT

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

T33 SUSPENSION ADJUSTMENT

- (a) 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.
- (b) The minimum weight of the front upright must be 10.5 kg.
- (c) The weight of the upright shall be determined after disconnecting the upright from the outer joints of the upper and lower wishbones and steering arm. The disc and caliper shall be removed and all of the ducting and electrics shall be disconnected at the closest joint to the upright. The upright weight shall include all mounting bolts, nuts, washers and spacers removed during disassembly of the upright from the automobile.

T33.1 Springing Medium

- (a) The springing medium on each corner of a Car must be ferrous of type coil-spring over damper.
- (b) Only a single linear coil spring per damper will be permitted.
- (c) For the purpose of T33.1(a) above, a linear coil spring is defined as a spring that is wound from a nominally constant diameter wire with an inside diameter that is normally constant for the length of the spring and, when tested, increases in load lineally.
- (d) It is permitted to use bump rubbers as a springing medium.
- (e) The overall spring rate of all springing mediums in the system is free.
- (f) It is not permitted to fit any springing mediums which react the displacement of the damper shaft inside the damper.

T34 WHEELS

- (a) The complete wheel is free provided that:
 - (i) The upper part of the wheel, located vertically over the wheel hub centre, is covered by the bodywork when measured vertically.
 - (ii) The maximum width of the complete wheel is 305mm.
 - (iii) The maximum rim diameter is 17 inches.
 - (iv) The maximum diameter of the complete wheel is 680mm.
 - (v) The minimum weight of any bare wheel is 9kg.
 - (vi) Any measurement must be made with at least 1.8 bar pressure in the tyre.
 - (vii) Where the wheel is fixed using a central nut:
 - (A) a safety clip/spring must be in place on the nut while the automobile is on the track.
 - (B) The clip/spring must be replaced/reset after each wheel change.
 - (C) The clip/spring mechanism must be coloured red or orange.
 - (viii) If using centrelock wheel fixing (single wheel nut) the centrelock spindles and nuts must conform to the following:
 - (A) The centrelock spindle thread must be M72 x 2.5 (left or right hand as appropriate).
 - (B) The angle of any taper where the wheel nut engages with the wheel must be 90 degrees.

- (xi) Brake fans fitted to any wheel are not permitted.

T35 BRAKES

- (a) 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.
- (b) Each Pedal and pedal box is free, and the firewall and/or floor pan may be locally modified only to the extent required to facilitate the fitment of any master cylinder and/or pedal box.
- (c) The complete brake hydraulic system (including calipers, lines and hydraulic cylinders) is free except for the following restrictions:
- (i) The maximum number of pistons in each caliper is restricted to six (6);
 - (ii) Only one (1) brake caliper and two (2) brake pads per wheel are permitted;
 - (iii) No system shall be permitted on an automobile which can retract the caliper pistons for the purpose of pad change.
- (d) Any brake caliper body must only be made of aluminium materials with a modulus of elasticity no greater than 80 Gpa.
- (e) The brake caliper pistons may be made of titanium alloy.
- (f) Each brake rotor (disc) must be made of ferrous metal and conform to the following specifications:
- (i) The maximum brake rotor diameter must not exceed 376mm;
 - (ii) The maximum brake rotor thickness must not exceed 35.56mm.
- (g) 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.
- (h) Any brake caliper incorporating a liquid cooling/recirculating system is prohibited.
- (i) The fitment of a handbrake/brake lock is optional.
- (j) Any brake anti-lock system is prohibited.
- (k) Maximum brake pad thickness must not exceed 30mm.
- (l) The braking system pressure in both front calipers must remain equal at all times.

T36 STEERING

- (a) 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.
- (b) If the original steering column is utilised, the steering lock device must be removed.
- (c) Power steering may be added or deleted.
- (d) Four-wheel steering is prohibited.

