

SCHEDULE TC1[©]

BNT V8s

CLASS ONE TECHNICAL REGULATIONS

2019-2020

PREAMBLE

The Class One Touring Car is based on a tubular/space frame chassis (the ST Car designed and manufactured by Pace Innovations to accommodate the Holden VE Commodore or the Ford FG Falcon, and the TLX Car by Mitchell Race Xtreme to be the main control element for various marques eligible within this category). Both could have the possibility of more similar sized body variations from other manufacturers.

The Race Car shall 'built-up' by the owner/team utilising a kit of component parts as designated under the words "Control Parts" or "OE Parts". These parts are classified as 'control components' meaning they are the same for all and may not be changed in any way to ensure the technical specification of the Race Car remains consistent. For the avoidance of doubt, if not expressly permitted then it cannot be done. *Eg; If this Schedule does not say you can do something, then you cannot do it.*

Technical Parity will be assured through controlled mapping of the Electronic Control System. Parity between the Pace chassis and the MRX chassis is to be achieved through the mandated use of 'Control Components' as detailed within these regulations.

COMPETITOR RECORD OF AMENDMENTS ISSUED TO THIS SCHEDULE

Use this table to keep a record of all official Series Amendments' issued during the season relative to this Schedule;

Amendment / Bulletin #	Issue / Effective date	Regulation / Article reference	Subject / Notes

1.0 GENERAL PRESCRIPTIONS RELATIVE TO THIS SCHEDULE

- 1.1 **This Schedule shall be read in its entirety and shall take precedence over Appendix Two Schedule A excepting where an item is not specifically covered, in which case Appendix Two Schedule A as detailed in the current edition of the MotorSport Manual will apply.**
- 1.2 Text changes (to any previous issue of this Schedule) shall be highlighted such, although text changes for grammatical and formatting reasons will not be highlighted.
- 1.3 MotorSport NZ, in conjunction with the New Zealand Touring Car board and the Championship Scrutineer, is responsible for the control of the BNT V8s Championship Technical Regulations and their interpretations.
- 1.4 All Cars entering competitions to which this Schedule applies shall have a valid MotorSport NZ logbook.
- 1.5 **Eligible Race Cars:** For simplicity the Class One Cars shall be referenced hereinafter as the 'Race Car' unless clarified with the names "Pace chassis" or "MRX chassis". No other cars will be eligible for the Class One Championship.
- 1.6 These regulations define the specification of the Class One Cars and prescribe the only modifications/changes authorised to this specification that may be performed by the Competitor / Team. In determining eligibility, the 'Build Manual' and the Control Component Manufacturer/Supplier' are deemed authorised reference sources.
- 1.7 The Race Car shall be assembled and maintained utilising 'control components' [parts] as supplied by Controlled Component Suppliers and as defined under Article 2.0 of this Schedule, hence the only modifications / changes that may be performed relative to these control components will be clearly detailed under the relevant Article of this Schedule.
- 1.8 Control components: For the avoidance of doubt, and in the case of dispute, components shall be directly compared to/measured from a new sample from the control supplier, and the supplier may be called upon to help judge the eligibility of said component.
- 1.9 All Class One cars shall at all times, whilst in attendance at a round of the Championship (to which these regulations apply), comply fully with the specifications detailed in this Schedule.
- 1.10 Amendments to these regulations may be issued by 'Technical Bulletin' to amend, vary or add to this Schedule at any time as determined by NZTC and approved by MotorSport NZ. Amendments may be issued to make a clarification or correction and for parity and/or safety reasons. Amendments shall take effect from the date specified on the bulletin,
- 1.11 Competitors shall make their Race Car and safety equipment available for any technical eligibility and safety inspections, as and when requested, by the appointed Championship Scrutineer and/or MotorSport NZ Technical Officer or other delegated officials. Additionally, the Race Car and the driver's safety apparel shall be presented (pre-event) for safety audit as and when requested. The Race Car shall be presented as it will be used in the competition. The MotorSport NZ logbook shall be submitted to category personnel at the commencement of the meeting and may be held until the completion of technical checks pertaining to that meeting.

- 1.12** It is the Competitors responsibility that vehicle presentation, including any race damage repair work at all times, be to a professional standard (as shall be determined by the Championship Scrutineer). Any repairs to a component of the Race Car or a Control Part must be performed by, or to the specification of, the Control Component Supplier manufacturer / repairer and using materials utilised in that components original production. Any such repairs must ensure the original profile, shape and weight of the component is maintained. Emergency race day repairs shall be approved by the Championship Scrutineer.
- 1.13** The primary function of any component, even where specified as free, is the overriding factor in determining its compliance with these regulations. Any secondary functions, unless specifically authorised are forbidden. Componentry may be painted or coated on the external surface only and only to enhance appearance. No change of function will be accepted, eg. aerodynamic or frictional advantage. This shall be entirely at the discretion of the Championship Scrutineer. No tape or covering may be added to gain an aerodynamic advantage.
- 1.14** All forms of data transmission / telemetry from the competing Race Car are forbidden, excluding two-way voice communication between the driver and the pit-based team and between the Race Car and the BNT V8s broadcaster. Driver radios shall be powered from the source supplied (for this purpose) in the Race Car wiring loom or integral battery. Impulse generators solely for the purpose of lap timing are authorised, provided they are separate parts that have no connection with the controls of the racecar.
- 1.15** **Technical Eligibility and Safety Equipment Enquiry:** Where any doubt may exist in understanding any regulation contained within this Schedule an enquiry shall be made to the Championship Scrutineer. All technical eligibility and/or safety equipment enquires shall be submitted in writing (email) to the Championship Scrutineer and/or MotorSport NZ in the first instance.

Championship Scrutineer: Maurice Thompson
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All enquiries should detail the Article in question and the subject matter. A written reply will always be given to a written enquiry. On matters of technical eligibility and/or safety compliance, a verbal statement will have no validity.

