

## Section Four – Schedule K

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**Note:** *Text changes from the previous issue of this Schedule are highlighted such. Text changes for grammatical and/or formatting reasons are not highlighted.*

**Preamble:** This schedule is derived from FIA Appendix K to cover the aspects of the FIA Appendix that are directly applicable to New Zealand Historic Racing.

**Principles:** Historic Motor Sport enables the active celebration of the History of the Motor Car.

The FIA has created the regulations in Appendix K so that Historic Cars may be used for competitions under a set of rules that preserve the specifications of their period and prevent the modifications of performance and behaviour which could arise through the application of modern technology.

Historic competition is not simply another formula in which to acquire trophies, it is a discipline apart, in which one of the essential ingredients is devotion to the cars and to their history.

## Chapter One – Technical Regulations

### 1. General Provisions:

- 1.1 **Modifications and additions:** All modifications or additions to a car's period specification are forbidden unless expressly authorised by the regulations herein specific to the car's Group, or by an announcement in a MotorSport NZ Official Bulletin concerning the specific car model or components, or imposed under Schedule AA. The components of the car must retain their original function.

### 2. Definitions and Principles:

#### 2.1 Interpretations:

- (1) In addition to the interpretations detailed in the National Sporting Code for the purpose of this Schedule, an "International Event" is defined as an FIA sanctioned event run to the FIA regulations of the period and includes a MotorSport NZ National permit status event.
- (2) "**Period Specification**" this means the proven configuration of the model, as it existed in the period in which it is classified.

The following evidence (given in order of priority) may be admitted to prove period specification:

- (a) Original FIA homologation papers, including extensions and variations only if homologated in the period concerned.

The following points will apply only if they do not conflict with the original homologation form (except for Competition GT car bodywork).

- (b) Manufacturer's specifications, including sales brochures manufacturer's handbook; manufacturer's workshop manual, manufacturer's spare parts list; all of which must have been published in period.
- (c) Evidence that a manufacturer's specification was varied for an entrant in an international event, which may include addenda to original FIA Homologation papers within the period; any manufacturer's document, drawing, sketch or specification produced in period, or any magazine Article produced in period (specifications in magazines and periodicals of the period must come from at least two(2) sources).
- (d) Of lesser value, but for which consideration will be given in any specific query, will be books and magazine Articles written out of period by reputable authors.

All of the above must refer to the model in question.

Recent letters written by manufacturers, mechanics, engineers, designers, drivers and team members of the period may or may not be considered as period evidence.

Unless otherwise specifically authorised by these regulations, any part of a car must have identical dimensions to the original part and evidence of this must be provided.

- (3) The term "**material type**" indicates the same material, but not necessarily to the same specification. Thus "aluminium" is metallurgically aluminium but may be of a different grade and contain elements not present in the original component. Exceptionally, magnesium may be replaced with aluminium. The use of carbon fibre in any application, with the exception of front seats, is forbidden.

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- (4) “**Local stiffening**” means the addition of material to limited areas of the basic chassis structure, but not so as to have an interacting effect, which could be considered general stiffening, and not by adding new stressed members.
- (5) “**Silhouette**” means the shape of the car viewed from any direction, with the body panels in position.

### 2.2 Vehicle definitions and principles:

- (1) **Series Production Touring Car:** This means a vehicle of a model type which must have been manufactured in a quantity of at least 1000 units in twelve(12) consecutive months, identical as far as mechanicals and bodywork are concerned. By identical is meant that the external shape and the component materials of the mechanical parts, the chassis and the body must remain unchanged.

They must be equipped with at least four(4) seats, unless the car was produced with an engine capacity below or equal to 700cc in which case the manufacturer may have delivered them as two-seaters.

The only preparation authorised is normal maintenance or the replacement of parts damaged through wear or accident and those modifications explicitly authorised hereafter in Article 4 of these regulations and Schedule AA.

- (2) **Competition Touring Car:** This means a vehicle of limited series production periods derived from a Series Production Touring Car model type including cars homologated by the FIA in Group 2 (for period classifications M, N and P) or Group A (for period classification Q).

All Group A Competition Touring Cars shall be constructed and maintained in strict conformity with the FIA homologation papers issued for the vehicle.

Competition Touring Cars are permitted only those extensions homologated before the upper date limit of the period class and specified on their FIA Homologation Forms, as well as those modifications explicitly authorised hereafter in Articles 4, 5 and for pre 1977 vehicles, Schedule AA.

- (3) **Standard Production Sports and Grand Touring Car (GT) Car:** This means cars built in small series, which must have space for at least two(2) seats, disposed one on either side of the car’s longitudinal axis, and which must comply with the regulations and highway code of the country of registration.

They must conform to a model defined in a catalogue and offered to the public by the Sales Department of the manufacturer.

At least 100 examples identical in every sense concerning bodywork and mechanical parts must have been manufactured.

All other cars must have been homologated in the GT category. Models which were also homologated by the FIA as Touring Cars will not be eligible.

GT cars are permitted only those modifications explicitly authorised hereafter in Article 5 and Schedule AA, excluding any other homologation extensions.

- (4) **Competition Sports and Grand Touring (GT) Car:** This means cars which must have space for at least two(2) seats, disposed one on either side of the car’s longitudinal axis and must comply with the regulations and highway code of the country of registration.

The cars must be derived directly from vehicles eligible as standard Sports and GT cars, but includes modifications carried out in the period within the limits of the international rules for Grand Touring Cars in force at the time. The fundamental and general designs of the car and of the engine must remain the same as those of the corresponding series production car.

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Competition GT cars are permitted only those extensions homologated before the upper date limit of the period class and specified on their FIA Homologation Forms, as well as those modifications explicitly authorised hereafter in Articles 4, 5 and Schedule AA.

