

## SPECIFICATIONS OF AUTOMOBILES

3rd Category – Touring Cars

Group 3J – Improved Production Cars

CONFEDERATION OF  
AUSTRALIAN MOTOR SPORT

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Modified Article	Date of Application	Date of Publication

**National Association:** Improved Production Racing Association of Australia (IPRA)

**National Administrator**

Mr Garry Mennell

4/21 Walker Street, South Windsor NSW 2756

Tel: (02) 4577 2779 (bus.) / 0407 272 165(mobile)



**ALL AUTOMOBILES IN RACES AND OTHER SPEED EVENTS MUST COMPLY WITH THE GENERAL REQUIREMENTS OF AUTOMOBILES (SEE “GENERAL REQUIREMENTS FOR CARS AND DRIVERS” IN THE CAMS MANUAL**

**PREAMBLE**

Improved Production has been adopted by CAMS as a sporting-level touring car category. CAMS is ultimately responsible for the approval of the regulations or changes thereto, and responsible for publishing the regulations via the CAMS Manual and associated Bulletins as necessary. The Improved Production Racing Association of Australia (IPRA) is recognised by CAMS as the sole entity representing competitors in this category. The IPRA is the category representative group which is made up of a representative from each of the CAMS and IPRA-affiliated Improved Production state associations.

The IPRA is recognised by CAMS as the sole entity which may make recommendations regarding maintenance of and/or proposed changes to technical regulations for this category and/or sporting regulations for the conduct of competition activity for such Automobiles. CAMS will consult with the IPRA exclusively regarding the maintenance and/or proposed changes to the technical and sporting regulations. The IPRA will be responsible for consultation processes within its membership and with other interested parties as may be appropriate from time to time.

Each Automobile shall conform to the General Requirements of Automobiles as laid down in the CAMS Manual and these regulations.

**1. DEFINITIONS****1.1 IMPROVED PRODUCTION CAR**

- (a) A competition automobile derived from a registered production automobile, with limited modifications to improve performance and reliability in race or speed events on circuits or other licensed tracks. To be eligible, the models of automobiles must be or have been mass-produced touring cars, the model of which has been:
- (i) Homologated by the FIA in Group A. Sporting Evolutions (ES) and Variant Options (VO) shown in the FIA homologation papers shall not be eligible unless provided for in 1.1(a)(i) or 1.1(a)(iii) below; or
  - (ii) Commercially available to the general public in Australia as new cars through a manufacturer's dealer network. At least 200 such models must have been registered for road use in Australia; or
  - (iii) Otherwise recognised by CAMS, at its sole discretion, for Group 3J. In general, such cars will be available on a large scale, possibly as an imported used car. The interior dimensions shall comply with the homologation requirements of FIA Group A. Prospective competitors desiring

to use such cars must provide information regarding the number registered for road use in Australia, and a basic recognition document containing all such technical details, photographs and other specifications as may be required by CAMS. The AMRC will be the final arbiter of acceptance or otherwise of any model.

#### LIST OF APPROVED MODELS

<b>Mitsubishi Mirage Cyborg</b>	
<b>Nissan Silvia S 13</b>	(turbo and naturally aspirated)
<b>Nissan 200SX S14</b>	
<b>Nissan 200SX S15</b>	
<b>Nissan Skyline R32</b>	(GTS, GTS4, GTS-T, all either 2-door or 4-door body)
<b>Nissan Skyline R33</b>	(GTR, 2-door)
<b>Nissan Skyline R33</b>	(GTS, GTS4, GTS-T, all either 2-door or 4-door body)
<b>Nissan Skyline R34</b>	(GTS, GTS4, GTS-T, all either 2-door or 4-door body)
<b>Nissan Skyline R34</b>	(GTR, 2-door)

- (b) Group 3J (b): A car of a model manufactured after 1 January 1986 and which was first issued with a log book after January 2004 shall comply with Article 17 in addition to the preceding articles and be recognised as such. A competitor with an Automobile manufactured after 1 January 1986 but which is subject of a log book first issued prior to 2004 as a Club/Improved Production Automobile may choose to comply with Article 17 and compete as a Group 3J (b).

#### 1.2 COACHWORK

All entirely sprung parts of the Automobile in contact with the external air stream, except the parts definitely associated with the mechanical functions of the engine, transmission and running gear.

#### 1.3 WHEEL

This means the complete wheel including flange, rim and tyre and any additional fittings

#### 1.4 AUTOMOBILE MAKE AND MODEL

Automobiles manufactured by the same company but under a different brand name are considered to be the same make, e.g. Nissan/Datsun, Mazda/Eunos and Toyota/Lexus etc. Any component fitted to a production Automobile will be regarded as belonging to that manufacturer of that Automobile irrespective of the actual source of manufacture. Manufacturers are not considered to be the same solely by virtue of having a common parent or holding company. Model refers to a member of the same family of Automobile as produced by the manufacturer.

#### 1.5 ENGINE CAPACITY

The Swept Volume shall be the volume swept by the movement of the pistons/rotors in one revolution of the crankshaft. The Effective Capacity shall be the product of the Swept Volume and an equivalence factor dependent on the engine configuration. This volume shall be expressed in cubic centimetres. The equivalence factors shall be:

<b>Piston engine – normally aspirated</b>	1.00
<b>Piston engine – supercharged</b>	1.70
<b>Rotary engine – normally aspirated</b>	1.80
<b>Rotary engine – supercharged</b>	3.06
<b>Piston diesel – supercharged</b>	1.50

## **1.6 TRACTION CONTROL**

Traction and/or Stability control is defined as any form of program, device, system or mechanism for the purpose or effect of preventing or limiting loss of traction. The direct control of the throttle position or brakes as effected by the driver does not fall within this definition. Traction control limitations do not apply to limited slip or locking differentials of any kind.

## **1.7 AUTOMATIC TRANSMISSION**

Automatic transmissions are defined as being transmissions that use a fluid coupling instead of a friction plate clutch system.

## **1.8 ELASTOMERIC BUSHINGS**

Suspension components utilising an elastomer (e.g. rubber, polyurethane) to permit freedom of movement in three axes at suspension pivot points. Where the bush incorporates an outer metal shell and/or central crush tube, they shall be regarded as part of the bushing. Where the bushing is integral with the arm or other secondary component, only the elastomer material shall be regarded as the bushing for replacement purposes.

## **1.9 ROTARY ENGINE**

Engines with rotary (rather than reciprocating) motion of the compressing medium (Wankel-type). A rotary engine is defined as the rotor housings, intermediate and end plates.

## **1.10 PERIPHERAL PORT**

A port on a Rotary Engine allowing the passage of gasses though the periphery of the rotor housing. Any bridged induction port in the end or intermediate plates of a rotary engine that is extended radially beyond the original outer edge of the inner water seal is, for the purposes of these regulations, considered to be a peripheral port.

## **1.11 DECORATIVE STRIPS**

Any parts following the external contour of the bodywork and less than 100mm high, the function of which is to prevent minor body damage or is decorative. Badges describing the Automobile manufacturer and/or model are considered to be within this definition.

## **1.12 TELEMETRY**

The transmission of data from a moving Automobile. A timing transponder required by regulation shall not be regarded as telemetry.