- 1.16** Where modifications to the vehicle have been carried out that are entirely 'non-performance-affecting' in all respects, application can be made to the Championship Scrutineer for an allowance. A competitor declaration shall be completed and submitted to the Championship Scrutineer. The Championship Scrutineer's decision shall be final.

2.0 DEFINITIONS

- 2.1** Definition of terms used within this Schedule shall be referenced from the National Sporting Code, the Championship Articles, Appendix Two Schedule A and as detailed below:

'Build Manual' means the official documentation used to initially construct (build) the Pace chassis Car and thereafter to maintain this car, and which contains the technical data / specifications used to ensure compliance with this Schedule.

'Certified Engine' means the engine as specified. Certified engines shall bear an ID tag number together with official seals fitted as per the requirements of these regulations.

'Chassis' means the Race Car chassis, including the safety cage, constructed/supplied by Pace Innovations or Mitchel Race Xtreme, to a specification laid down by NZTC and referred to hereinafter as the 'chassis'.

'Complete wheel' means the wheel rim, inflated tyre and tyre valve.

'Control Component' means a specific part intended for use on the Race Car that is fully controlled in respect of its specification, application and supply, and where specified shall be fitted. All 'Control' components shall be procured from the "Control Component Supplier". No changes are permitted to any control component unless covered by these regulations. This includes thermally, chemically or mechanically.

'Control Component Supplier / repairer' means the appointed agent for the specific 'Control' component in question.

'Direct Replacement' means a part that is sourced from another manufacturer which is a 'direct' replacement in level of duty, function and design to the part it replaces, and which can be fitted without making any additional modifications unless listed.

'ECU' and 'ECU Software' means the electronic controller and associated software relating to engine control system.

'Free': (in relation to a component part) means that the original part as well as its function may be removed or replaced with a new component on condition that the new component has no additional function relative to the part it replaces.

'Freely sourced' means the part may be purchased from any supplier but may not necessarily mean a change of the control component.

'MRX chassis' means a Race Car constructed, raced and maintained to a specification laid down by this Schedule.

'OE' means the Original Equipment (component part) as fitted by the manufacturer of the car make/model represented.

'Original' means the condition in which the component (part) was supplied new and/or the condition of the part provided it remains within the manufacture's tolerances including any modifications and/or adjustments permitted by the 'Build Manual' or these regulations.

'Pace chassis' means a Race Car constructed, raced and maintained to a specification laid down by this Schedule.

'Parity Tuner' means the MotorSport NZ approved person(s) appointed to control the equalisation of performance by electronic means for all competing vehicles under the Schedule.

'Race-trim': means the condition in which the car competes, and shall include all fluids, any ballast (necessary to maintain the minimum racing weight), and the driver and driver's safety apparel.

'Racing weight' means the minimum weight of the complete Race Car in race trim as it completes any official qualifying session or race.

'Telemetry' means the transmission of data between the moving Race Car and anyone connected with the entry of that Race Car. Note at any time during the competition this may be investigated by the Championship Scrutineer at their absolute discretion.

'Tyre Manufacturer' means the tyre manufacturer appointed by BNT V8s to supply the control tyres for the current Series.

3.0 OFFICIAL SEALS and SEALING REQUIREMENTS

- 3.1 Refer Schedule CH Article 29 for the definitive text on Championship seals.
- 3.2 The Championship Scrutineer shall undertake a seal application / checking program at each Round of the Series (prior to the Qualifying Session).
- 3.3 Championship seals (category 'C' seals) may be applied to the following components:
- Cylinder heads - by one head bolt/stud and a hole through each cylinder head casting
 - Timing cover to cylinder block - by two adjoining bolts
 - Inlet manifold to cylinder head - by two adjoining bolts
 - Sump to cylinder block – by two adjoining bolts
 - ECU to vehicle body – by two adjoining bolts
- 3.4 It is the Competitor's responsibility to ensure that the above mandated assemblies detailed above have bolts / studs / flanges pre-drilled with 3 mm holes, to enable wire seals to be affixed.

4.0 SAFETY EQUIPMENT REQUIREMENTS

- 4.1 **Vehicle Safety Requirements:** The Race Car shall be fitted with the following safety equipment which shall be installed, maintained and serviced as per Schedule A requirements;
- 4.1.1 A MotorSport NZ type approved **safety cage** is incorporated as part of the 'chassis' (as supplied by Pace Innovations or Mitchell Race Xtreme). This structure **must not** be modified or altered in any way whatsoever. Protective padding in compliance with FIA Standard 8857-2001 or SFI spec 45.1 shall be fitted to the safety cage members within the defined head-space area detailed in Schedule A, Article 4.6(6) and diagram 4.6(6). Refer Article 7.3 and 7.4 regarding safety cage repair procedures.
- 4.1.2 A **five(5) or six(6) strap safety harness** homologated according to FIA Standard 8853-2015, or FIA Standard 8853-98 shall be installed on the fixing points provided on the chassis (for the lap and crotch straps) and the safety cage (for the shoulder straps) which shall utilise the 'Control' component guide bracket. Schedule A compliance shall be maintained at all times and harnesses shall not be used in violation of the FIA homologation. The buckle shall be permanently connected to one(1) strap only. The attachment of any device that enables the safety harness to be retracted away from a driver's body to facilitate a driver's ingress or egress is strictly prohibited. This includes, but is not limited to, elastic straps or stiffeners.