- (5) **Grand Touring Prototype (GTP):** This means one(1) of three(3) categories of cars which are admitted to international competition under this definition; the categorisation of GTP cars must be made on the basis of a very precise continuous history which must be submitted to the FIA through MotorSport NZ:
- (a) Genuine, original examples of manufacturers' prototypes of intended future GT models (or manufacturers' development in period of one of their models beyond the recognised existing GT specification), which raced internationally in the period, under FIA regulations, from 1947 to 1971 inclusive, to original specifications.
  - (b) Genuine, original examples of manufacturers' prototypes of intended future GT models (or manufacturers' development in period of one of their models beyond the recognised existing GT specification) which raced internationally, **but under regulations different from FIA rules**, in the period from 1947 to 1971 inclusive, to original specifications.
  - (c) Competition Grand Touring (GTS) cars as defined in Article 2.2(4), but which were built in less than 100 mechanically identical examples within the period from 1947 to 1971 inclusive. The period mechanical specification for each model must be documented and submitted for FIA approval.

Apart from the modifications permitted under Schedule AA, GT prototype cars are permitted only those modifications that were carried out in the original period on the particular model concerned, but within the limits of Article 6 hereafter for GTP/A/B cars.

- (6) **Sports Racing Car:** This term also includes Sports Prototype cars and means a car of which the primary function is competition, having space for two(2) seats, disposed one on either side of the car's longitudinal axis and which was built in the period to conform to the requirements of the FIA Appendix K and Appendix J regulations. Two-seater racing cars must comply with Article 6 and for pre 1977 vehicles, Schedule AA.
- (7) **Single-Seater Racing Car:** This means a car built for the sole purpose of racing and conforming to those internationally recognised regulations of the FIA or ASN which governed the category, formula and competitions in which it originally raced in its present configuration.

Single-seater racing cars must comply with Chapter One, Article 6 and for pre 1977 vehicles Schedule AA.

- (8) **Thoroughbred Grand Prix Car:** This means a single seater racing car built to the appropriate Formula One regulations that took effect on 1<sup>st</sup> January 1966 and as in force in the year of the car's manufacture or participation in International competition.

In order to participate in races, a Thoroughbred Grand Prix car may:

- (a) Only be powered by a normally aspirated engine **not exceeding 3000cc** or a turbocharged engine **not exceeding 1500cc**, and
- (b) Have been entered and successfully scrutineered at an International Formula One event, for which period evidence exists, not later than 31<sup>st</sup> December 1985, or evidence must be produced that it was manufactured in the period by the Grand Prix Team concerned and used by it as a test car.

**Cars with 3500cc normally aspirated, or gas turbine engines are acceptable for parades and demonstrations only.**

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All Thoroughbred Grand Prix Cars must comply with Chapter One, Article 7 hereafter.

- (9)
- (a) **Historic Special:** This means a car built for racing events during a Period (A to E included) which has no competition history in an International Formula, but which has competed at a National level and has significant history in period at that level of competition. The car must comply with Schedule AA and may only be a single seater or two seater (sports racing) car. The Historic and Classic Commission must verify the Certificate of Description before being issued.
- (b) **NZ Specials:** This means a car built for racing events between 1 January 1961 to 31 December 1977 which has a competition history in New Zealand during that period.

The car must comply with Schedule AA and may only be a single seater or two seater (sports racing) car.

The Historic and Classic Commission must verify the Certificate of Description before being issued.

- (10) **NZ Historic Racing Saloon:** This means a car built for competition in one of the following New Zealand series between 1 January 1950 and 31 December 1977;

Allcomers, OSCA, Bank of New South Wales, ANZ, GTX, Benson and Hedges or one of the Sanctioned Series of that period. The car must comply with the regulations that were applicable for the series it represents and the current Appendix Two Schedule A Driver and Vehicle Safety regulations.

### 3. Determination of Classification and Eligibility:

3.1 **Classification:** A car will be classified by the actual year of completion of manufacture of that vehicle. The acceptance of out of period cars by the issue of a Certificate of Description:

- (a) Production of the model having been continuous.
- (b) The model being now obsolete, and the specification being identical to those produced in the final eligible year.

**Note:** *The onus of proof relating to the appropriate vehicle Certificate of Description classification rests entirely with the competitor.*

### 3.2 Eligibility:

- (1) The specifications used to determine the eligibility of a car must be based upon the general specification published by the manufacturer. Additional factors which may be taken into account in the determination of the date of manufacture of a car will include any technical documentation supplied by the manufacturer's registration number and/or documents relative to the vehicle information available from manufacturer or specialist club archives concerning chassis and engine numbers and other such information from sources which the Historic and Classic Commission approves.
- (2) Exceptions may be made for single-seater and two-seater racing cars if period evidence proves that alternative components to the manufacturer's specification were used in that particular car in an FIA-sanctioned International or New Zealand National event in the period. The individual car concerned will then be considered eligible in its approved modified specification only and will be re-classified if necessary.
- (3) Once classified, cars may only be re-classified by order of MotorSport NZ. It is the entrant's responsibility to prove the eligibility of a car's specifications as entered on the Certificate of Description or in the MotorSport NZ vehicle logbook notation.

Any appeal or enquiry regarding classification status shall be referred to MotorSport NZ.

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### 4. Modifications Authorised for Series Production Touring Cars, Standard Production Sports and Grand Touring Cars:

**4.1 Replacements and modifications:** Except for what is otherwise explicitly authorised, any part damaged through wear or accident may only be replaced by a part which is identical in specification to (exactly the same as) the one for which it is substituted. No other modifications are permitted.

#### 4.2 Electrical devices:

**(1) Lighting (public road use):** All lighting and signalling devices shall conform to the current warrant of Fitness regulations as issued by the Land Transport Safety Authority.

The fitting of additional headlights is permitted up to an inclusive total of six(6), not including parking lights.

Extra headlights may, if necessary, be fitted into the front part of the bodywork or into the radiator grille, but such openings as are needed in this case must be completely filled by the additional headlights.

Freedom is granted with regard to the frontal glass, the reflector and the bulbs.

The fitting of reversing lights is authorised, if necessary by recessing into the coachwork, but provided they will only switch on whilst the reverse gear is engaged. They must conform to the Warrant of Fitness regulations.

**(2) Ignition coil, condenser and distributor:** Makes are free on condition that the number of plugs per cylinder, the ignition coil, condenser, distributor and spark plug types conform to the manufacturer's specification for the model concerned. The addition of an electronic system is not permitted.

**(3) Battery and generator:** The battery voltage of all electrical devices may be converted from 6 to 12 volts.

The type, make and capacity in ampere-hours of the battery and generator are free. A dynamo may not be changed for an alternator.