## **1.13 MINOR RESHAPING**

Reshaping of existing material. This excludes the addition, replacement or removal of material and must not result in a loss of integrity of the panel.

## **1.14 FREE**

A component, deemed to be free under these regulations may, where fitted to the Automobile as standard, be removed or replaced. Where the removed component is replaced, the replacement is not restricted in design or material (unless otherwise specified) providing it performs only the same function. No modification may be made to surrounding components or body-work to which the replacement is fitted, unless otherwise permitted. Where freedom is granted for the fitment of any component, such freedom is restricted to that component and such modifications as are allowed in Article 3.17. For the purpose of this article, a component shall be deemed to include all other components with which it is integral, or to which it is attached by means the manufacturer intended to be permanent. Where a system is deemed as free, all components solely associated with that system are regarded as free, as per above.

## **1.15 LATE MODEL AUTOMOBILE**

An automobile of a model manufactured after 1/1/86, and complying with Articles 17.2 - 17.10.

## **1.16 HATCHBACK**

Any automobile on which the rear window is attached to a rear facing door or hatch.

## **1.17 MECHANICALLY IDENTICAL COMPONENT**

- (a) A component which performs exclusively the original function/s in the same manner as foreseen by the manufacturer and which permits the attachment of any secondary components in the original manner and without modification of that component.

- (b) The following list details the components that are permitted to be replaced with a Mechanically Identical Component in which case supply of such a component is not restricted:

<b>Decorative trim, including grill inserts</b>
<b>Electric motors for accessory components</b>
<b>Window opening mechanisms</b>
<b>Windscreen wiper arms and motor/s</b>
<b>Tail lamp assemblies</b>
<b>Indicator lamp assemblies</b>

- (c) The following list details the components that are permitted to be replaced with a Mechanically Identical Component which must be of the same material as the original (i.e. steel for steel, glass for glass) in which case supply of such a component is not restricted:

<b>Window glazing</b>
<b>Body panels</b>

## **2. REGULATIONS**

### **2.1 ROLE OF CAMS**

The technical regulations for Group 3J Improved Production Cars are issued by CAMS and must be read in conjunction with the relevant Schedules of General Requirements for Cars and Drivers in the CAMS Manual.

### **2.2 PUBLICATION DATE FOR AMENDMENTS**

Each year in January at the latest, CAMS will publish all changes made to these regulations in the CAMS Manual of Motor Sport. Changes made for safety may come into force without notice. Rule changes are effected by a ballot of all registered members of the Improved Production Racing Association of Australia and a two-thirds majority is required to effect a change. CAMS reserve the right to alter regulations at its discretion.

### **2.3 PERMANENT COMPLIANCE WITH REGULATIONS**

Automobiles must comply with these regulations in their entirety at all times during an event, save through any damage or malfunction sustained in competition.

### **2.4 LOG BOOK/ELIGIBILITY**

The Competitor is responsible for furnishing any documentation to prove the eligibility of any part used or modification performed otherwise outside of these regulations.

### **2.5 LIMITATIONS TO MODIFICATIONS**

The entire Automobile must remain unmodified except for specific freedoms allowed in these regulations and modifications necessary to comply with "General Requirements for Cars and Drivers".

## **3. BODYWORK AND DIMENSIONS**

### **3.1 STRENGTHENING**

It is permitted to seam weld the bodyshell. Metal to a thickness of up to 5mm may be added to fully sprung components to a distance of 75mm from the edge of each suspension pivot point aperture. Such metal must follow the contour of the original metal at all times. It is not permitted to add or incorporate any other components which contribute to the rigidity of the bodyshell, other than the safety cage structure as described in Article 14.1, and a strut tower brace as described in article 9.7.

### **3.2 TRANSMISSION TUNNEL**

Minor reshaping of the body is permitted to enable fitment of replacement gearboxes and clutch assemblies.

### **3.3 GEARSHIFT HOLE**

It is permissible to cut or enlarge a hole in the floor, of the minimum necessary dimensions, for the gearshift and associated mechanism. At all times, there must be some form of covering around the gearshift to prevent the ingress of material into the cockpit.

### 3.4 WHEEL ARCH FLARES

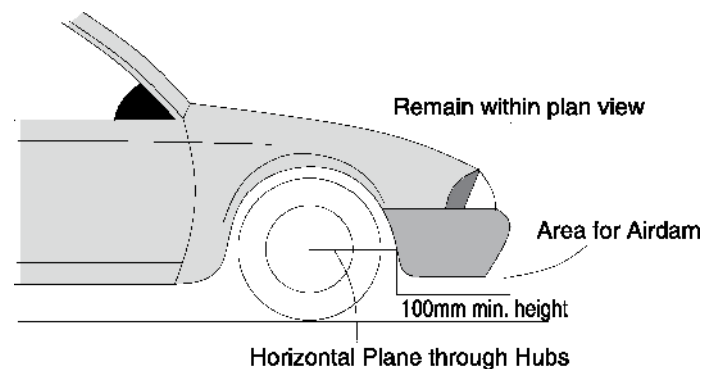
It is permitted to add wheelarch flares, provided that the increase in the total width of the coachwork is less than 100mm, as measured above the corresponding wheel centrelines. No part of the flare is permitted to extend further than 200mm from the original wheelarch opening. The operation of any door must not be affected.

### 3.5 TYRE CLEARANCE

For the purpose of wheel and tyre clearance, minor reshaping of impinging bodywork is permitted. Where a wheelarch flare is fitted in accordance with article 3.4, it is permitted to remove up to 75mm of original bodywork measured radially from the edge of the wheel arch outwards. A maximum of 10mm of the cut edge may be reformed into a folded-over beading. Any cavity exposed in a door or rear wheel arch through the removal of metal must be covered by the addition of a metal closing panel. Any body joint protrusions must be rendered safe. The operation of any door must not be affected.

### 3.6 FRONT SPOILERS/AIR DAMS

It is permitted to fit an airdam to the front of an Automobile, subject to the following restrictions (see diagram 1):

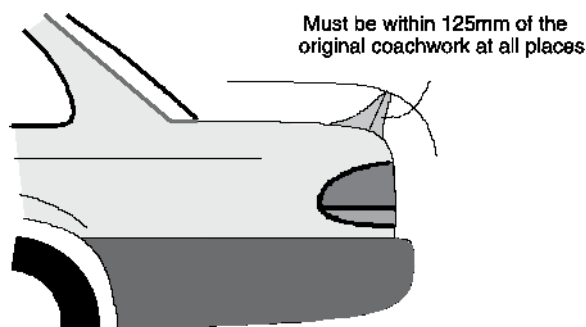


**DIAGRAM 1**

- (i) It is completely contained within the vertical projection of the original Automobile, including permitted flares;
- (ii) No part shall be below a horizontal plane passing through the centre of the wheel hubs at their extremities;
- (iii) Shall not extend further rearward than the wheelarch opening at the forward point where it intersects this plane;
- (iv) No part above a horizontal plane passing through the centre of the wheel hubs shall extend into the wheelarch opening; and
- (v) Any undertray fitted to the airdam and located further than 50mm from the extremity of the airdam shall be flat, and parallel to the Automobile sills and shall be regarded as part of the front airdam.