Note: *The attachment of shoulder harness to lap harness by any means other than the buckle is strictly prohibited.*

- 4.1.3 A **competition seat** (compliant with FIA Standard 8855-1999 or 8862-2009) shall be installed for the driver. (*refer Schedule A*).
- 4.1.4 A **window net** compliant with FIA specification 253-11 or SFI Spec 27.1 shall be installed for the driver in compliance with Schedule A.
- 4.1.5 A hand-held **fire extinguisher** of 1kg minimum capacity shall be installed within reach of the driver (seated position) as per Schedule A. Additionally, a mounted (plumbed-in) fire extinguisher system (as detailed in FIA Technical List #16) may be installed. This system must remain compliant with the FIA homologation and the manufacturers' 'user manual' (which must be supplied by the Competitor upon request of an official).
- 4.1.6 An **external ignition / circuit breaker switch** shall be fitted on the right-hand side near the bottom of the front windscreen (that breaks all electrical circuits that keep the engine running). It shall be identified by the marking as detailed in Schedule A, diagram 5.4(1).
- 4.2 **Driver Safety Apparel Requirements:** All drivers shall wear the following driver safety apparel/equipment when competing at a Round of the Championship to which these regulations apply;
 - 4.2.1 A **protective helmet** in compliance with FIA Standard 8859-2015, or FIA Standard 8860-2004, 8860-2010, or 8860-2018, or SA2015 or SAH2010 or SA2010 or SA2005.
 - 4.2.2 **Protective clothing**, including overall, underwear, balaclava, gloves, socks and shoes in compliance with FIA Standard 8856-2000 or 8856-2018.
 - 4.2.3 A **Frontal Head Restraint (FHR)** as detailed in FIA Technical List #29.
- 4.3 **Passenger Safety Equipment / Apparel Requirements:** Whenever a passenger is carried in the Race Car at a Round of the Championship to which these regulations apply, the use of the following vehicle safety equipment and safety apparel applies;
 - 4.3.1 A **protective helmet** in compliance with Schedule A shall be worn by each occupant of the Race Car.
 - 4.3.2 **Protective clothing** in compliance with Schedule A shall be used. This means (at least) a one-piece overall with close fitting front, cuffs and ankles which entirely covers the wearer except for the head, hands and feet, and shoes that cover the whole foot / ankle.
 - 4.3.3 A **safety harness** compliant to FIA Standard 8853/54-1998 (4 or 5 or 6 strap) shall be installed for the passenger as per Schedule A.
 - 4.3.4 A **competition seat** compliant to FIA Standard 8855-1999 shall be installed for the passenger as per Schedule A.
 - 4.3.5 **Protective padding** in compliance with FIA Standard 8857-2001 or SFI spec 45.1 shall be fitted to the safety cage members within the defined head-space area (of the passenger) as detailed in Schedule A.

5.0 WEIGHTS, DIMENSIONS AND SPECIFIC ALLOWANCES

- 5.1 **Racing weight:** The minimum weight of the race Car in Race trim shall not be less than 1400Kg at all times during the competition.

- 5.1.1** The racing weight is the complete weight of the Race Car in race-trim, which may be measured during or at the completion of any qualifying sessions or at the completion of any race, on the official scales of the meeting.
- 5.1.2** **Ballast:** Any ballast required to respect the minimum racing weight shall be affixed to the cockpit floor. Compliance with Schedule A Article 6.1 shall be maintained at all times.
- 5.1.3** **Adding weight during a race:** it is specifically prohibited to add any substance during a race with the exception of; fuel, brake fluid, drivers drink fluid, ice for the driver's cool suit, oil, power steering fluid. If it becomes necessary to replace any component part of the Race Car during a race the replacement component part must not weigh less than the component part it replaces.
- 5.1.4** For the avoidance of doubt, it is not permitted to add any substance to the Race Car after the end of the race. This requirement remains in force until the end of Parc Fermé. Drivers may be weighed separately from the car before receiving a drink or attending a presentation and their weight will be added to the Racing Weight.
- 5.2** The following dimensions apply which shall be respected at all times during competition. "Control Component" may override any of the listed constraints:
- Wheelbase:**
- **Pace Chassis:** maximum wheelbase 2725mm.
 - **MRX Chassis:** maximum wheelbase 2827mm.
- Front Suspension:**
- **All Cars:** Front wheel camber shall respect a maximum of negative 6° measured at the wheel rim.
 - **Pace Chassis:** Front track maximum 1905mm.
 - **MRX Chassis:** Front track maximum 1935mm.
- Rear Suspension:**
- **All Cars:** rear wheel camber is free provided rear track limits are respected when measured at the wheel rim.
 - **All Cars:** rear track maximum 1930mm.
- 5.3** The **rear wing** is a 'control component' as is its mounting location. The wing angle may be adjusted using only the range of adjustment provided on the 'control component'.
- 5.4** The bodywork shall be complete and shall be painted and/or vinyl wrapped and shall always weigh more than the original bodywork component without paint or vinyl.
- 5.5** '**Race tape**' may be applied to the exterior bodywork solely for the following reasons;
- To secure fasteners,
 - To cover vulnerable leading edges of the front splitter
 - For emergency repairs performed during a qualifying session or race. It is specifically not permitted to cover body seams and/or holes.

5.6 Aerodynamic influence: Any specific part of the Race Car that influences its aerodynamic performance must be in strict compliance with the bodywork specifications and must be rigidly secured to the entirely sprung part of the Race Car and must remain immobile in relation to the sprung part of the Race Car.

(1) Any device or construction that is designed to bridge the gap between the sprung part of the Race Car and the ground is strictly prohibited.

5.8 Fasteners can be replaced so long as the replacement is of the same diameter and is made of steel and is not hollow or 'gun-drilled'. It is permitted to use aviation type and quality fasteners however fasteners made of exotic materials, such as Titanium and Inconel etc, are not permitted anywhere on the car. It is permitted to salvage a thread in an item by the installation of a helicoil so long as it restores the damaged thread to its original diameter. It is not permitted to replace bolts with studs (or vice versa), nor is it permitted to alter a part by drilling through a blind hole or drilling out a thread, so as to fit a longer bolt with a nut unless approval to do so is granted by the Championship Scrutineer.

6.0 ENGINE, ENGINE ECU and STARTING / RUNNING REQUIREMENTS

6.1 Engine: The only engine authorised under this Schedule is the 'certified engine', which shall be identified by an ID tag and shall be fitted with official seals as prescribed in this Schedule.

- **Pace chassis:** only the LS7 V8 as detailed in the 'Build Manual'.
- **MRX chassis:** Holden car only may use the LS3 V8 or the LS7 V8.
Ford cars only may use the Coyote V8.
Toyota cars only may use the Toyota V8.
Nissan cars only may use the Nissan V8.