The original location of the battery may not be changed except to move it from the cockpit to another compartment for safety reasons.

If the battery is retained in the cockpit it must be securely fixed and have an insulated, leak proof cover.

The generator must generate output and be on load when the engine is running.

#### 4.3 Suspension Front and Rear:

**(1) Shock absorbers:** The make of shock absorbers is free but the number fitted and principle of operation may not be modified from the period specification (telescopic or lever type, hydraulic, gas-filled hydraulic or friction operated) and the operating systems must have been in use on automobiles in the period.

**(2) Supports:** The original supports may not be changed in any way.

#### 4.4 Wheels and Tyres:

**(1) Wheels:** Wheels must conform in specification to those provided by the manufacturer for the model concerned. They are defined by their diameter, the width of their rim and the offset. However, wheels of 400mm diameter may be replaced by wheels of 15inch diameter and rims less than 4inches wide may be replaced by rims up to 4inches wide, only for events where Dunlop racing tyres are required.

**(2) Tyres:** Must comply with Article 8.

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**4.5 Cockpit:** Seat brackets may be altered, and competition seats substituted.

The location of the spare wheel may not be altered but the method of attachment is free.

**4.6 Engine and accessories:**

- (1) **Re-boring:** All engines may be re-bored to a maximum oversize of 1.5mm.
- (2) **Pistons and Camshafts:** Modifications to pistons are not permitted. Pistons may be replaced by other pistons supplied either by, the manufacturer, or by another source, on condition that they correspond to the period specification (shape, weight).
- (3) **Camshaft(s):** These must not be altered or replaced by other ones.
- (4) **Valves:** The valve length must not be modified.
- (5) **Balancing:** This is authorised but the lightening of each part to achieve balancing must be less than 5%.
- (6) **Air filter:** May be changed or removed.
- (7) **Carburettors:** Only the jets and chokes of the carburettor(s) may be changed, the make and type homologated and the manufacturer's specification must be retained.
- (8) **Crankshaft:** The crankshaft may be replaced by a component manufactured from an alternative ferrous material, provided that it is identical in design and in all of its dimensions to the original component. The original main bearing caps, or reproduction caps manufactured to the same pattern and from the same material as the originals, must be retained.

**4.7 Cooling system:**

- (1) **Radiator:** Any radiator provided by the manufacturer for the model concerned is authorised but its attachment system must not be modified in any way and its position must not be changed. The addition of a radiator screen whether fixed or mobile, regardless of its system of control, is authorised. Heater radiators can be removed but their location cannot be changed. The location of water pipes is free.
- (2) **Fan:** Complete freedom regarding the number and the dimensions of the blades (or their complete removal) as well as the possibility of temporarily stopping their action by means of a clutch.

It is permitted to replace the original fan with an electrical one.

- (3) **Thermostat:** The make and type of thermostat are free.

**4.8 Springs of any kind:** Springs may be replaced by other ones of unrestricted origin, but without modification of the number provided by the manufacturer and on condition that they are identical in specification (dimensions, materials and rate) to the period specification ones they replace. The number of coils/leaves is free. By the word "coil" is meant one(1) complete turn of a spiral, **not** a complete spring. Road springs however may be modified in dimension, on condition that they can be fitted, without any alteration, on the original supports.

**4.9 Transmission/Gearbox and Final Drive:** A maximum of two(2) sets of alternative gearbox ratios and final drive ratios, listed in the manufacturer's specification in Group 1 or A/N for Series Production Touring Cars and in Group 3 for Standard Grand Touring Cars, may be used.

Gearboxes in which gear selection is made with dog clutches are not permitted.

The fitting of an overdrive system in addition to the existing gearbox is authorised if it conforms to the period specification.

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**4.10 Brakes:** A pressure-limiting device between the front and rear brakes may only be fitted if it is included in the period specification. Flexible armoured casing may protect brake pipes. The replacement of worn linings is authorised and the material of the brake linings is free, only normal maintenance machining is allowed.

If servo-assistance was normally provided it must not be disconnected.

**4.11 Wheelbase, track, ground clearance:**

(1) **Wheelbase and Track:** Wheelbase and Track must be identical, at all times when measured during an event, to the homologated dimensions or, if the model was not homologated, to the manufacturer's original specification.

(2) **Ground clearance:** All parts of the sprung mass of the car must have a minimum ground clearance of 100mm, such that a block of 800mm x 800mm x 100mm may be passed underneath the car from any side, at any time during an event.

**4.12 Weight:** At all times during an event, the vehicle weight must not be less than the FIA homologated minimum weight or, if the model was not homologated, the weight listed in the period specification.

**4.13 Bumpers:**

(1) Cars competing in international rallies must be fitted with bumpers to the period specification of the model unless either;

(a) The model was homologated in period without bumpers, or;

(b) The actual chassis concerned competed in events run to FIA regulations in the period without bumpers.

(2) For all other events, the supplementary regulations may require the removal of bumpers (including their supports) unless they constitute an integral part of the bodywork. But the minimum weight of the vehicle must still be respected.

**4.14 Spare wheels:** Spare wheels may be removed from cars on condition that the minimum homologated weight of the vehicle is respected at all times when checked.

**4.15 Supplementary accessories not included in the homologation:**

(1) Supplementary accessories not included in the period specification or in the Homologation Form are authorised without restriction provided that they do not influence the behaviour of the car and do not affect, even indirectly, the performance of the engine, the steering, the transmission, the road holding or the braking. Such accessories are those concerning the aesthetics, the interior comfort (lighting, heating, radio etc.) and those enabling easier or safer driving of the car (speed-pilot, windscreen washer etc.).

(2) The silhouette of the car, as defined in Article 2.1(5), must not be modified.

(3) The position of the steering wheel (whether right hand or left hand drive) is optional so long as the model was offered by a manufacturer in that specification.

(4) The following is authorised:

(a) The horn may be changed or supplemented with an additional unit and modified for operation by the passenger.

(b) The windscreen may be replaced by one of the same material incorporating a heater-defroster device.