### 3.7 REAR DECK SPOILERS

It is permitted to fit a rear deck spoiler which complies with the following (see diagram 2):



**DIAGRAM 2**

- (a) It was supplied as standard with the particular model of Automobile as sold in Australia OR it must comply with the following:
- (i) No part of it is further than 125mm from the nearest original bodywork, and it does not exceed the standard width of the bodywork excluding any flaring of the mudguards;
  - (ii) Must comply with the CAMS definition of a spoiler (refer CAMS Manual Definitions - Technical);
  - (iii) Shall not extend rearwards of the rearmost extremity of the coachwork including the bumper bar;
  - (iv) Shall not be fitted above the rear window or on the roof; and
  - (v) No part of the spoiler may extend any further forward than the centre line of the rear axle.

### **3.8 REAR DECK WING**

Where the particular model of Automobile as sold in Australia was supplied as standard with a rear deck wing/aerofoil (refer CAMS Manual Definitions - Technical), a rear deck spoiler as per article 3.7 may not be fitted.

### **3.9 AERODYNAMIC AIDS**

Any specific part of the Automobile influencing its aerodynamic performance fitted, as specified in 3.5 to 3.8 above:

- (i) may not be used for any additional or alternative functions, e.g., for mounting an oil radiator;
- (ii) must be rigidly secured to the entirely sprung part of the Automobile (rigidly secured means not having any degree of freedom); and
- (iii) must remain immobile in relation to the sprung part of the Automobile.

### **3.10 AUTOMOBILE EMBELLISHMENTS**

External decorative strips and mud flaps may be removed. Sump guards/splash guards may be removed or added. If sump/splash guards are added and they are in contact with the external airstream, they must be perforated with 50mm diameter holes with centres of maximum 150mm apart. No part of any additional or replacement sump/splash guard may extend to the rear of the rearmost point of the engine block or rear rotor end plate.

### **3.11 REGISTRATION PLATES**

Registration plates, registration plate mountings and associated lighting components may be removed.

### **3.12 SOUND DEADENER**

Sound deadener (bitumen and fabric types etc.) may be removed from the body shell and hung panels.

### **3.13 WINDSCREEN, WINDOWS AND MIRRORS**

- (a) The windscreen must be of laminated glass, and may incorporate defrosting equipment.
- (b) External rear view mirrors may be replaced or deleted, provided that Schedule C (refer CAMS Manual General Requirements for Cars and Drivers ) is respected at all times.

- (c) Each other window, and fixing, must be retained save that it may be replaced with a Mechanically Identical Component.

### **3.14 FUEL FILLER APERTURE**

It is permissible to make a hole in the bodywork of minimum necessary dimensions for access to inspection plates or fuel fillers in replacement fuel tanks when fitted subject to article 5.2. Under no circumstance may the access hole exceed 300mm in any dimension.

### **3.15 BONNET & BOOT CATCHES**

The original bonnet & boot fasteners and release mechanisms may be removed.

### **3.16 WINDOW REGULATORS**

Where an Automobile is fitted with electric window regulators, it is permitted to replace them with manual window regulators and, where necessary, door trims from the same family of Automobile. Electric door lock actuators must be removed or rendered inoperative.

### **3.17 GENERAL**

Holes may be drilled for fasteners, e.g. bolts, screws, rivets etc. Holes of the minimum necessary dimension are permitted to be made for the passage of wiring and fuel, brake, oil and intercooler lines/hoses.

### **3.18 TIMING DEVICE**

It is permitted to remove the minimum amount of metal necessary to facilitate fitment of a timing transponder to the upper surface of the cockpit floor.

### **3.19 BRACKETS**

Unused brackets/supports attached to the chassis/bodywork can be removed, unless they are supports for mechanical/suspension components that are not permitted to be moved or removed.

### **3.20 FLOORPAN**

- (a) It is permitted to modify the floorpan in the immediate area of the driver's seat, to permit the fitment of a replacement seat. No part of the modified bodywork may extend any lower than the surrounding bodywork.
- (b) To facilitate the fitment of a pedal box minor reshaping, as described in Article 1.13, and reinforcement of the original floor pan in the area of the drivers footwell cavity is permitted, provided such reshaping or reinforcement serves no other function.

### **3.21 DOOR ANTI-INTRUSION BARS**

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

### **3.22 JACKING POINTS**

It is permitted to strengthen the jacking points on the bodyshell and /or add new jacking points provided that each jacking point does not exceed an equivalent surface area of more than 150mm x 150mm. The use of an air jack system is free provided no compressed gas is carried aboard.

### **3.23 FASCIA**

- (a) It is permitted to replace each front and rear bumper bar fascia in accordance with the following:
- (i) Where the original bumper fascia being replaced is constructed of metallic or alloy material, the replacement item must be identical in both dimensions, shape and design of the original.
  - (ii) Where the original bumper fascia is constructed of non-metallic material, each replacement item must be identical to the original when viewed from above and be completely contained within the perimeter of the original automobile.
  - (iii) Each replacement bumper fascia may not expose any bodywork or components that were not exposed when the original bumper fascia were fitted to the automobile.
  - (iv) Any undertray incorporated into the replacement front fascia must comply with the requirements of articles 3.6(ii) to 3.6(iv) inclusive.
  - (v) The material of each replacement bumper bar fascia is free. Each mounting bracket and reinforcement not integral with the original bumper bar fascia must be retained.



- (b) It is permitted to add a mechanism for the quick release of the front bumper fascia. Such mechanisms must not project more than 10mm from the surrounding coachwork, and must serve no other purpose.

## 4. ENGINE

### 4.1 GENERAL

Subject to the limitations contained in 4.2 and 4.3 below, the engine and components directly associated with its function are free. The crankshaft centreline as viewed from above must be parallel to that of the original engine.

### 4.2 BLOCK

- (a) The block must have the same number of cylinders/rotors and the same configuration as was standard or available as a manufacturer's option for that particular model (e.g. in line, horizontally opposed).
- (b) The block must be from the same manufacturer (e.g. Ford, GMH, and Nissan) as the original Automobile.
- (c) The cylinder block must either be:
- (i) derived from an eligible Automobile as detailed in Article 1.1; or
  - (ii) derived from the same family of engines as an eligible Automobile using identical internal dimensions (with differences only in transmission mounting pattern, minor external casting differences etc.). The block type must be clearly identifiable, i.e. Nissan SR20DE, SR20DET, Holden Family II, Toyota 4AG series etc. The derived block must be identifiable as being from a mass produced Automobile, not exclusively developed for sporting evolution models produced for homologation purposes in small numbers for competition use only. CAMS will be the final arbiter in determining the eligibility of a block.
- (d) CAMS reserves the right to add any engine block at its discretion.

### 4.3 ROTARY ENGINES

A reciprocating engine may be interchanged with a twin rotor rotary engine from the same manufacturer in the following Automobiles: Mazda 1200 coupe, Capella, 808, 929 (pre-1978), 121 (RWD).