Note: *the only approved V8 engines are those listed.*

6.1.1 The engine used must be as supplied by the engine manufacturer and the only modifications permitted are listed below:

- (1) **Pace Chassis:** The only engine that may be installed is the LS7 engine. The following modifications are authorised provided these are carried out prior to Parity Tuning:
- (a) The OE crankshaft must remain standard in its entirety as per the 'Build Manual'
 - (b) Cylinder heads may be ported only, otherwise must remain as per the 'Build Manual'. No other modification of the cylinder heads is permitted.
 - (c) Exhaust manifolds are free.
 - (d) Inlet manifold may be replaced with a commercially available direct replacement manifold provided it closely resembles the original manifold.
 - (e) The camshaft may be substituted with a direct replacement camshaft.
 - (f) The OE valve train shall remain standard as per the "Build Manual".
- (2) **MRX Chassis:** Engine modifications are free, however once the engine is sealed for Parity Tuning no further modifications or alterations are permitted.
- (a) A dry sump lubrication system is mandatory. The dry sump oil reservoir position is controlled. It is recommended that a breather be fitted.

- (b) The exhaust silencer box is a Controlled Part manufactured by MRX.
 - (c) Engine installation into the MRX chassis shall not be altered from the MRX design dimensions for engine position.
- 6.1.2** All **engine data, specifications and allowances** shall be referenced from relevant Technical Bulletins and/or through the Championship Scrutineer in consultation with the Parity Tuner.
- 6.2** Engine **servicing and maintenance** is permitted, but only within the scope of the Schedule.
- 6.3** **Spark plugs:** may be freely sourced and of any manufacture.
- 6.4** **Engine ECU:** The only ECU's authorised are the *Link G4™*, *Motec* and *Emtron*. The ECU chosen will be documented to the car prior to its initial Dyno run. The ECU must have provision to be sealed closed, and additionally to be sealed to the body of the vehicle in accordance with Article 3.3 above. This provision is the responsibility of the entrant and/or team.
- 6.4.1** **Engine Performance Parity:** All Class 1 cars competing in the Championship shall be subject to a 'Parity Tune' prior to competing in the first Round of the Championship entered. The parity tune shall be carried out by the 'Parity Tuner'. Cars that have been parity tuned and sealed from the previous season will be subject to an inspection and map overlaying by the 'Parity Tuner' and the Championship Scrutineer at the first Round entered.
- 6.4.2** All cars shall be presented for parity tuning in the configuration in which it will compete. Additionally, prior to being presented for parity tuning the following is to be achieved:
- (1) All Class 1 cars shall run Electronic-Throttle. No mechanical connection between the throttle pedal and the throttle body is permitted.
 - (2) Sealing holes shall be drilled in accordance with the provisions of Article 3.3 above.
 - (3) Engine inlet and exhaust configurations are to be photographed at the time of parity tuning and shall remain in that configuration for the duration of the Championship.
 - (4) The **Diff ratios** shall be determined and documented in the vehicle logbook. prior to the initial Dyno run and must remain as that ratio number for the entire Championship.
- 6.4.3** Should any doubt arise, photographic and/or written evidence may be used to determine eligibility of components affecting Parity Tuning.
- 6.4.4** All enquiries relating to Parity tuning shall be directed to the Championship Scrutineer. Under no circumstances shall any team personnel approach the Parity Tuner directly on reasons of Parity.
- 6.4.5** The Championship Scrutineer and/or Parity Tuner shall have unrestricted access to the competing car data at any time during the competition. Failure to comply may result in a penalty being applied.
- 6.5** The **temperature of the charge** (air and fuel mixture) shall not be altered in any way whatsoever including the use of water spray either internally or externally of the engine.
- 6.6** **Crankcase Vacuum:** no engine shall exceed a maximum vacuum of ten(10) inches of mercury when under wide open throttle acceleration. A valve may be utilised to eliminate crankcase pressure as required.

7.0 CHASSIS / BODYWORK - General

- 7.1 All Cars:** The **chassis** is classified as a 'control component' and shall not be modified in any way, shape or form from the condition in which it has been supplied by the manufacturer unless specifically detailed otherwise within these Articles. If it is not specified, then it is not permitted.
- 7.2 Dimensional Specifications:** All cars shall respect the dimensional specifications of the chassis referenced from the build manual and/or from the manufacturers of the chassis or by technical bulletin from MSNZ.
- 7.3 Repair and recertification of chassis, all cars:** Any significant damage to the Race Car will be recorded in the vehicles' logbook by the Championship Scrutineer and/or Technical Officer. Where repair is required to the main chassis / safety cage structure, the repair may only be performed by the approved chassis manufacturer as defined in Article 2.0 of this Schedule (or under their authority). It is not permitted to grind / weld / drill any powder coated chassis component for any reason other than below:
- To attach interior panels
 - To attach body support braces
 - To attach front and rear bumper supports
 - To mount prescribed safety equipment
 - To mount authorised auxiliary equipment.
- 7.4** If doubt as to legality of a repair, as detailed in Article 7.3 above, remains, the original chassis manufacturer will be involved to determine compliance. This shall be at the competitor's cost.

8.0 BODYWORK and EXTERNAL COMPONENTS - Specific

- 8.1** The body panels / body components shall be fitted / adapted as follows;
- 8.2 Front bumper / splitter / undertray:**
- **Pace chassis:** The front bumper / splitter / undertray assembly is a 'Control' component. The vertical position and angle of this assembly, in relation to the chassis, must remain within the tolerance specified in the Schedule. The 'Control' component 'skid pads' may be fitted.
 - **MRX chassis:** The front bumper / splitter / undertray may be the V8 Supercar equivalent (eg. Nissan for Nissan), or the control component. If the Pace chassis nose clip is utilised it must be fitted along with the Pace chassis undertray.
- 8.3** The **front grille** is an 'OE' component.
- 8.4 Air intake:** The only ducting permitted from the rear side of the front grille to the air cleaner surround is the 'Control' component air ducting kit on the Pace chassis. The ducting for the MRX chassis is free.
- 8.5** The **bonnet** can either be an 'OE' component or the 'Control' component. It shall be fitted using the hinge assemblies (comprising the 'OE' upper arm and the 'Control' component lower arm) and have a minimum of four(4) steel locking pins fitted to the front section. The 'OE' gas struts shall be fitted. The use of Aerocatch latches is permitted.