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- (c) The heater may be replaced by an alternative unit, listed in the manufacturer's catalogue.
- (d) External coachwork embellishments may be removed (with the exception of the radiator grill and those surrounding the headlights) provided that no exposed sharp edges result.
- (e) The original speedometer may be replaced by an alternative provided that the replacement fits exactly into the same housing. Supplementary instruments are allowed.
- (f) An electric water thermometer may be replaced by one of capillary type and a standard manometer replaced by a more accurate one.
- (g) The jacking points may be strengthened, their location may be changed or extra ones added.
- (h) Bumper over riders may be removed but bumpers must be in position (unless removed in accordance with Article 4.12).
- (i) The glove box and door pockets may only be modified so as to enlarge them.
- (j) When the regulations of an event allow the fitting of an under shield, the brake and fuel lines may be protected.
- (k) The location and appearance of registration number plates are free, only within the legal requirements of the car's country of ownership.
- (l) An alternative steering wheel may be fitted.
- (m) Extra relays and switches may be added to the electrical circuit and battery cables may be lengthened.
- (n) All electrical switches may be freely changed with regard to their purpose, location and, in the case of extra accessories, their number.
- (o) Wheel embellishers may be removed and wheels balanced.
- (p) Nuts and bolts may be exchanged and/or locked with pins or wire.
- (q) Headlight covers may be fitted provided that they do not influence the aerodynamics of the car.
- (r) The handbrake may be modified for instantaneous release ("fly off" action).
- (s) Any demountable hardtop from the period of the class, as supplied either by the vehicle manufacturer or by an outside supplier.

### 5. **Modifications Authorised for Competition Touring Cars and Competition Sports and Grand Touring Cars:**

**5.1 Replacements and modifications:** Except for what is explicitly authorised in Article 4 of this Schedule no other modifications or replacements are permitted.

**5.2 Chassis:** Must follow the original design and dimensions but may employ local stiffening.

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### 5.3 Suspension Front and Rear:

- (1) **Anti-roll bar:** The fitting of an anti-roll bar is authorised, on condition that it does not constitute an additional wheel location device. The anti-roll bar must not be adjustable and must be of one-piece construction from a solid bar. Rose joints may be used provided this does not affect the geometry of the suspension.
- (2) **Shock absorbers:** Adjustable shock absorbers of the same type as the period specification ones are permitted.
- (3) **Adjustable spring platforms and ride height adjusters:** These are forbidden unless a period specification for that model allows such equipment in which case the same means of adjustment shall be used.
- (4) **Suspension bracing/reinforcement bars or struts and anti-tramp bars:** These are forbidden unless a period specification for that model allows such equipment.

**5.4 Springs of any kind:** Springs may be replaced by other ones of unrestricted origin, but without modification of the number in the period specification, on condition that they can be fitted without any alteration of the original supports. The number of coils/leaves is free but road springs must be constant rate unless variable rate springs were the period specification. By the word "coil" is meant one(1) complete turn of a spiral, **not** a complete spring.

**5.5 Generator and ignition:** The replacement of the dynamo with an alternator to a specification available in the period, of equivalent or greater output is permitted but the system and method of driving the generator must be unchanged. Toothed pulleys are not permitted.

Spark plugs of smaller diameter than the standard specification may be used with appropriate adaptors, if period evidence of their use exists.

### 5.6 Engine:

- (1) **Reboring:** The maximum reboring tolerance is 1.5mm.
- (2) **Cylinder head and block:** The compression ratio may be modified by machining the block or cylinder head and/or by omitting the gasket or using a gasket of different thickness.
- (3) **Pistons and Camshaft(s):** Pistons, camshafts and valve springs may be altered or alternative pistons, camshafts and valve springs of different specification or manufacture may be used, provided that the number employed does not exceed that of the homologated engine.
- (4) **Balancing:** Balancing of all mechanical parts, as well as machining and polishing, is authorised, but the adding of material is not permitted.
- (5) **Crankshaft:** The crankshaft may be replaced by a component manufactured from an alternative ferrous material, provided that it is identical in design and in all of its dimensions to the original component. The original main bearing caps, or reproduction caps manufactured to the same pattern and from the same material as the originals, must be retained.

**5.7 Oil system:** An oil filter and/or oil cooler, for engine oil only, may be added when the period specification has none, or an existing one may be altered. Oil coolers must be contained within the periphery of the bodywork as viewed from above.

Fixed or mobile sump baffles and gates are permitted.

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- 5.8 Exhaust system:** The exhaust manifold must remain identical to the original but the silencer and exhaust pipe are free.

The resultant noise level must remain within the limits specified in Appendix Two Schedule A of this Manual.

The orifices of the exhaust pipes shall be placed at not more than 45cm but not less than 10cm from the ground. The exit of the exhaust pipe must be situated within the perimeter of the car and less than 10cm from this perimeter, and aft of the vertical plane passing through the centre of the wheelbase; the exit may be outside the perimeter only if a period specification for the model. Moreover, adequate protection must be provided in order to prevent heated pipes from causing burns.

The exhaust system must not be a provisional one. Exhaust gas may exit only at the end of the system. Parts of the chassis must not be used to evacuate exhaust gases.

- 5.9 Fuel System:** Electrical fuel pump(s) may be substituted for a mechanical unit(s) and vice-versa and the number and/or location may be changed.

Any fuel tank may be used provided that it complies with Schedule A, or Schedule AA for pre 1978 vehicles and does not exceed the originally homologated or specified capacity, and is in the original location or in the boot. The location of fuel pipes is free.

- 5.10 Carburettor:** Carburettors may be replaced with carburettors of a size different from that specified on the homologation form for the model concerned if:

- (a) The make and all details of design and operational principles remain identical to those of the carburettor(s) in the period specification for the model concerned (number of chokes, jets, throttles, pumps, etc.) and,
- (b) The carburettor(s) can be fitted directly on to the inlet manifold using the original attachment bolts or studs and holes and without any intermediary piece.

**5.11 Transmission:**

- (1) **Gearbox:** Only a gearbox (manual or automatic) and the ratios therein which are in the period specification may be used. Helical-cut pinions may be replaced with straight-cut ones.
- (2) **Final Drive:** Only the ratios, which are in the period specification, may be used.
- (3) **Differential:** A limited slip differential of a type conforming to a period specification for that model may be used.