- (a) A rotary engine may utilise peripheral porting but only in the following installations:

<b>1200 Coupe / R100</b>	10A only
<b>Capella / RX-2</b>	12A only
<b>808 / RX-3</b>	10A or 12A
<b>929 (pre-1978) / RX-4</b>	12A or 13B
<b>121 (RWD) / RX-5</b>	13B only
<b>RX-7 (series 1,2 and 3)</b>	12A only
<b>RX-8</b>	13B only

- (b) The rotor housings, intermediate and end plates shall be identifiable as mass produced Mazda items. Only engines identified as 10A, 12A or 13B are permitted. Such engines must not be exclusively from evolution/racing models.

### 4.4 ENGINE MOUNTS

Engine mounts are free.

- (a) The engine mounting points on the bodyshell may be removed, modified or added to facilitate engine fitment. There must be no other alterations made to the body to fit a replacement engine except for minor reshaping of panels, other than the bonnet, for the fitment of engine mounted ancillaries and exhaust.
- (b) Engine mounting brackets bolted or welded to the Cross member or Sub frame may be removed, modified or added to facilitate the installation of a replacement engine. No other modifications to the Cross member or Sub frame may be made in order to provide clearance for the replacement engine.



- (c) It is permissible to reverse the orientation of the engine Cross member or Sub frame provided no alteration to the bodywork or Cross member or Sub frame is necessary.
- (d) Where a replacement engine from another eligible model is fitted, the Cross member or Sub frame from the block's donor Automobile may be used provided that it is a direct bolt in replacement, and no modifications to the bodywork or replacement Cross Member are required.

#### 4.5 SUPERCHARGING

Supercharging is permitted under the following conditions:

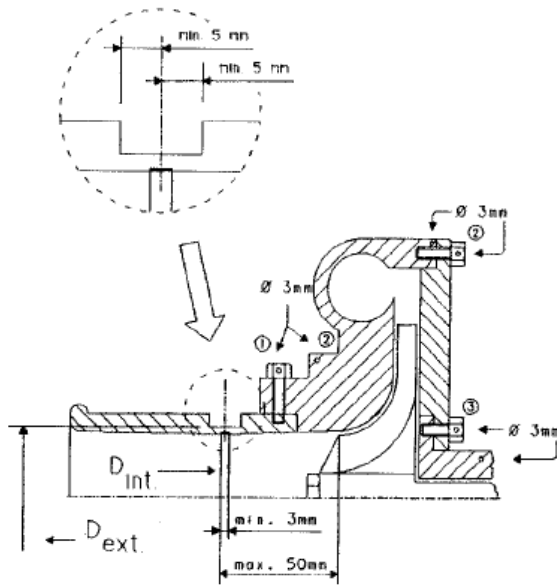
- (a) If a supercharger/s is recognised as standard production for the model, and all the following conditions are met, the restricting orifice referred to in 4.5(b) need not be fitted;
  - (i) All components associated with the induction system must remain operable, in situ, and unmodified;
  - (ii) There are no additional components associated with the induction system fitted;
  - (iii) Maximum inlet pressure and engine static compression ratio must remain in accordance with the manufacturer's specifications for the Automobile;
  - (iv) The engines swept volume is not varied from standard by more than 2%;
  - (v) A boost monitor, as specified by CAMS, is fitted.
- (b) Where a supercharging system is not recognised for an automobile, or where an automobile recognised with a supercharging system does not comply with 4.5(a), or where otherwise the automobile is defined as a Late Model Automobile the following conditions are applicable:
  - (i) A restricting orifice must be fitted to the inlet tract/s prior to the air entering the supercharging device/s so that all air used in the combustion process of the engine must pass through the orifice/s.
  - (ii) The maximum diameter of the restricting orifice/s must be complied with at all temperatures.
  - (iii) For Automobiles utilising a turbine type compressor, the restrictor must be fitted as per Drawing 1 – Restrictor Fitment below, save that the maximum internal diameter of the air intake into the compressor is to comply with the Restrictor for Automobile Weight Table below.
  - (iv) For Automobiles utilising other types of superchargers, the upstream extremity of the restriction must be situated a maximum of 50mm from the upstream extremity of the moving compressing media and be maintained for a distance of at least 3mm downstream, save that the maximum internal diameter of the air intake into the moving compressing medium is to comply with the Restrictor for Automobile Weight Table below. Multiple supercharger installations are only permitted when fitted as standard to the model concerned whereupon the original number and type of supercharging device shall be retained.

#### RESTRICTOR FOR AUTOMOBILE WEIGHT TABLE

Applicable for each automobile regardless of driven wheel type (i.e. 2WD, RWD, 4WD)

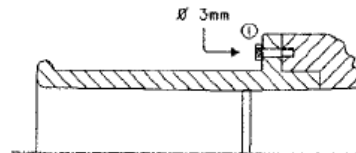
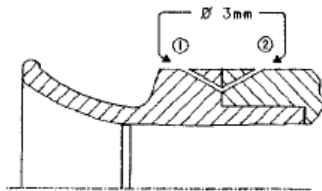
<b>Single Supercharging Device</b>	
<b>Maximum restrictor internal diameter (mm)</b>	<b>Automobile Racing Weight* (kg)</b>
36	up to 1225
37	1226 to 1325
38	1326 to 1425
39	1426 and over.
<b>Multiple Supercharging Device – fitted to each device</b>	
<b>Maximum restrictor internal diameter (mm)</b>	<b>Automobile Racing Weight* (kg)</b>
27	up to 1450
28	1451 and over
<b>NOTE:</b> * - refer to CAMS Manual, Definitions - Technical	

## DRAWING 1 – RESTRICTOR FITMENT



- ① hole for restrictor or restrictor/compressor housing
- ② hole for compressor housing or housing/flange
- ③ hole for central housing or housing/flange

### Other possibilities



## 4.6 TELEMETRY

The use of telemetry is forbidden.

## 4.7 EXHAUST

The complete exhaust system is free downstream of the exhaust port (save for an automobile which is supercharged by a turbocharger compliant with 4.5(a) where the exhaust is free from the exit of the turbocharger) provided it complies with Schedule B (refer "General Requirements for Cars and Drivers"). The original exhaust mounting brackets may be removed and additional brackets may be fitted, provided that their sole function is the location of the exhaust.

## 5. PIPING AND FUEL TANKS

### 5.1 FUEL TANKS

Each fuel tank shall comply with CAMS Manual Schedule N.

### 5.2 TANK FILLERS

The position of the tank filler is free, subject to Article 3.14. Dry break fittings are permitted. Tank fillers must not protrude beyond the bodywork and must be effected in such a way that no fuel spilt in the filling process will leak into the interior compartments of the Automobile. If the filler hole is situated inside the Automobile, it must be separated from the cockpit by a liquid tight bulkhead. Where retained, the standard filler orifice may be modified to accept a replacement cap of free design. Tank fillers must be designed to ensure an efficient closing action which reduces the risk of accidental opening following a crash impact.

### 5.3 FUEL PUMPS/FILTERS

Fuel pumps, fittings, fuel lines and filters are free. Where the fuel lines pass through the cockpit, there must be no connections within the cockpit save at the front and rear bulkheads.

## 6. COOLING/OIL SYSTEM

### 6.1 RADIATOR

The radiator is free providing that the only body modification required for fitment is the drilling of holes for mounting purposes.