- 8.5.1 Bonnet Vents:** similar to and in the same location as the Pace chassis cars may be utilised on MRX chassis cars. Their only function is for extraction of under bonnet heat. There must be no opening directly facing the windscreen.
- 8.6** The **under-body pulley belt guard** may be fitted. This item, whilst free, must not serve any secondary function other than protecting the crankshaft pulley and/or drive belt.
- 8.7 Exhaust heat shielding:** It is permitted to use any form of flexible “stick on” heat shielding and/or thermal insulation material to assist in the reduction of the transfer of exhaust heat into the driver’s compartment. This material may only affix to the engine side of the firewall, scuttle, transmission tunnel and the floor area directly above the exhaust system. It is permitted to fasten such material by mechanical means so long as that is the sole purpose of the fastening, with no other beneficial function.
- 8.8 Front guards:**
- **Pace chassis:** The front guards are ‘Control’ components and shall be modified in accordance with the ‘Build Manual’
 - **MRX chassis:** The front guards may be the OE part or the control component.
- 8.9** The **front windscreen** may be an ‘OE’ component, a commercially available alternative glass component, or the ‘Control’ polycarbonate component in accordance with Schedule A. An electrically heated version of the windscreen is permitted. The addition of protective transparent film on the windscreen external face is permitted.
- 8.10** The **wiper arm** and **blade** are free.
- 8.11** The **front doors** are ‘OE’ components. The front doors shall retain the original intrusion bars on the driver’s door only. The ‘OE’ component door mechanisms shall be used and shall be operational from both inside and outside of the Race Car. If safety foam or deformable honeycomb material is used within a door, that door may not be modified by the removal of any material from that door.
- 8.11.1** The **front door seals** are ‘OE’ components and shall be installed.
- 8.12** The **door mirrors** are ‘OE’ components and shall be fitted in their original position on both sides of the Race Car.
- 8.13** The **Front and Rear door (side) windows** are ‘Control’ components. These windows may be modified for the installation of the ‘Control’ NACA style ducts. The number and orientation of these NACA ducts are free, provided they do not interfere with driver visibility.
- 8.13.1** Safety film shall be fitted to the inside face of these windows.
- 8.14 Rear Doors:** The rear doors may be OE or control components modified to suit the chassis wheelbase. Any such modification must be to a professional standard. The ‘OE’ door mechanisms shall be used and may be modified. The rear door shall be operational from the outside and opening of the door must be possible at all times.
- 8.14.1** The **rear door seals** shall be installed.
- 8.15 Side Skirts:** may be V8 Supercar or sourced from the respective control parts supplier.

- 8.16** The **rear quarter panels** may be V8 Supercar or sourced from the respective control components supplier.
- 8.17** **Roof Panel:** may be either a 'Control' component or the OE part modified to match the cars wheelbase.
- 8.18** The **rear windscreen** shall be an 'OE' component. Safety film shall be fitted to the inside face of the glass screen. Maximum tint VLT is not allowed to reduce below 35%.
- 8.19** **Boot Lid:** The boot lid is a 'Control' component. It shall be fitted using the 'OE' hinge assemblies and have a minimum of two(2) steel locking pins fitted to the rear section. Stops may be added to the lower edge to reduce flexing of the boot-lid. The 'OE' gas struts shall be fitted. The use of Aerocatch latches is permitted. A rear wing mounting frame shall be fabricated on the inner side of the boot lid where necessary to prevent flexing of the boot lid under aerodynamic load.
- 8.19.1** The **boot-lid seal** is an 'OE' component and shall be installed.
- 8.20** **Rear Bumper:**
- **Pace Chassis:** The rear bumper is an 'OE' component. It shall be modified in accordance with the 'Build Manual' to allow for the rear diffuser exhaust. The lower horizontal lip may be trimmed but must be a minimum of 25mm wide and run the full width of the bumper, either side of the rear diffuser cut-out.
 - **MRX Chassis:** The rear bumper is specific to each model represented. This may be sourced from V8 Supercar or MRX. The rear bumper shall be mounted using a minimum of four(4) separate positions to a fabricated frame that in turn shall be welded or bolted to the rear chassis crush frame.
- 8.21** **Rear Diffuser / Undertray:**
- **Pace Chassis:** The rear diffuser is a 'Control' component.
 - **MRX Chassis:** The rear undertray is a control component specific to the model of the Race Car. The rear undertray may not protrude past a vertical plane of the rear bumper rearwards face.
- 8.22** **Rear Wing Assembly:**
- **Pace Chassis:** The rear wing assembly (including the mountings, 'Gurney' flap and end plates) is a 'Control' component and shall be fitted as specified (refer 'Build Manual').
 - **MRX Chassis:** Ford rear wing assembly is as per V8 Supercar.
Holden rear wing assembly is either V8 Supercar or complete ST boot and wing assembly.
Nissan rear wing assembly is V8 Supercar uprights with MRX element.
Toyota rear wing assembly is MRX upright and elements.
- Maximum height of the rear wing assembly is 100mm above the roofline measured horizontally.
- Maximum distance rearwards of rear wing assembly shall be no further than 400mm beyond the bodywork.
- Maximum width of the rear wing assembly shall be no wider than the bodyshell width excluding external mirrors.