**5.12 Wheels and Tyres:**

- (1) **Wheels:** Must be of a type homologated or to a specification available in the period.

The wheels may be reinforced, which may entail a modification of the attachment system provided such an attachment system was used in period for that model.

Competition Touring Cars and Competition Sports and Grand Touring Cars of periods L and M may be equipped with "Minilite"-style alloy wheels to the original wheel dimensions, on condition that no alternative period specification lightweight wheel is available.

The maximum allowed track widths must be respected.

- (2) **Tyres:** Must comply with Article 8.

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- 5.13 Brakes:** The braking system must be entirely to period specification, with the exception of the following:
- (a) The braking system may be converted to dual circuit operation using a single master cylinder providing simultaneous operation on all four(4) wheels via two(2) distinct hydraulic circuits.
  - (b) A servo-assisted system may be fitted or disconnected.
  - (c) Pressure limiting devices must not be fitted to the hydraulic braking system unless a period specification.
  - (d) Any device allowing the balancing of braking effort between front and rear wheels must not be operable by the driver whilst seated in the driving seat.
  - (e) Brake discs must not be modified.
  - (f) The friction material and method of attachment are free but the dimensions of the frictional surfaces must remain as shown on the homologation form.
- 5.14 Cockpit:**
- (1) Windscreens must be of laminated glass unless a waiver for the use of an alternative material has been obtained for the specific car.
  - (2) Rear windows, door windows and quarter lights must be of safety glass or a rigid transparent material at least 5mm thick (FAA type material, e.g. Lexan is recommended).
  - (3) Vertically opening side-windows may be replaced by horizontally sliding ones, but the original opening mechanism must be retained.
  - (4) Front seats may be changed; passenger seats and squabs may be removed.
  - (5) Floor and roof trim may be removed, door trim may be replaced.
  - (6) Controls and their functions must remain those of the manufacturer's specification but it is permissible to modify them to make them easier to use within the limits of lowering the steering column, lengthening the hand brake, re-locating it within the cockpit, converting it to a "fly off" action and modifying pedal lengths and position.
- 5.15 Under shield:** The addition of a protective device for the underside of the car is permitted if such a device is shown on the original Homologation Form or is authorised in the Standing or Supplementary Regulations of the event.
- 5.16 Aerodynamic Aids:** Are not permitted.
- 5.17 Ballast:** The weight of the car may be made up with ballast, provided that it consists of strong, unitary blocks, fixed by means of tools to the floor of the cockpit, visible and sealed by the scrutineers. A spare wheel securely fixed may be used as ballast.
- 5.18 Bodywork:** For Competition Grand Touring cars only, it is permitted to include the bodywork modifications carried out in the period, within the limits of the international rules for Grand Touring cars in force at the time, as stated in Article 2.2(4).
- Therefore, for the establishment of the "period specification" with regard to GTS cars' bodywork only, Article 2.1(2)(a) will not exclude the application of Article 2.1(2), (b) (c) (d), on condition that the bodywork is in conformity with a COMPLETE configuration used on the model concerned, in an international competition run to FIA regulations in the period.
- If modifications to the homologated bodywork have been made, this must be declared in the car's history on the Certificate of Description, with the date, description and justification of the modifications.

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Retractable headlights must be as original, with the full mechanism in place.

### **6 Technical Regulations for Single-Seater and Two-Seater Racing Cars (Including GTP Cars, Sports Cars, Sports Prototype Cars and NZ Specials):**

#### **6.1 General:**

- (1) An individual car (chassis/body) must not be converted with a different engine into a car of a different category or class from that in which it competed in period (except as allowed in Article 3).
- (2) Replacement parts for, and modifications to, these cars are limited to period specification except where required by Schedule AA, or listed below.

#### **6.2 Chassis:** Must follow the original design and dimensions but may employ local stiffening. New stressed members must not be added unless this was a period specification.

The points to which suspension elements are attached to the chassis frame must not differ in dimension or position from the period specification.

#### **6.3 Suspension Front and Rear:**

- (1) The system of suspension (spring type and location of wheels or axles) must not be altered nor must any additional location or springing medium be added unless this was a period specification.
- (2) Anti-roll bars and telescopic shock absorbers are only permitted if included in the period specification. Anti-roll bars must be made from a solid bar for cars up to Period D inclusive; Cars of Period E, F and G may use tubular anti-roll bars if proven to be a period specification for the model.
- (3) Aluminium bodied and/or gas filled telescopic dampers may only be fitted to cars in Periods E, F, G and H, or to cars whose period specification allows them.
- (4) Adjustable spring platforms may be used on all cars of which the period specification included concentric coil spring/shock absorber units. By the word "coil" is meant one(1) complete turn of a spiral, **not** a complete spring.
- (5) On Period C, D, E, F, G, H, R and T cars suspension joints may be replaced by non-original parts provided that this does not result in a change in the dimensions.
- (6) Rose joints may only be used if a period specification. Rose joints may be used on anti-roll bars on Period D and R cars providing that the geometry of the suspension is not affected.
- (7) Beam and live axles should be of original design but any substitution must use the same mounting points and shock absorbers and follow the original shape.

#### **6.4 Engine:**

- (1) The bore of the engine must not be increased by more than 5% for cars of Periods A and B, or by more than 1.2mm for cars of Period C and onwards, compared to the period specification and providing that the resultant capacity does not exceed the original capacity class of the period.

The stroke may not be altered from a dimension shown in a period specification.

- (2) Crankshafts, connecting rods, pistons and bearings may be of larger dimensions than the period specification, within the limits of the crankcase. They must be made from the same material type. The method of construction is free.

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- (3) Neither the number of valve ports, nor the valve length, may exceed the manufacturer's specification unless period evidence of their use is provided.
- (4) Cylinder head conversions may be used if period evidence of their use is provided.

### 6.5 Ignition:

- (1) Electronic ignition may only be used if a period specification and only on Period D, E, F, G, H, R and T cars.
- (2) For cars in Period D only, electronic ignition systems may be used, provided they utilise contact breaker points or are magnetically coupled, and use a distributor and rotor arm to switch the high tension current.
- (3) For cars in Periods E, F, G, H, R and T electronic ignition systems are free, if included in the period specification. An electronic rev limiter may be used.