### 6.2 RADIATOR COWL/SHROUD

Radiator cowls/shrouds on the rear of the radiator for the purpose of sealing a fan may be removed. Radiator cowls in front of the radiator must be retained in their entirety. It is permitted to add additional shrouds or ducting.

### 6.3 ENGINE COOLING FANS

Engine cooling fans are free.

### 6.4 OIL COOLERS

Oil coolers are free subject to Regulation 3.9.

### 6.5 INLET CHARGE AIR COOLING

Devices for the cooling of the inlet air in Supercharged systems in accordance with Article 4.5(b) are permitted.

## 7. STARTING

### 7.1 STARTER

A starter must be fitted and be able to be controlled by the driver when seated normally. The starting system must be capable of starting the engine at all times.

### 7.2 STARTING THE ENGINE

A supplementary battery temporarily connected to the Automobile may be used while starting the engine in the pits and on the dummy grid.

## 8. TRANSMISSION TO THE WHEELS

### 8.1 GEAR SELECTION

For all Automobiles with other than automatic transmissions, all gears must be selected by the driver exclusively via a non-sequential mechanical linkage. This permits "H" pattern gear change mechanisms only.

### 8.2 GEARBOX/TRANSAXLE

- (a) The gearbox or transaxle may be replaced by one of free design incorporating no more than six selectable forward gears, subject to 8.1 above.
- (b) It must incorporate an operable reverse gear and remain in the same general location as the original.
- (c) The gearbox Cross member or Sub frame and mounting points are free.
- (d) Any additional lubricant cooling device, including a fan is permitted. The circulating pump, radiator, and air intake may not be located in the cockpit.
- (e) Drive must be taken only to those wheels as envisaged by the manufacturer.

### 8.3 CLUTCH

The clutch must be operated by pedal action with the method of operation otherwise free. The position of any master cylinder for hydraulic operation is free. The complete clutch assembly, flywheel and bellhousing are free.

### 8.4 REAR AXLE/DIFFERENTIAL FOR RWD AUTOMOBILES

- (a) **Live axles:** The original configuration and type of all suspension pivot points on the assembly must be retained, save for lateral location as per article 9.10. The rear axle assembly is otherwise free. Fully floating hubs are encouraged.
- (b) **Independent rear suspension:** The final drive assembly may be modified or replaced by one of free design provided the original methods of attachment and location are retained.

## **8.5 TAILSHAFT/DRIVESHAFTS/AXLES**

The tailshaft/driveshafts/axles and associated universal or CV-joints are free.

## **8.6 TRACTION CONTROL**

Traction and/or Stability control is permitted only in accordance with the following:

- (i) The traction or stability control must have been fitted by the manufacturer to the specific eligible make and model of automobile.
- (ii) The original manufacturer fitted ECU for that make and model of vehicle must be retained and used in its entirety utilising the original manufacturer's standard software and calibration settings in an unmodified form.
- (iii) The original wiring loom/harness for each body control system must be retained and used in its entirety in an unmodified form.
- (iv) No additional wiring loom/harness is permitted in any form.
- (v) Where any of the original components as above are modified, altered or changed in any way the use of the Traction or Stability control system is not permitted.

## **9. SUSPENSION AND STEERING**

### **9.1 SPRINGS**

Springs are free provided that the type and location are unchanged (by type is meant: coil, torsion bar, leaf etc.)

### **9.2 BUMP STOPS**

Bump stops, being the components designed to ultimately limit the suspension travel, are free and may be repositioned.

### **9.3 BUSHES**

Elastomeric bushes used at suspension pivot points (which are not otherwise specified in these regulations) may be replaced by other elastomeric bushings. Elastomeric bushes/isolators used at sub-frame to bodyshell mounting points are free.

### **9.4 SUSPENSION DAMPERS**

The make and size of suspension dampers are free. The number of dampers and pivot point locations may not be altered.

### **9.5 FRONT SUSPENSION COMPONENTS**

Steering tie rods may be replaced provided they are derived from an eligible Automobile. Stub axles, steering arms, hubs, bearings and tie rod ends are free. MacPherson strut tubes are free. In cases where the steering arms are separate components, it is permitted to fit spacers between the steering arm and stub axle assembly using extended bolts.

### **9.6 MACPHERSON STRUT TOP MOUNTS**

MacPherson strut top mounts are free providing that they utilise the standard bodyshell mounting facilities.

### **9.7 STRUT TOWER BRACE**

A brace of free design may be fitted between the towers and/or triangulated rearwards.

### **9.8 SWAY BARS**

Sway bars, their pivot points and associated linkages are free. On strut type suspensions where the sway bar acts as a control arm it is permitted to change the thickness of the bar only. The inclusion of spacers at the sway bar mounting points is permitted, but only by extending bolts in the original body mounts.

### **9.9 RIDE HEIGHT ADJUSTMENT**

Adjustable spring platforms, rear leaf spring shackles, spacers located directly at either end or between coil springs, lowering blocks of solid/rigid material and torsion bar ride height adjusters are all free.

### 9.10 REAR SUSPENSION COMPONENTS

Devices for the lateral location of the rear wheels on Automobiles with a live axle, and any associated brackets on the body, are free. Brackets may be welded to the body. All other components which have any function in the location of the rear wheels must be retained unmodified except for bushings, which must comply with 9.3 above. Drive flanges, trunnions, hubs, stub axles and wheel bearings are free. It is permissible to add additional longitudinal rear suspension arms provided that all bushings are elastomeric and that the mounting points on the body only involve the addition of metal, save for a single hole per arm of maximum diameter 25mm.

### 9.11 WHEEL TRACK

The track dimension is free save that the upper part of the tyre, down to the flange over the wheel hub centre must be within the perimeter of the Automobile when viewed vertically from above (see diagram 3).

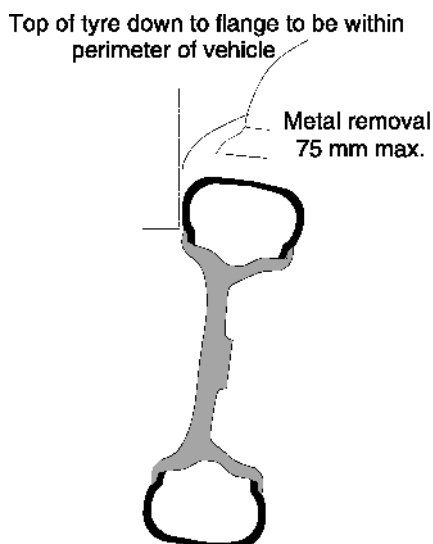


Diagram 3.

### 9.12 RIDE HEIGHT

All fully sprung parts of the Automobile, with the exception of the entire exhaust system, must be at least 100mm above the ground when measured on a flat level surface with the Automobile at Racing Weight.

### 9.13 STEERING

It is permitted to alter the steering ratio by the replacement of internal components within the steering rack assembly or box. A power steering rack assembly or box may be interchanged with a manual steering rack assembly or box respectively provided that the original mounting points on the body or Cross member or Sub frame are used, the replacement rack assembly or box is an unmodified part from an eligible Automobile and no other modifications (e.g. steering column etc.) are needed. Where a manufacturer offers both systems as options for other variants of the same family of Automobile, either system, and any associated Cross member or Sub frame may be used. All other components of the power steering system are free.