9.0 INTERIOR - Specific

- 9.1 Air-Jack System:** It is recommended that all cars have fitted an air jack system capable of lifting the car.
- 9.2 Dashboard:** The dashboard assembly, including the crash-pad, shall be an 'OE' component and shall maintain an original appearance. It may be modified to accommodate installation of the safety cage, switches and instruments. Covers to blank the areas left by removal of the 'glove box', air bag, heater and instrument cluster, are Control Components. These covers may be altered to enable access to wiring and ECU components. A neat and finished appearance shall be maintained at all times.
- 9.3 The Pedal Assembly:** The pedal and foot box assembly (includes accelerator, brake and clutch pedals) shall be installed as per Schedule A. It can be moved to suit driver comfort. No chassis modification is permitted. (*refer also Article 12.1 below*).
- 9.3.1 A throttle pedal stop** may be fabricated.
- 9.4 Door Panels:** The door panels may be either the 'Control' components or freely sourced and shall be fitted in compliance with Schedule A A. Operation of the (front) door mechanisms shall be maintained / incorporated in the panel and a neat and finished appearance shall be maintained at all times.
- 9.5** An **interior mirror** shall be fitted that provides adequate visibility to the rear of the Race Car.
- 9.6 Camera mounts** may be fitted under the guidance / authority of the Championship Scrutineer and in compliance with Schedule A. All fixings shall be of a secure but temporary design.
- 9.7** The addition of padding for driver comfort is permitted, provided that this is its sole purpose and the type of padding is approved under Schedule A. All such material must be quickly removable without the use of tools.
- 9.8** Equipment for supplying the driver with drinking fluid may be fitted in the cockpit.
- 9.9** Equipment for the operation of the driver's cool suit may be fitted to the car. Any such equipment shall be mounted utilising the front passenger seat mounting points.
- 9.10** The floor, bulkhead and finishing panels, as supplied by the chassis manufacturer must be fitted and must respect Schedule A.

10.0 SUSPENSION

- 10.1** All component parts of the Pace Chassis suspension shall be fitted as per the 'Build Manual', however freedom is allowed as to which suspension mounting holes are utilised. For the avoidance of doubt, this freedom to "tune" is limited to existing mounts on the Control Component (chassis). Model specific parts must be fitted as per the original build specification for each of the Pace chassis or MRX chassis Race Cars.

10.2 Shock Absorbers (Dampers): Shock absorbers may be either the KW as fitted to the 16/17 SuperTourer or the Penske as fitted to the 16/17 TLX. Servicing is free. Only adjustment provided by the manufacturer is allowed. Gas pressure is free.

10.3 Bump-stop rubbers must be fitted and operational but are otherwise free, however shall not be used to supplement spring rates.

10.4 Springs: Front and rear springs shall:

- must be of ferrous material and fitted as per Article 10.4.1 below, and
- A single spring only is permitted on each corner, and
- Be of linear spring rate, and
- Have a maximum ID of 63.5mm (2.5")
- A single Helper Spring per damper may be fitted between the main spring and the spring platform with maximum a spring rate of 80 pounds per inch. The Helper Spring shall be made from flat section ferrous material. The sole purpose of the helper spring is to assist retention of the main spring. A located collar is permitted between the two springs provided the separation between the two spring faces does not exceed 5mm".

10.4.1 Spring Rates:

(1) Front Spring Rates:

- **Pace chassis:** 970lb/in or 1085lb/in +/- 2%. Free length 170mm +/- 2mm
- **MRX chassis:** Spring choice is free

(2) Rear Spring Rates:

- **Pace chassis:** 460lb/in +/-2%.
- **MRX chassis:** Spring choice is free

10.5 Anti-Roll (Sway) Bars: Anti roll bars must be fitted front and rear and be fully functional, except when the event has been declared 'WET' by the Race Director / Event Director. Antiroll bars may be adjusted from the cockpit. The rate of the antiroll bar is free; however, material is limited to ferrous.

10.6 Pace chassis: The **front hub bearing retainer kit** is a 'Control' component. It shall be installed to support and maintain the load on the front hub bearing.

10.7 All **spherical (rod-end) joints**, may be replaced with direct replacement joints of the same grade or size.

10.8 The **Watts link** assembly is a 'Control' component. An optional **Watts linkage tether kit** may be installed to assist with diff location should the watts linkage fail. The watts linkage may be adjustable.

11.0 STEERING

11.1 General: All component parts of the steering system shall be fitted to the respective chassis.

11.2 The **steering wheel** may be freely sourced (no composite or titanium material). The **steering wheel boss** is free. The release mechanism shall be a commercially available unit complying with Schedule A and may not be modified.

- 11.3** The **steering column, jackshafts, universal joints** and **mounts or mounting support** are 'Control' components. The position of the steering column may be adjusted for driver comfort.
- 11.4** **Steering Rack:** The steering rack, its mounts, and tie-rods are 'Control' components. Rod ends may be replaced with direct replacement joints of the same grade and size.
- 11.5** The **steering arms** and **steering rack ends** are 'Control' components.
- 11.6** **Power Steering Pump** and **Hydraulic Lines:** The power steering pump as well as the hydraulic lines may be freely sourced. The pump shall be belt driven from the front of the engine.
- 11.7** **Power Steering Cooler:** A power steering **cooler** may be plumbed-in to the hydraulic circuit.
- 11.8** A **power steering in-line filter** may be plumbed-in to the hydraulic circuit.
- 11.9** **Power Steering Reservoir:** may be freely sourced.

12.0 BRAKE SYSTEM

- 12.1** **Pedal Box:** Either the Pace Chassis Control pedal box or the Tilton 600 series pedal box may be used. Adjustment may only be made via a mechanical cable adjuster altering a bias bar on the pedal box. (*refer also Article 9.3 above*).
- 12.2** The **brake bias adjuster** may be moved for driver comfort.
- 12.3** **Brake Master Cylinders:** may be freely sourced providing they retain single action push type functionality. Bore size is free.
- 12.4** **Front brakes** shall comply with the following:
- Maximum brake rotor diameter 380mm
 - Maximum brake rotor thickness 35mm
 - Brake rotor material shall be cast iron
 - Calliper shall be aluminium alloy and have no more than six(6) pistons each
 - One calliper per wheel only is permitted
 - Brake pads shall be of 'organic type'
 - Only one single pad shall be in contact with each rotor face
 - Water cooling of the brakes is not permitted
- 12.5** The **rear brake components** are all 'Control' components as follows;
- 1x RH rear caliper
 - 1x LH rear caliper
 - 2x rear caliper mounting bracket
 - 1x RH rear brake rotor (disc)
 - 1x LH rear brake rotor (disc)
 - 2x rear rotor mounting hats
 - 2x rear rotor / hat mount kits
 - 1x rear brake pad set limited to three(3) makes; Pagid, Brembo or PFC. Compounds are free but must respect organic material.