### 6.6 Fuel and fuel Systems:

- (1) Single Seaters may use alcohol-based fuels where period specifications allow.
- (2) Mechanical fuel pumps may be replaced by electrical pumps, or vice-versa.
- (3) Carburettors, which are identical to a factory option for the model, are permitted.

Alternative carburettors from the same or an earlier period may be used, but only if the alternative components are of the same number and general type and principle of operation as those originally fitted.

- (4) Cars with fuel injection may be converted to carburettors of the same period.

Fuel injection and/or supercharging may only be used on an individual car that used it in the period and only the original system may be used.

### 6.7 Lubrication: It is permitted to change the system of engine lubrication (for example from wet sump to dry sump), if a period specification and subject to this being allowed for the Category of the car (not allowed for F/Junior pre-1961).

The number and type of oil pumps used and the length of oil piping must conform to the period specification.

Engine oil coolers may be fitted but must be positioned so as not to change the silhouette.

### 6.8 Gearbox: Automatic transmissions, overdrives and additional forward speeds are not accepted, unless they were a period specification.

The fitting of Cotal electric, Wilson epicyclic, or four(4) speed gearboxes to a car in Period A not so equipped originally, will be sufficient reason for classifying the car as Period B for FIA events.

Gearboxes manufactured in the period of Period C must not be fitted to cars manufactured in earlier periods.

When an alternative gearbox is fitted, only a gearbox of the same or an earlier period will be permitted. Rear-engined cars in Period D, E, F, G and H may utilise the Hewland Mk8 gearbox provided that the replacement gearbox has the same number of forward speeds.

### 6.9 Final Drive: Limited slip differentials may only be fitted if a period specification. Cars so fitted up to and including Period F may only use Salisbury friction or ZF cam type limited slip devices. Limited slip differentials may not be used on cars of F.Junior 1958-63 or F.3 1964-70.

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**6.10 Brakes:** Brake components must be entirely to period specification except for the following:

- (a) Conversion to a different mechanical system or hydraulic operation is permitted if a period specification.
- (b) Disc brakes (similarly ventilated discs and four(4) pot callipers) are only permitted if a period specification.
- (c) Hydraulic braking systems may be converted to dual circuit operation, which provides simultaneous operation on all four(4) wheels via two(2) distinct hydraulic circuits.
- (d) The installation of an air box around disc brakes for cooling purposes is permitted.
- (e) Hydraulic fluid lines may be replaced with "Aeroquip" type piping.

**6.11 Steering:** An alternative steering wheel of different diameter and style may be fitted.

**6.12 Wheels and Tyres:**

**(1) Wheels:**

- (a) Periods A, B and C inclusive: the minimum diameter permitted is 15inches unless it can be proven that a smaller size was used in the period. Maximum rim width must be according to the period specification. If no period specification exists, then MotorSport NZ will specify the dimension.

Split-rim wheels are forbidden unless proven to be a specification available in the period.

- (b) Periods E, F, G, H, R and T rim widths are free subject to the original regulations of the Category. In Periods E, F and H, wheels with rim widths narrower than period specification may be used.

The maximum rim width permitted in Formula Junior is 5inches (127mm) for Period C cars and 6.5inches (165mm) for Period D cars.

**(2) Tyres:** Must comply with Article 8.

**6.13 Body:** The car must retain its original silhouette of the period in which it originally competed and show no additional air ducts, scoops or blisters. The addition of a rollover bar is not considered to be a change to the silhouette.

Replacement body panels must faithfully follow the original design constructed in the period for that original chassis.

Replacement panels must be made of the original material type. However, for Periods A and B, a period style body made of the original material type is permitted providing that the chassis dimensions (wheelbase, track and chassis members) conform to those of an accredited model of the period, and that MotorSport NZ informs the FIA in each case, with photographs showing both side views, front view, rear view and interior.

**6.14 Aerodynamic Aids:** May only be fitted to cars in Period E onwards and only if a period specification.

Dimensions may be reduced to current standards for safety reasons, particularly if the originals are now illegal.

Cars originally fitted with aerodynamic aids may compete without them.

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**6.15 Electrical system:** Alternators may only be fitted if a period specification.

The voltage of the battery and of all electrical devices may be converted from 6 to 12 volts. The type, make and capacity in ampere-hours of the battery is free. The original location of the battery may be changed. If the battery is retained in the cockpit it must be securely fixed and have an insulated, leak proof cover.

**6.16 Wheelbase, track, ground clearance:**

- (1) The wheelbase may not vary by more than 1.1% (maximum 25.4mm) from the period specification.
- (2) For vehicles of Periods A, B, C and D, all parts of the sprung mass of the car must have a minimum ground clearance of 60mm such that a block of 800mm x 800mm x 60mm may be inserted beneath the car from any side. The ground clearance will be measured without the driver and, if necessary, with empty fuel tanks, but with the wheels and tyres to be used in the competition fitted.
- (3) For all cars of Period E and onwards, the period specification must be respected.
- (4) The track must not vary from the period specification.

**6.17 Weight:** The minimum weight for a car must conform to the original regulations for the car's category.

**Note:** For GTP-A and GTP-B cars, the FIA minimum limits will apply.

**7. Technical Regulations for Thoroughbred Grand Prix Cars:**

**7.1 Chassis:** The chassis must conform to the design and construction of the original. Additional material may be added to repair composite chassis, but professional inspection techniques must be employed for any such chassis and certification of such inspections must be affixed to the FIA Historic Vehicle Identity Form. No other alteration may be made to the chassis, and all safety requirements for the period of the car's participation in international competitions (hereafter: "international life") must be present.

**7.2 Front and rear suspension:** The suspension must conform to a manufacturer's specification or a system for which period evidence exists.

Springs must be of constant rate unless period evidence is produced to show the use of variable rate springs.

Cars originally fitted with active suspension systems may be converted back to a non-active system used in period on that model.

**7.3 Engine:** The engine fitted must be of the same make and model and type fitted conforming to a manufacturer's specification or for which period evidence exists. The engine categories are as follows;

- (a) Normally aspirated engines not exceeding 3000cc.
- (b) Post 1985 Turbocharged engines not exceeding 1500cc (FOR PARADES AND DEMONSTRATIONS ONLY).
- (c) Normally aspirated engines not exceeding 3500cc (FOR PARADES AND DEMONSTRATIONS ONLY).
- (d) Gas turbine engines (FOR PARADES AND DEMONSTRATIONS ONLY).