### 9.14 WHEEL ALIGNMENT FACILITIES

The wheel alignment settings are free. It is permitted to relocate the front control arm pivot point radially by up to 45mm within the confines of the existing Cross member, Sub frame or body panels. No metal may be removed save that directly associated with the actual pivot point relocation. For Automobiles with a live rear axle, where camber or toe vary by more than  $1/2^\circ$  from standard, the toe and camber figures are to be recorded in the Automobile logbook, and such settings shall be used exclusively in all competition. These specifications, once recorded, may only be varied upon approval by CAMS. Rear wheel alignment on independent suspensions may be achieved by relocating suspension pivot points by no more than 20mm within the existing brackets.

### 9.15 REPLACEMENT COMPONENTS

It is permitted to replace suspension and steering components otherwise not listed above with Mechanically Identical Components.

## 10. BRAKES

### 10.1 BRAKE CONTROLS

Brakes must be controlled by a double circuit hydraulic system so arranged that the pedal normally operates on the four road wheels. In the event of fluid leakage at any point in the system, the pedal shall still control two wheels on the same axle, or on diagonally opposite wheels if produced in this format by the Automobile manufacturer. For the purpose of adjusting brake bias, it is permissible to change from a diagonal split system, to a front/rear split system. It is permissible to add a facility to allow for the adjustment of the front/rear brake bias from the cockpit.

### 10.2 MASTER CYLINDERS

Power boosters, master cylinders and associated pushrods, fluid lines and hoses are free. The position of replacement master cylinders is free and holes of the minimum necessary dimensions may be made in existing panels to facilitate such fitment. Brake proportioning valves are free.

### 10.3 BRAKE ROTORS

Brake rotating friction surfaces must be made from a ferrous material but are otherwise free. Disc mounting hats are free subject to their being made from aluminium alloy or ferrous material.

### 10.4 BRAKE CALIPERS

Each brake caliper and brake pad is free, subject to the main housing being made of a ferrous material or an aluminium alloy. Where freedom is not otherwise granted, suspension components may be modified to permit fitment of a replacement caliper.

### 10.5 HANDBRAKE

The entire handbrake system is free.

### 10.6 BRAKE COOLING

Protection shields/stone guards on unsprung components may be added or removed. It is permitted to fit ducting for the passage of air to the brakes provided that it remains within the perimeter of the coachwork when viewed from above and that no bodywork alterations are required.

### 10.7 ABS

If a model of automobile was manufactured with an Anti-Lock Braking System (ABS) as standard equipment, that system can be retained on the condition that the ABS unit and all related software remain unmodified. Alternatively the entire system can be replaced with a non - Anti-Lock Braking System complying with Article 10.

## 11. WHEELS AND TYRES

### 11.1 WHEELS

Wheels are free subject to the following table:

Capacity class (cc)	Wheel and Tyre Size					
	3J (a)			3J (b)		
	Max. Wheel Width	Max. Wheel Diameter (refer Note 1)	Min. Tyre Aspect Ratio (refer Note 2)	Max. Wheel Width	Max. Wheel Diameter	Min. Tyre Aspect Ratio
3001-6000 and over 6001	8"	15"	50	9"	No Limit	No Limit
2001-3000	7"	15"	50	8"	No Limit	No Limit
1601-2000	7"	15"	50	8"	No Limit	No Limit
0-1600	7"	15"	50	8"	No Limit	No Limit

**NOTE 1:** The maximum wheel diameter for an automobile fitted with a piston engine of 6 or more cylinders is 16"

**NOTE 2:** For Automobiles with a piston engine of six (6) or more cylinders the minimum aspect ratio is 45%.

## 11.2 TYRES

Each tyre must:

- (i) For all circuit races and associated practice and qualifying, be either a Yokohama A032R or Yokohama A048R ("M" or "MH" compound) or Yokohama A050 ("M" compound only). Each tyre shall be purchased from the Australian Yokohama Motorsport Distributor Network;
- (ii) For speed events other than races be of a type included on the current CAMS Production Car Tyre list;
- (iii) Have at least a minimum tread depth. The tread wear indicators as provided by the tyre manufacturer will be the definitive method of determining minimum tread depth. At no time prior to practice or racing may any tread wear indicator be exposed or in the case where the indicator is a dimple in the tyre, worn below such indicator. This does not apply to the shoulder of the tyre. In all areas where there is no tread wear indicator, the original tread pattern must be clearly visible;
- (iv) Have a minimum aspect ratio of 50% except for Automobiles with a piston engine of six (6) or more cylinders where the minimum aspect ratio is 45%; and
- (v) Be fitted onto a rim in compliance with CAMS Manual Schedule E.

## 12. ELECTRICAL

### 12.1 ELECTRICAL SYSTEM

The wiring and electrical connectors, switches, fuses and circuit breakers, starting, ignition and generating systems are free. A panel incorporating additional/ replacement switches and/or circuit breakers may be added. The starting, lighting and turn signalling apparatus must be in working order at the start of each competition. All globes must at least meet the original equipment specification.

### 12.2 BATTERY

The battery and its location are free but it must be safely and securely mounted. It must be adequately covered so as to prevent short circuits and leakage, in any position.

### 12.3 WINDSCREEN WIPERS

The windscreen wiper mechanism may not be modified with the exception of the tensioning springs and wiper blades. Wind deflectors may be added. Headlight and rear window wipers and washers may be removed. The windscreen washer bottle, pump and hoses and any mounting bracket are free. Windscreen wipers must rest in the same location as on a standard Automobile of that make and model.

### 12.4 HEADLIGHTS

Each head light and tail light assembly may be replaced by a non-genuine item provided that the replacement assembly is legal for road use and is from a widely-distributed catalogue.

## 13. COCKPIT / DRIVER'S COMPARTMENT

### 13.1 STEERING WHEEL

The steering wheel may be replaced by one which is of at least 300mm diameter. It is permitted to add a steering wheel boss, possibly incorporating a quick release mechanism, to enable the fitment of a permissible steering wheel. The steering column may be lowered by the addition of spacers/ longer bolts at the rear mounting points provided no other modifications are required.

### 13.2 CONTROLS

- (a) All driving controls must retain the role laid down for them by the manufacturer.
- (b) Footrests and heat protection panels may be added to the driver's footwell cavity.
- (c) Pedals and pedal boxes are free with the following conditions:
  - (i) For hanging pedals the relocated brake pedal pivot axis shall remain within 75mm of the original brake pedal pivot axis.



- (ii) For floor mounted pedal boxes, the longitudinal position of the relocated brake pedal pad is to be contained within 75mm of the centre of the original brake pedal pad, when both are in the operable at rest position.

### **13.3 INSTRUMENTS**

Instruments are free, but the original dash must remain. Any holes in the dash resulting from the removal of instruments must be neatly closed by the addition of a closing panel. Where possible, all replacement instruments must be mounted in the dash where the original instruments were situated. Where the original dash incorporates an integral console connecting to the transmission tunnel this panel must be retained. Where the console is attached to the dash via fasteners the console may be removed.