T37 ELECTRICAL SYSTEM

- (a) A battery master isolation switch is mandatory and must:
- (i) Disconnect all electrical circuits, battery, alternator, horns, ignition, electrical controls etcetera;
 - (ii) Stop the engine;
 - (iii) Be spark proof and able to be triggered from inside and outside the automobile;
 - (iv) Have the external trigger 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.
- (b) Each automobile may be fitted with power control module/s to perform the circuit switching and protection functions in place of cables, fuses and relays. Only the following power control modules are permitted:

Brand	Model
MoTeC	MoTeC PDM
ADD	IPU Motorsport
PI Research	PCM Hyllus

- (i) The maximum amount of outputs for any one or combined units is 32.
 - (ii) Power control module system configurations may be requested by the TA at any time and this request shall not be subject to protest or appeal.
- (c) The battery and its location are free save that it must not be placed in the passenger compartment.
- (d) The alternator and its drive system are free.
- (e) Each lighting and signalling device 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.
- (f) The starter motor is free except that it must:
- (i) Be exclusively electrically powered;
 - (ii) Engage directly with the flywheel as in the production automobile from which the automobile was derived;
 - (iii) Be capable of starting the engine at all times.
- (g) The starter motor may be mounted in front of, or behind, the flywheel, the ring gear of which must comply with Article T13(m).
- (h) 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.
- (i) A high intensity rain light 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.
- (j) Unless the specific permission is first obtained from the Chief Scrutineer a computer of any description, other than a computer which is an integral part of the automobile, is forbidden to be taken onto the grid by any person at any time.
- (k) It is permitted to replace the front windscreen with a front windscreen incorporating a heating element.

- (l) 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 Chief Scrutineer.
- (m) Unless otherwise specified, each automobile must only be fitted with one (1) of each of the sensors listed below which must only perform the function stated in each of the respective Regulations, and no other sensors are permitted. The sensors listed are in addition to any other switches, carrier detect signal for telemetry or any sensors specifically required or approved by the Chief Scrutineer. The data gathered from the sensors listed may then be recorded, displayed or transmitted by any means permitted under these regulations.

(i) Engine sensors

Crankshaft position	Oil temperature
Camshaft position	Fuel pressure
Throttle position x2 (*see note below)	Fuel temperature
Coolant temperature	Fuel usage x 2
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.

(ii) 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	Crankcase pressure
Brake master cylinders travel (external linear or rotary sensors only)	Anti roll bar position (front and rear)

- (n) 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.
- (o) At any time only the following signals may be sent to or from an automobile:

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

T38 BODYWORK

- (a) The following regulations apply to the homologated body shell, including bodywork:
- (i) Each bodywork and body shell panel/component must remain unmodified and must be of the same shape, material and thickness as the production automobile on which homologation is based. An exception being that composite glass/fibreglass front guards may be fitted to any automobile.
 - (ii) Specific modifications to the body shell panel/components are allowed only to the extent permitted under these regulations.
 - (iii) 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.
 - (iv) Any repair work must conform to all requirements in these regulations.
 - (v) 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.
 - (vi) Weld flanges may be removed from the front chassis rails and the joint butt welded.
 - (vii) Reinforcement of the body shell using carbon fibre composites shall be restricted to internal cockpit surfaces only, and the maximum thickness of any reinforcement in this area shall be 4mm, excluding the thickness of the parent metal.
 - (viii) 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.
 - (ix) No body cavity 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.
 - (x) Notwithstanding the above, reinforcement of the floor by carbon fibre composites is prohibited.
 - (xi) Any non-metallic insulating and/or sound deadening material may be removed.
 - (xii) 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.