Engines, which were less than the upper capacity limit in period, may not be enlarged beyond the swept volume employed during the car's international life.

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Cars originally fitted with DFV engines may utilise DFV-derived engines built to current F3000 specifications and output. These engines must be restricted to a maximum of 9000rpm and details of the change must be entered on the FIA Historic Vehicle Identity Form.

The FIA Historic Vehicle Identity Form for the cars in (b) (c) (d) above must be endorsed on the front page: FOR PARADES AND DEMONSTRATIONS ONLY.

- 7.4 Ignition:** The ignition system must be of a type used during the car's international life. Cars using management systems may use re-programmed EPROM's.

Cars originally fitted with DFV engines may be fitted with later electronic engine management systems but, if so, must be fitted with an electronic device limiting the engine to 9000rpm maximum. Details of this must be entered in the car's FIA Historic Vehicle Identity Form.

An electronic rev limiting device may be fitted to any car.

- 7.5 Lubrication:** The position of oil coolers may be changed but must not alter the silhouette of the car. A catch tank of 3000cc capacity must be fitted.

- 7.6 Fuel System:** Fuel tanks must comply with the safety standards specified in FIA Appendix J of their period of construction.

Fuel tanks may be upgraded to the safety standards specified in FIA Appendix J, Article 253.14.

Carburettors may be substituted for fuel injection.

Cars originally fitted with DFV engines, which are updated to electronic fuel injection, and engine management systems (see Article 7.4 above) must be fitted with an electronic device limiting the engine to 9000rpm. Details of this must be entered in the car's FIA Historic Vehicle Identity Form.

- 7.7 Gearbox:** Cars originally fitted with semi-automatic transmissions may be converted to a manual gearbox of a type fitted to a car of the same model.

- 7.8 Final Drive:** The final drive must conform to a manufacturer's specification or be of a type for which period evidence exists.

- 7.9 Brakes:** Only cars which are used for Parades and Demonstrations may use carbon-carbon brakes. Cars originally fitted with carbon-carbon brakes may be converted to iron/steel discs with contemporary callipers and conventional pads.

- 7.10 Wheels:** Wheels must be of the original diameter used during the car's international life. Rim widths must not be increased but may be decreased in order to accommodate available tyres. It is recommended that wheels are crack-tested regularly.

- 7.11 Tyres:** Must comply with Article 8.2.

- 7.12 Body:** The car's bodywork must be of a design used on that car during its active international life.

The bodywork may display livery used on the car during its active international life.

Fire extinguisher systems of a type used during the car's international life must be fitted and be operable.

Fire extinguisher systems may be supplemented to the standards of FIA Appendix J, Article 253.7.

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- 7.13 Aerodynamic Aids:** Aerodynamic devices may only be fitted to the car if the car used such devices during its international life.

The devices used must conform in design, positioning and dimensions to those used during the car's international life. No aerodynamic device, which was fitted to unsprung parts of the car and/or was adjustable from the cockpit, is permitted. Cars that originally ran with aerodynamic devices may be run without.

Cars built using ground effects principles must have any sliding skirts removed or immobilised in a position such that they cannot make contact with the ground at any time.

Any device fitted to the car to lower its ground clearance whilst in motion must be disabled.

- 7.14 Lighting:** A rearward facing red light conforming to FIA Appendix K, appendix X, Article 17 must be fitted.

- 7.15 Wheelbase, Track and Weight Dimensions:** The wheelbase must not vary by more than 1.1% (maximum 25.4mm) from a dimension for which period evidence exists. The track must not be superior to a dimension for which period evidence exists.

The weight of the car, when weighed without fuel but with oil, shall not be less than the minimum weight specified for the car in the Technical Regulations for the FIA Formula One World Championship for the year in which the car originally competed. All suspended parts of the car shall clear a block 40mm in height.

### 8. Tyres:

- 8.1 General:** Tyre compound and construction must respect the specifications that were applicable to the period the vehicle represents. Chassis and suspension componentry were designed to accept the loads and forces induced by the tyres of any given period. To install a tyre of improved technology could impose loadings that exceed the chassis and suspension design parameters.

Tyre sizes are free as long as the other relevant regulations, (rims, mudguards), are respected.

### 8.2 Race tyre for circuit racing and speed events:

**Important Notice:** *MotorSport NZ will consider applications for tyres not already included in this Article upon receipt of full compound, tread pattern and construction specifications along with a statement from the tyre manufacturer (or importer) that the tyre presented for consideration does not exceed the specifications of the tyres already approved.*

- **CARS IN PERIOD A, B and C** – must use Dunlop Vintage or “L” Section racing tyres which have 204 compound only and tread pattern CR65 or earlier.
- **CARS IN PERIODS D, F, L, M and N** – may use racing tyres from the Dunlop Vintage “L” and “M” Section and post Historic Ranges in 204 compound, or Goodyear “Blue Streak” racing tyres.
- **CARS IN PERIOD E and G** – shall use Avon, Goodyear or Hoosier slick tyres as detailed in Article 6.12(1)(a) for A and B period cars. Cars built prior to 31 December 1971 may use tyres from the Dunlop Post Historic Range. Wet weather tyres are free.
- **CARS IN PERIOD H** – Formula Ford's must use Dunlop CR82, Fronts – 135/545-13, rears – 165/580-13, alternatively cars may use Dunlop “M” Section tyres.

Formula Vee's must use a road tyre (Refer Article 8.3 of this Schedule).

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- 8.3 Road Tyres:** All cars may, as an alternative to using period racing tyres, use tyres suitable for legal road use. (i.e. DOT approved road tyres having 2mm minimum tread depth across 75% of the width of the tyre and around the entire circumference of the tyre. Aspect ratio is restricted to 60% minimum. (The tread pattern should be in keeping with the period the vehicle represents.)

Any road tyre used in a race or speed event must have a speed rating compatible to the capability of the car.

- 8.4 Tyre Compatibility:** It is the competitor's responsibility to ensure that any tyre fitted is compatible with the rim section of the wheel and does not exceed the original design loadings for suspension or chassis.