### **13.4 CARPET AND INTERIOR TRIM**

Floor carpet and associated “underfelt”, roof lining and interior trim down to the lower edge of the windows, and consoles on the transmission tunnel may be removed. Original door trims may be retained or replaced with a rigid, moulded or flat panel. Where a replacement door trim is fitted, it must be an opaque, moulded or flat panel constructed from an upholstered rigid material or non-metallic rigid material. The replacement door trim must cover all openings and door skin/frame as achieved by the original trim. Door handles, opening levers and window winders may be replaced by one of free design situated in the same general location. Where the original dash incorporates an upholstered crash pad, it may be replaced by one of the same design and re-upholstered.

### **13.5 SEATS**

The driver’s seat may be replaced with one in compliance with Schedule C (refer CAMS Manual General Requirements for Cars and Drivers). Original seat mountings not part of the bodyshell may be replaced and/or other mountings added provided that they extend no further than 50mm from the plan view of the seat. All other seats, and associated seat belts are free.

### **13.6 REMOVABLE REAR WINDOW SHELF**

The removable rear window shelf in two volume Automobiles may be removed together with its supports, or held down by additional fasteners.

### **13.7 HEATER**

All components solely associated with the heating, air-conditioning and ventilation system are free. Any openings created by the removal of ducting, vents and controls from the dash must be closed by the addition of panels, which may be used to mount additional instruments or controls.

### **13.8 ACCESSORIES**

The radio, aerial, speakers and speaker mounts may be removed. Fog/driving lights which are separate from the main lighting system may be removed as may internal cockpit lights. Accessories which do not increase performance (e.g. additional lamps, mirrors, etc.) may be added.

### **13.9 BOOT/LUGGAGE SPACE TRIM**

Trim in the boot/luggage space may be removed.

## **14. SAFETY STRUCTURES**

### **14.1 SAFETY CAGE STRUCTURES**

Safety cage structures must comply with Schedule J (refer CAMS Manual General Requirements for Cars and Drivers). It is not permitted to fit additional bracing, other than a strut tower brace as described in Article 9.7. It is permitted to attach parts of the safety cage, either by welding or bolting. The removal of the minimum amount of material to assist the fitment of the safety cage members is permitted.

### **14.2 SAFETY HARNESS**

Where the Automobile is not registered for road use, the original driver’s seat belt must be replaced by a safety harness, complying with Schedule I (refer CAMS Manual General Requirements for Cars and Drivers).

## **15. FUEL**

### **15.1 FUEL**

Only fuel as defined by CAMS in Schedule G (refer CAMS Manual General Requirements for Cars and Drivers), may be used.

## 15.2 AIR

Only air may be mixed with the fuel as an oxidant.

## 16. CAPACITY CLASSES

### 16.1 CAPACITY CLASSES

<b>A</b>	0 – 1600cc
<b>B</b>	1601 – 2000cc
<b>C</b>	2001 – 3000cc
<b>D</b>	3001 – 6000cc
<b>E</b>	6001cc and over *

**\* NOTE: Capacity Class E Class E Eligibility Conditions as per Article 16.3: 'CLASS E SPECIFIC ELIGIBILITY CONDITIONS'.**

### 16.2 CAPACITY TOLERANCE

Automobile classification is based on the effective capacity of the engine which is stated by the entrant on the entry form. An Automobile will remain eligible for the nominated class provided the effective capacity of the engine does not exceed the nominated class capacity limit by more than 2%.

### 16.3 CLASS E SPECIFIC ELIGIBILITY CONDITIONS

- (a) Class E is to provide classification for an automobile manufactured with a capacity exceeding 6001cc. Each Class E automobile must be defined as eligible in accordance with Article 1.1 and comply with the following:
  - (i) Be a model of automobile released by the manufacturer with an engine capacity exceeding 6001cc;
- (b) The following will apply for each Class E automobile:
  - (i) The original engine block and cylinder head/s must be retained.
  - (ii) Each engine must retain the capacity for that model of automobile as released by the factory.
- (c) The following will apply for each Supercharged Class E engine:
  - (i) Must comply with Article 17.2, and the relevant requirements for the fitment of a restricting orifice.
- (d) The following will apply for each naturally aspirated Class E automobile engine intake:
  - (i) For an engine fitted with a single throttle body the maximum throttle body internal dimension is 90mm;
  - (ii) For an engine fitted with more than one throttle body it must be fitted with a restrictor of a maximum internal dimension of 89mm that must be fitted:
    - (A) to the intake within 50mm of the first throttle body;
    - (B) such that all the air that is to enter the engine for combustion must pass only through the restrictor prior to entering the engine; and
    - (C) such that the restrictor internal dimension is a maximum of 89mm when measured at any time regardless of temperature of other factors.

## 17. LATE MODEL

### 17.1 DEFINITION

The prescriptions of Articles 17.2 – 17.10 shall apply only to Automobiles which comply with the definition of a Late Model Automobile (see Article 1.15).

## 17.2 SUPERCHARGING

Supercharging may only be used if fitted as standard equipment to the model concerned. All Automobiles with supercharged engines must be fitted with a restricting orifice. This must be to the dimensions and fitting requirements as detailed in Article 4.5(b).

## 17.3 BODYWORK

The provisions of articles 3.4, 3.5 and 3.7 shall not apply. For the purpose of wheel and tyre clearance minor reshaping of impinging body work is permitted provided the external appearance of the bodywork around the wheel arch is unchanged. It is permitted to remove plastic stone shields from within the wheel arch.

## 17.4 FUEL

In conjunction with Article 15.1, leaded fuel is not permitted.

## 17.5 MINIMUM RACING WEIGHTS

Where the engine block and/or head has been replaced by one of a different design to that fitted as standard equipment for the model concerned, the following scale of minimum weights shall apply.

- (a) For naturally-aspirated front wheel drive Automobiles, based on the swept volume of the engine:

Up to 1400cc	875kg
1400 to 1600cc	965kg
1601 to 2000cc	1045kg
2001 to 3000cc	1175kg
3001 to 4000cc	1285kg
4001 to 6000cc	1405kg

- (b) For each other vehicle the following will apply in addition to the table above:

- (i) For a rear-wheel drive automobile, add 50kg;
- (ii) For a four-wheel drive automobile, add 90kg.
- (iii) In consideration of minimum racing weights, each supercharged automobile of/or above 1200cc swept volume shall be treated as having a swept capacity of 2001 to 3000cc, those of below 1200cc shall be treated as having a swept capacity of 1601 to 2000cc.
- (iv) For a Class E automobile the minimum racing weight is 1650kg.

## 17.6 SAFETY CAGES

Safety cages may have bracing to the front suspension towers as per drawing J-37 of the CAMS Manual Schedule J. Where fitted, they shall be mounted to the front suspension top mounting points.

## 17.7 REAR WING

- (a) A rear wing may be fitted, or be replaced by a wing, complying with the prescriptions of this article. A rear wing may be removed.