T39 EXTERIOR

- (a) Any homologated aerodynamic aid and exterior component, which may be of composite carbon fibre construction, must be identical to the samples held by the Chief Scrutineer, and be used exclusively and in their entirety.
- (b) 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.
- (c) The rear spoiler “wing” must be the same type and shape as was present when the automobile was originally homologated.
- (d) 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 hole in the exterior bodywork may be closed or sealed by the use of adhesive tape only.
- (e) 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.
- (f) Any external decorative strip, the maximum vertical height of which is less than 25mm, may be removed.
- (g) 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.
- (h) Each external air line fitting must be located in or near the “B” pillar and must be recessed so that it is 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.
- (i) Each external light with a lense 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.
- (j) Headlamp covers may be fitted solely to protect the headlamp glass and must effect no improvement to the automobile’s aerodynamic efficiency.
- (k) The registration plate mountings may be removed.
- (l) In order to comply with the requirements of Article T34(a)(i), the mudguard sheet metal may be “stretched” by the minimum amount necessary to give 10mm clearance on the tyre whilst respecting the homologated body width.
- (m) Any component which acts as a vibration insulator (eg; engine mount, gearbox mount, and cross-member mount) may be replaced with a component of similar dimensions and free material.
- (n) Any original closing mechanism 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. Each fastener must be of adequate strength and limited extensibility which must simultaneously hold the bonnet and boot lid closed.
- (o) The front windscreen must be of laminated glass and the rear windscreen must be of toughened glass material, or alternately, the front and rear windscreens may be of polycarbonate material in accordance with the following requirements:

- (i) the thickness must be 6mm \pm 5% (the measurement does not include any tear off or base coat); and
- (ii) the shape must conform to that of the make and model of the base automobile; and
- (iii) the front and rear windscreens must be connected to the chassis by a minimum of:
 - (A) bonding using a suitable bonding agent; and
 - (B) four (4) M6 bolts, one in each corner of the windscreen; and
 - (C) A vertical brace in the centre of the front windscreen with tensioning capability.
- (p) If as a result of damage, it is necessary to remove the front windscreen a replacement front windscreen must be fitted. The fitment and retention of the replacement windscreen must be inspected by the TD prior to that automobile being allowed to re-join the Circuit.
- (q) It is permitted to fit tear offs to the front windscreen.
- (r) It is permitted to fit a brace as detailed in the relevant VSD to the rear windscreen.
- (s) Any tool necessary for the removal of the front or rear bumper bar must be securely attached to the passenger side anti intrusion bar.
- (t) Each automobile must be equipped with at least one (1) front and one (1) rear towing eye and comply with Schedule B of the Motorsport Australia Manual.
- (u) 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.

T40 COCKPIT

- (a) Each seat must be fitted in accordance with the requirements of Article 253 of Appendix J to the ISC of the FIA. The mounting of the seat/s directly to the ROPS or dedicated integral replacement seat anchorage points is highly recommended.
- (b) Any replacement driver's seat must be located as specified in the relevant VSD.
- (c) The driver's seat and any seat used by a passenger in any Rides session must be of a type homologated by the FIA to the 8855/1999 or 8862/2009 standard. The validity of the seat shall expire on December 31, five (5) years after the expiry date shown on the seat. The seat must be inspected during the normal inspection process. Each competitor must inspect and replace any damaged or worn seat before any competition as required.
- (d) Any carpet, 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.
- (e) The original heater and/or air conditioning unit may be removed together with its associated equipment.
- (f) Any pipe 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. Any pipe carrying fluids to authorised accessories, e.g. power steering, may have connections within the cabin.

- (g) 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 automobile's "C" pillars.

T41 DASHBOARD

- (a) Any component 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.
- (b) The centre console may be removed.
- (c) Instruments are free, but only the minimum modifications necessary may be made to the dashboard to facilitate the fitting of instruments.

T42 DOORS

- (a) 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.
- (b) Polyurethane foam may be added to the door cavity of the driver's door. It is highly recommended that both front and rear doors located on the Driver's side are fitted with a side impact protection device as detailed in Schedule G4 of Division G of the Supercars Operations Manual.
- (c) The window regulator mechanism may be removed from each door.
- (d) The inner door panels may be removed from each door except for the driver's door.