- 12.6 Hydraulic Brake Lines:** Quick release fittings are not permitted. Any flexible hose must be of the crimped type and of a certified spec of -3 stainless reinforced braided Teflon hose. Fixed lines may be metal tube. Compliance with Schedule A is mandatory.
- 12.7 Brake Cooling Ducts** are authorised as follows;
- Air ducts shall not protrude beyond the coachwork.
 - Liquid cooling of the brakes is forbidden.
 - The addition and blanking of front and rear brake duct intakes for the purpose of optimising temperatures is permitted provided this is its sole purpose. **All Cars** must utilise the openings in the front bumper and these may be partially or totally blanked off by panels or tape.
 - Sensors to measure brake pressure (including any wiring needed to connect the sensor(s) to the 'Control' component data acquisition system) may be fitted provided this is their sole purpose.
 - Brake pressure modulation – Anti lock brake and power assisted braking systems of any kind are forbidden.
- 12.8** The **brake lights** shall maintain full operational capability at all times during competition and shall illuminate not later than the point where brake system pressure is achieved.
- 12.9** The direction of the rear rotors is free. It is permitted to fit blanking rings and/or metallic blanking material to the inner diameter of the rear rotor in order to help equalise the front and rear rotor temperatures, in accordance with the specification of the manufacturer.
- 12.10** It is permissible for teams to partially or completely block air flow from the rearward brake duct oval on the front upright.

13.0 FUEL SYSTEM

- 13.1 Fuel Lines and Fittings:** All fuel system control components must be fitted unless detailed otherwise. The fuel lines may be freely sourced, and lines shall be routed front to rear through the top transmission tunnel channel.
- 13.2 Fuel Pump, Fuel Surge Tank, Filter and Regulator:**
- **Pace chassis:** The fuel pump, fuel surge tank, filter and regulator are 'Control' components as referenced in the 'Build Manual'.
 - **MRX chassis:** An external or internal (preferred option) fuel pump may be fitted and may be freely sourced.

The operation of the pump must shut down when the RPM signal is zero as set by the Parity Tuner. If an adjustable fuel pressure regulator is fitted, the fuel pressure shall only be set by the parity tuner and shall remain at this setting whilst competing in the BNT V8s Championship.

13.3 Fuel Tank:

- **Pace chassis:** The fuel tank (FUEL SAFE), including the lift pumps, are 'Control' components and shall be installed as per the 'Build Manual'. The tank shall not be modified in any way, shape or form.
- **MRX chassis:** The fuel tank is a 'control component' being the ATL custom fuel cell bladder. A separate 'swirl-pot' is permitted. The total possible fuel system capacity is limited to 120litres.

13.4 The **fuel tank** can be filled using either the standard fuel filler or, the optional dry-break fuel filler or, the 'endurance' dry-break fuel filling system.

13.4.1 Fuel fillers: Shall respect Schedule A

13.4.2 Breathers shall be installed as to ensure no fuel spillage occurs and shall vent at the rear of the car.

13.5 All fuel contained in the Race Car shall never be at a lower temperature than 5°C below that of the atmospheric temperature at the time of checking. Hence, the use of any device, whether fitted to the Race Car or not, designed to decrease the temperature of the fuel is specifically forbidden.

13.6 A **fuel (sample) dry break coupling** shall be installed for the purpose of taking fuel samples. This must be compatible with the MSNZ sampling hose.

14.0 ELECTRICAL SYSTEMS

14.1 Wiring Looms: Wiring looms may be freely sourced, provided their only purpose is to serve the car's electrical and data acquisition systems. Only sensors detailed in Article 14.6 below shall be connected to any wiring loom. Relocation of electrical components within the cockpit purely for accessibility is authorised.

14.2 Alternator: The alternator shall be belt driven from the front of the engine. It is permitted to change the alternator pulley diameter and the associated belt length only to slow down the speed of the alternator. It is permitted to add material within the alternator to prevent damage caused by vibration, but only at the discretion of the Championship Scrutineer. The alternator must be fully operational during Qualifying and Race.

14.3 Battery: The battery may be freely sourced but must be mounted under the rear floor on the left-hand side. The mounting bracket is free. A supplementary battery (temporarily connected to the car) may be used to start the engine when the Race Car is in the pit area or on the starting grid.

14.4 A **starter motor** is mandatory and must be capable of starting the engine (from an on-board energy source) when operated by the driver in their normal seated position.

14.5 A **240v powered heater** may be installed on the exterior of the engine oil reservoir.

Note: *nothing on the car may be connected to an external AC electrical supply whilst the car is being refuelled.*

14.6 Data acquisition may be fitted.

14.7 The use of any form of **traction control** is strictly forbidden.

14.8 Front Light Units: The 'OE' front light units may be retained and may be operable, or the units may be replaced with a replica silhouette panel of the original light unit. These may be made operational by the addition of a separate wiring harness and associated switch gear.

14.9 The series production 'OE' **rear light units** shall be installed with operational side/tail and brake lights.

14.10 A **rain/warning light** shall be installed centrally on the rear face of the boot lid and be operational.

15.0 CLUTCH / GEARBOX

15.1 Bell Housing: The bell housings are control components however are model specific. Where an alternative gearbox is fitted, the original bellhousing shall only be modified to facilitate fitment. This does not allow relocation of the gearbox longitudinally.