(b) **General – Each Automobile**

Any longitudinal cross section of the wing, including mounting brackets and any end plates, must be contained within a vertical square 200mm long by 200mm high at any point on its length. The maximum difference in vertical height of the wing from its lowest point to its highest, including mounts and any end plates, is 200mm. The wing assembly shall also be located completely within the outline of the Automobile when viewed from above (plan view). Refer diagrams 4, 5 and 6. The wing assembly shall also comply with the following requirements:

- (i) It shall comply with Article 3.9;
- (ii) The wing must consist of a single rigid element;
- (iii) Any other rear wing or deck spoiler shall be removed;
- (iv) It must be fixed in position while the Automobile is in motion;

- (v) The wing angle may be adjustable, provided adjustment is possible only via the use of hand tools from outside the cockpit; and
- (vi) Any change to the wing angle shall only occur whilst the Automobile is stationary.
- (vii) The method of attachment of the wing assembly is free. Articles 3.7, 3.8 shall be disregarded when this article has been applied.

(c) **Hatchback Automobiles**

In the case of a hatchback, the wing must be attached to any part of the hatch. The hatch is defined as the part of the body/coachwork (or door) positioned at the rear of the Automobile which is hinged at the top and which lifts upward to provide access to the luggage and/or passenger compartment. The wing assembly must be no higher than the highest part of the roof on a horizontal plane and no wider than the widest part of the hatch assembly. Refer diagram 7.

(d) **Other Automobiles**

For all Automobiles other than hatchbacks, the wing must be attached rearwards of the rear window.

**17.8 FASCIA**

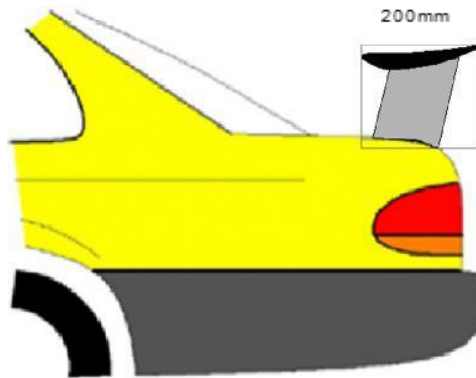
It is permitted to replace non-metallic front and rear bumper bar fascia/s. The replacement items must be identical to the originals when viewed from above and be completely contained within the perimeter of the original Automobile. The replacement items may not expose any bodywork or components that were not exposed when the original bumper bars were fitted to the Automobile. Any undertray incorporated into the replacement front fascia must comply with the requirements of articles 3.6(ii) to 3.6(iv) inclusive. It is permitted to add a mechanism for the quick release of the front bumper fascia. Such mechanisms must not project more than 10mm from the surrounding coachwork, and must serve no other purpose.

**17.9 SIDE SKIRTS**

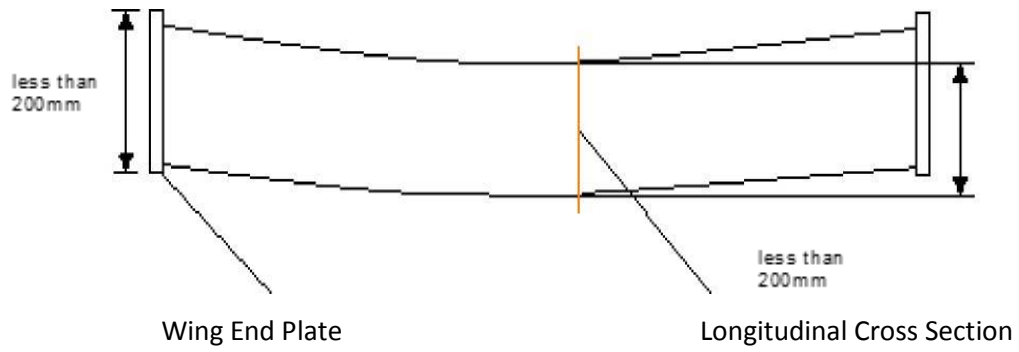
It is permitted to fit side skirts. Side skirts must not project more than 10mm forward of the rear edge of the front wheel arch, or 10mm rearward of the front edge of the rear wheel arch. The side skirts may not extend more than 125mm from the nearest original coachwork.

**17.10 GEARBOX**

- (a) The restrictions of Article 8.2 notwithstanding, if the model of automobile was manufactured as standard with a gearbox of more than five forward ratios, the replacement gearbox may have up to six forward ratios.
- (b) If the model of automobile was manufactured with a Direct-shift Gearbox (DSG) or Dual-clutch Transmission (DCT) type gearbox it may be retained with the following conditions:
  - (i) Each DSG/DCT gearbox must retain and use the manufacturer supplied and standard:
    - (A) Gear ratios and clusters, including those with more than 6 forward ratios;
    - (B) Gear shifting and selector components; and
    - (C) Gear shifting control mechanism including ECU and wiring.
  - (ii) It is permitted to replace clutch assemblies for a DSG/DCT gearbox, whereby each replacement shall be free.
  - (iii) Each transaxle type DSG/DCT gearbox may replace the final drive/differential whereby each replacement shall be free.

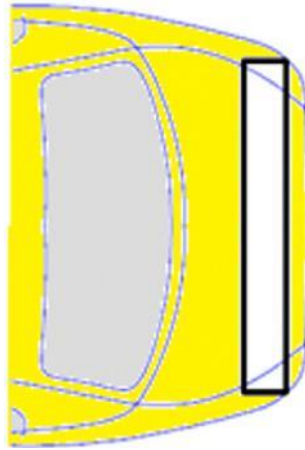


**DIAGRAM 4**



**DIAGRAM 5**

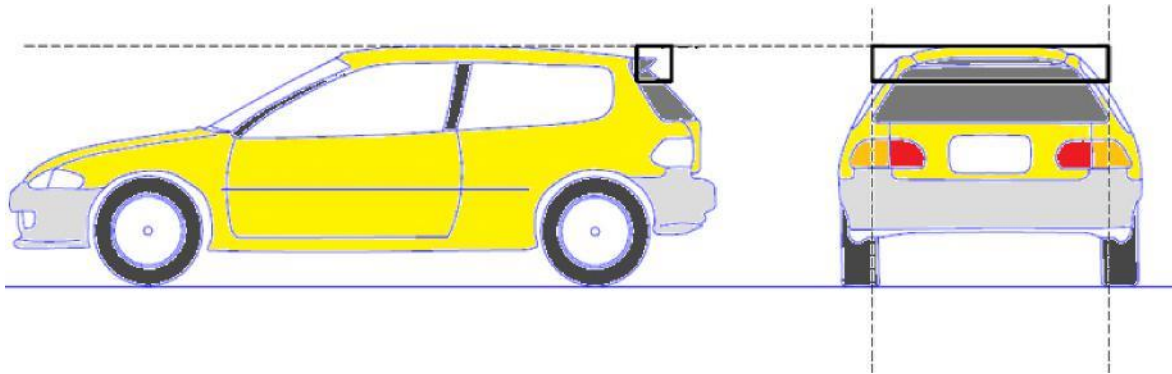
**CURVED WING ELEMENT - PLAN VIEW**



Wing assembly must be completely within the outline of the Automobile in plan view (i.e., using string-line and plumb bob to check)

**DIAGRAM 6**

**PLAN VIEW**



Side elevation

No part of the wing should be higher than the highest part of the roof in a horizontal plane.

Rear elevation

The wing shall be no wider than the widest part of the hatch assembly

**DIAGRAM 7**