T43 REAR VISION MIRRORS

- (a) Each automobile must be fitted with at least two (2) rear vision mirrors which have a reflecting surface of at least 50cm², and each mirror must provide an unobstructed view to the rear of the automobile.
- (b) One such mirror must be fitted internally and at least one fitted externally on the driver's side of the automobile.

T44 TAIL SHAFT LOOPS

- (a) 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 shall be effectively prevented from contact with the ground.
- (b) Each tail shaft loop must be made of steel strap of 30mm x 5mm minimum and be securely attached to a reinforced area of the body shell.

T45 ADDITIONAL ACCESSORIES

- (a) Any accessory which has no influence on the automobile's behaviour is allowed, for example equipment which improves the aesthetics or comfort of the automobile's interior (lighting, heating etc). In no case may any accessory increase the engine power or influence the steering, transmission, brakes or road holding even in an indirect fashion.
- (b) The horn may be removed or replaced.
- (c) Other than the coachwork/bodywork, and the homologated aerodynamic aids, no part of the automobile is permitted which, in the opinion of the Chief Scrutineer, actually or potentially increase down force, and no appeal or protest shall lie against the written opinion of the Chief Scrutineer in this regard.
- (d) With the exception of clutch fluid reservoirs, windscreen washer bottles, drivers drink bottles and driver cool suits, all fluid reservoirs must be mounted outside of the cockpit.

T46 WINDOWS

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 colored or tinted.

T47 FUEL TANK

- (a) Each automobile must be fitted with a safety fuel cell conforming to the FIA specification FT3, FT3.5 or FT5.
Note: The validity of these fuel cells expires five (5) years from the date of manufacture shown on the fuel cell. Additional two (2) year extensions may be granted provided the fuel cell inspection is carried out as per Schedule N of the Motorsport Australia Manual.
- (b) A fuel tank may only be mounted either side, under or through the floor of the luggage compartment.
- (c) No part of the fuel tank may be situated forward of the rear axle centre line.
- (d) Any opening in the fuel tank must be located in the top surface of the tank.
- (e) The fuel tank must be vented externally of the bodywork.
- (f) The total capacity of the entire fuel system must not exceed 120 litres.
- (g) Any gap between the fuel cell and its housing must be filled with semi rigid energy absorbing material such as polyurethane
- (h) A fuel collector pot of free design and material with a maximum capacity of eight (8) litres is permitted.
- (i) 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.
- (j) 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.

T48 SAFETY EQUIPMENT

- (a) Each automobile must be fitted with a fire extinguisher system which complies with the requirements of Article 253 of Appendix J in the ISC of the FIA.
- (b) In addition to the following each fire extinguisher system must be:
 - (i) A minimum of 4.0 litres in capacity or 2.25kg's of gaseous extinguishant
 - (ii) Fitted as per manufacturer's instructions
 - (iii) Mounted in the following way:
 - (A) On the left hand side of the rear passenger's seat floor
 - (B) Between the tail shaft tunnel and the left hand rear upper trailing arm box
 - (C) No further forwards than the start of the horizontal section of the rear passenger's set floor
 - (D) With the height being determined by the location of the fire extinguisher on the unmodified original panel.
- (c) Each automobile must be fitted with a safety harness for each seat fitted in the automobile. The safety harness/s must comply at least with the requirements of Schedule I of the Motorsport Australia Manual.
- (d) The safety harness of any automobile involved in any accident must be inspected by the Chief Scrutineer at the relevant event. If appropriate, the Motorsport Australia Log Book shall be endorsed with a requirement by the Chief Scrutineer that the safety harness be replaced. At the automobile's next event, the Chief Scrutineer must be satisfied that the safety harness has been replaced.
- (e) Each automobile is 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. Each window net must comply with Schedule I of the Motorsport Australia Manual.
- (f) Each automobile must be fitted with roll over (safety cage) protection in accordance with Schedule J of the Motorsport Australia Manual.