15.2 Clutch Assembly: The flywheel / clutch assembly may be freely sourced. The clutch shall only be utilising metallic plates of 7.25" diameter. No Carbon nor exotic material is permitted.

15.2.1 The **clutch actuation** system is a 'Control' component for the respective classes.

15.3 The **gearbox** assembly may be freely sourced. The gearbox must have six(6) forward gears and one(1) reverse gear. Gear change shall be conventional mechanical lever sequential operation. The connection between the gear lever and the gearbox shall be mechanical only. No form of servo or servo actuation system may be added.

15.3.1 Ratios: Gearbox ratios are free, excepting sixth(6th) gear which shall be a direct drive. First(1st) gear must be capable of propelling the car from a standing start.

15.3.2 Gearbox mount: To facilitate fitment of an alternative gearbox of gearbox, the gearbox mount may be substituted or modified but only for the function of mounting. ie: not for longitudinal relocation of the gearbox.

15.3.3 Gearbox oil coolers are allowed without restriction.

15.3.4 All cars must have a functioning reverse gear, operable by the driver, at all times during the Event while the engine is running.

15.3.5 The **gear lever boot** is free.

15.4 Shift-Cut: It is permitted to fit a shift cut system to the gearchange.

16.0 DRIVELINE / FINAL-DRIVE

16.1 Driveshaft: The driveshaft is a control component. Where a gearbox has been substituted for one from another manufacturer the driveshaft may be modified;

- (1) at the front yoke only to facilitate fitment, however this modification does not permit shortening to cater for longitudinal relocation of the gearbox.
- (2) To allow for any change in tail housing length.

16.2 The **differential housing** is a 'Control' component for the respective cars.

16.3 Differential Assembly: All Cars shall run a "spool" type of axle control.

- **Pace chassis:** The differential assembly including the final drive is a 'Control' component. It is permitted to install the 'Control' component oil pump for an oil cooling system and a seal retaining plate for the retention of the pinion seal is recommended.
- **MRX chassis:** The differential assembly, including the nominated ratio, is a controlled component.

16.3.1 Final Drive Ratio: The following ratios only are authorised:

- **Multivalve per cylinder cars:** The final drive ratio is 3.7:1
- **Two(2) valve per cylinder cars:** The final drive ratio is 3.25:1

16.4 All Cars: The **axle shafts** are 'Control' components for the respective cars.

16.5 For both the Pace and the MRX chassis, the front and rear Wheel Hubs may be freely sourced and are interchangeable subject to the following:

- Wheel attachment shall be by stubs and nuts
- The PCD may be aligned to the wheel type used but a hub shall only accommodate one PCD option
- All wheelbase and suspension requirements detailed in Article 5.2 shall be respected

16.5.1 MRX chassis Drive Hubs: hub barrel gears and bearings and seals are control components and shall be fitted.

16.6 MRX chassis: The **hub spindles** are sided and are control components. Either the 1.5 degree or the 2.5-degree units may be fitted, but not a combination of the two.

Note: *Whilst control components for hub assemblies come from MRX currently, there is to be an optional unit from an alternate supplier TBC.*

17.0 TYRES and WHEELS

17.1 Only such tyres as specified in this Schedule are authorised for use.

17.2 The tyre for the current race season is;

Tyre type:	Specification:
Slick Tyre	Dunlop - 280/680 18 Sportmaxx
Wet Tyre	Dunlop - 280/680 18 R92

17.3 The tyre management procedures are detailed in the Championship Articles and shall be referenced relative to the number of tyres authorised for use at each Round of the Championship as well as identification (marking) requirements.

17.4 The **wheel rims** are a 'Control' component. The wheels may be painted. The competition number of the Race Car shall be indelibly marked on the outer face of the wheel rim.

17.5 The **wheel nuts** are free in design.

18.0 OIL & WATER COOLING SYSTEMS

18.1 Water Radiator: The water radiator is free but must fit within the control componentry.

- 18.1.1** The radiator shall not extend below a horizontal line projected forward from the flat bottom of the front cross member.
- 18.1.2** The installation of any radiator shall not change or affect the relative position of the intake air or air-cleaner assembly.
- 18.2** **Radiator Hoses** are free but must be constructed of rubber or silicon material (braided hoses are not permitted). It is permitted to utilise metal tubing for alignment purposes of the hose. Connections of the hoses/tubing to the water radiator and engine must utilise worm drive hoses clips. Mechanical connections are not permitted.
- 18.3** The **radiator bleed** may be connected to the engine coolant **header tank** via a hose, or vent to atmosphere.
- 18.4** Water radiator **debris screens** may be installed.
- 18.5** It is not permitted to blank-off the water radiator intake or the radiator itself.
- 18.6** The **engine oil radiator** is free.
- 18.6.1** The **oil radiator** aft face may be blanked to adjust oil temperature.
- 18.7** An **in-line oil filter** may be installed in the engine's oil supply and/or oil return lines to the oil reservoir (tank).
- 18.8** Oil lines may be protected by external sheathing.
- 18.9** An additional **oil breather tank** shall be fitted in order to separate the gearbox and engine oil breather systems. The gearbox breather shall be fitted to the bottom of its breather tank. The drain tap for the breather tank may be relocated by the addition of a hose.
- 18.10** An **in-line oil filter** may be installed in the gearbox and/or differential oil lines.
- 18.11** The gearbox and differential **oil coolers** are free in design but must serve no purpose other than cooling.
- 18.12** The **gearbox and differential cooler air scoops** are free but must serve no other function except for supplying cooling air to the coolers.
- 18.12.1** An infill blanking plate may be fitted between the gearbox and differential coolers.

19.0 FUEL

19.1 Only fuel as specified by MotorSport NZ as the control fuel for the Championship is authorised. No externally sourced fuel is permitted. The fuel for the 2019-20 Championship Series is;

- GULL Force 10 as supplied at the circuit by NZ Touring Cars.

No attempt to change the control fuel chemical or temperature composition will be tolerated.