**Notes:**

1. *This is particularly important when modern tyres or tyres of a larger size, are to be used.*
2. *In all cases of doubt the tyre manufacturer should be consulted.*

## CHAPTER Two - Crack-testing and Repairs to Composite Parts

### A: Non-Destructive Testing for Structural Integrity in Thoroughbred Grand Prix Cars:

1. The following items of a Thoroughbred Grand Prix Car must be checked for structural integrity by a non-destructive test:
  - (a) Road wheels constructed from or containing magnesium parts.
  - (b) Road wheels constructed from **cast** aluminium (NB spun or machined aluminium parts or components are exempted).
  - (c) Suspension wishbones, rockers and push/pull rods.
  - (d) Steering arms.
  - (e) Wheel hubs.
  - (f) Suspension uprights, whether cast or fabricated.
2. All of the above components must be tested using a method of crack detection appropriate to the material and type of construction of the component in question. Each component must be identified by having the type and chassis number of the corresponding vehicle indelibly etched or marked on it: chassis no/part identification/part no. The following method of identifying the components must be used.

Wishbone, left front = WLF  
Rocker arm, left front = RLF  
Wishbone, right front = WRF  
Rocker arm, right front = RRF  
Wishbone, left rear = WLR  
Rocker arm, left rear = RLR  
Wishbone, right rear = WRR  
Rocker arm, right rear = RRR  
(specify upper or lower )  
Push/pull rod, left front = PLF  
Upright, left front = ULF  
Push/pull rod, right front = PRF  
Upright, right front = URF  
Push/pull rod, left rear = PLR  
Upright, left rear = ULR  
Push/pull rod, right rear = PRR  
Upright, right rear = URR  
Hub, left front = HLF  
Hub, right front = HRF  
Hub, left rear = HLR  
Hub, right rear = HRR  
Steering arm, left = SAL  
Steering arm, right = SAR  
Wheel, front = WHF  
Wheel, rear = WHR

3. The company or establishment responsible for verifying the structural integrity of components must furnish the vehicle owner with a certificate or letter on official headed notepaper (photocopies are not acceptable) certifying that they have tested the components listed upon the certificate. The parts fitted on the vehicle must at all times correspond to those listed on the certificate. The certificate or letter should bear the name and signature of the inspector and the date upon which the inspection was carried out. Spare components intended for use on the vehicle must also be inspected accordingly and should be detailed on the certificate.
4. The certificate will be valid for a period of two(2) years from the date of testing.

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5. New components: components declared and certified as new by the manufacturer will be exempted from testing for a period of two(2) years from the stated date of manufacture except in the case of magnesium road wheels which will be exempt for a period of three(3) years from the date of manufacture.
6. The test certificate/manufacturer's declaration must be appended to the Historic Vehicle Identity Form.
7. It is strongly recommended that similar inspections should be carried out on components that are vital to the integrity of the car but which may not be contained in the list above.
8. The tests must be carried out according to the following standards:
  - BSI, DIN, ISO, ASTM
  - Penetration Flaw Detection
  - BS 6443 and BSM 39, DIN 54152-1, ISO 3452
  - Magnetic Particle Flaw Detection
  - BSM 34, ASTM 709
  - X-Ray Flaw Detection
  - BS 6072 and BSM 35, DIN 54111-1, DIN 54111-2, ISO 5579.

### **B: Detecting Damage and Subsequent Repair of Composite Structures:**

1. Any repairs to the survival cell or nose box must be carried out in accordance with the manufacturer's specifications, in a repair facility approved by the manufacturer. If this is not possible, all repairs must be carried out in accordance with the following in a facility approved by the FIA.

There are four types of damage that can be effectively repaired:

- (a) Indentation causing deformation to both skins. Repairs can generally be economically considered up to 250cm<sup>2</sup> of any one(1) area.
- (b) Penetration through the outer skin causing deformation of inner core. Repairs can generally be economically considered up to 20% of the total area of the monocoque.
- (c) Areas of delamination. Repairs can generally be economically considered up to 20% of the total area of the monocoque.
- (d) Penetration through the entire sandwich structure. Repairs can be satisfactorily carried out up to 125cm<sup>2</sup> of any one(1) damaged area.

2. Testing composite structures:

- (a) In the absence of ultra-sonic testing equipment a simple coin test will suffice.
- (b) Check for delamination around periphery of the damaged area by tapping skin with a small metallic object such as a small coin.

**Note:** *There is a hollow sound from a delaminated area compared to a ringing-solid sound from non-damaged area.*

3. Repair procedures:

- (a) Examine the damaged area.
- (b) Remove the damaged skin by making a hole, as circular as possible without cutting away an excessive amount of sound material, and cut out the damaged honeycomb core down to the other skin. If both skins are damaged, select the one with the largest area of damage.
- (c) Sand out a circular or oval dish-shaped area of face laminate, with a uniform taper around the damaged or removed area, to approximately 10cm from the edge of the area.
- (d) Wash out any dirt or sanding dust with acetone or similar.
- (e) Trim the honeycomb and make a plug which will fit into the prepared cavity. Place adhesive film or resin mixture on sound skin at base of cavity and a foaming paste around its periphery. Take the plug and insert it into the cavity pressing hard enough to squeeze resin into the honeycomb core.

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- (f) Cut replacement plies to the shape of the area making each bigger than the previous one until the final ply is approximately 10cm bigger around the circumference of the repair area.
- (g) Place release film and bleed cloth over the new laminate and put tacky tape around the repaired area, cover with a vacuum membrane and evacuate. Maintain a minimum of 500mm of mercury vacuum during the cure cycle.

### 4. Cure Cycle:

- (a) The cure cycle is based on which materials are being used.
- (b) Successful repairs can be carried out cold if the repair is not greater than 50cm<sup>2</sup> in any one(1) area. Hot cures can be placed in an oven or can be carried out using a heat patch.
- (c) The procedures described can also be used in a suspension mounting area.
- (d) If only delamination has occurred, a number of three(3) mm diameter holes can be drilled around the delaminated area and then one injected with a two part cold set epoxy resin adhesive until the adhesive is evident in all holes. The holes must then be covered with release tape for the duration of the cure.