

BMW Race Driver Series

Dunlop E30 Technical Regulations

2020-2021

The objective of the Dunlop E30 Championship is to give competitors the opportunity to compete in motorsport without the burden of a high cost investment to develop and run a vehicle.

To achieve this, performance enhancing modifications are limited with the focus being on driver capability. The E30 concept is intended to provide close racing between drivers rather than a technical challenge for vehicle preparation experts. The aim of the game is to create a vehicle that is as safe as possible, yet fun to drive and remaining as close to standard as possible.

The Dunlop E30 Championship is for right hand drive BMW E30 318i/320i models, in both two-door, four-door sedan and touring body styles that were produced by BMW for sale to the general public (as shown in sales brochures). Verification can be made by using the chassis number. Other body styles such as the M3, Baur, Cabrio or Convertible are ineligible.

The 318i must use the M40B18 8-valve 1.8 litre four cylinder engine which are fitted in the facelift two-door and four-door models between 09/1987 and 04/1991, as well as Touring models built between 03/1989 and 02/1994. A 318i (M10B18) based on the pre-facelift model built between 09/1982 and 09/1987 is not eligible.

The 320i must use the M20B20 12-valve 2 litre six cylinder engine in either L-Jetronic or Motronic forms. These engines may be fitted to either a facelift or pre-facelift vehicle. Models eligible include the two-door body from 05/1982 to 11/1990, the four-door body from 02/1983 to 01/1991 and the Touring body from 06/1988 to 04/1991.

If an M20 engine is converted from Motronic to L-Jetronic (or vice versa), the following items must be changed so that the new engine is a complete representation of that engine type:

- | | | |
|----------------------|-----------------------------|---------------------------------|
| - Intake manifold | - throttle body | - air flow meter |
| - engine wiring loom | - Ignition Coil | - Electronic Control Unit (ECU) |
| - distributor | - Auxiliary air slide valve | - TZI / Ignition amplifier |

Models other than a 318i and 320i may be used as a base for a Dunlop E30 Championship vehicle. For example, a 316i could be made into a 318i or 320i provided that all other technical regulations are strictly followed.

If you are contemplating any modification not specifically outlined in these regulations, please contact the BMW Race Driver Series for clarification in writing; bmwraceseries@hotmail.com. Individual Committee Members cannot give you approval or authority. Competitors must assume that unless a modification is specifically permitted, then it is prohibited.

1. GENERAL

- a) By entering the BMW Race Driver Series, drivers acknowledge that they have read both the Technical Regulations and Race Formats in their entirety and will abide by them in all respects. They should be aware that any breach of these series regulations will render their vehicle ineligible and will result in sanctions against the offending driver that may include time penalties, disqualification, loss of competition points, suspension and/or expulsion from the series, plus any further penalties deemed appropriate.
- b) All vehicles racing in the Dunlop E30 Championship are encouraged to remain road legal, however an active registration, current Warrant of Fitness and a MotorSport New Zealand Authority card is optional.
- c) Cars must be presented to a high standard. Corrosion, poor paint work, significant bodywork damage and missing parts (such as front panel lower trim and body moldings) may result in a points deduction, and/or exclusion from the practice/race or event.
- d) Should one particular model prove to have unequal performance the BMW Race Driver Series Committee reserves the right to review data twice during the Championship season and introduce performance equalizing measures accordingly with a minimum of 14 days' notice to competitors. These measures may include (but are not limited to) the fitting of additional weight or performance-controlling equipment to either one or all models.
- e) The BMW Race Driver Series reserves the right to make technical checks at any time during the racing season, defined as being from the start of pre-season scrutineering through until the completion of parc ferme following the last race meeting of the season. The duration of parc ferme may be based on the driver's position in the championship and will be advised during the last race meeting. Scrutineering inspections may be made at race meetings, or away from the track at the discretion of the scrutineers. Any costs associated with any inspections or tests will be carried by the competitor, including any replacement parts, such as gaskets and fluids, as well as the cost of getting the car to any specified place of inspection.
- f) Security seals will be applied to various components as advised by the Committee and/or scrutineers. The BMW Race Driver Series reserves the right to have these sealed components checked for eligibility purposes. Removal of, or tampering with these seals, where fitted, without prior authorization will lead to penalties being applied.

2. SAFETY REQUIREMENTS

All vehicles are required to adhere to all current MotorSport New Zealand (MSNZ) regulations in Appendix Two – Safety (Schedule A) and Appendix Four - Races (Schedule Z). You can find the current MotorSport NZ manual online (<https://manual.motorsport.org.nz/>), including any amendments or subsequent versions issued by MSNZ.

REQUIRED SAFETY EQUIPMENT

- a) A MSNZ approved competition seat designed for use with a five-point or six-point harness with appropriate mountings must be fitted according to App Two, Sch A, Part 1, Article 4.7.
- b) A suitable MSNZ approved five-point or six-point harness mounted as detailed in App Two, Sch A, Article 4.4.
- c) A MSNZ approved handheld fire extinguisher is mandatory as per App Two, Sch A, Part 1, Article 4.8.
- d) A MSNZ approved multi-point roll cage compliant with App Two, Sch A, Part 2, Article 4.6 with side intrusion bars is mandatory. Alternative roll cages are acceptable provided they meet the following criteria:
 - i. The roll cage design, construction and installation must satisfy all MSNZ regulations.
 - ii. The roll cage material must be of unalloyed carbon steel. NOTE: Chrome Moly is not permitted.
 - iii. Triangulation between the roll cage front legs and front strut towers is permitted.
 - iv. Roll cage padding must be fitted as required in Article 4.6 (6).
- e) Headlamps shall be covered with protective tape and comply with any current MSNZ requirements.
- f) Forward Head Restraints (FHR) are mandatory.
 - i. All occupants must wear an FHR during all practice, qualifying and races that are part of the BMW Race Driver Series. Failure to do so may result in a penalty or disqualification.
 - ii. FHR devices must be made to an approved standard and fitted and worn as per Appendix Two, Part 1, Article 4.2
- g) Towing eyes must be fitted in accordance with Appendix Two, Schedule A, Part One, Article 5.15.

3. CHASSIS AND EXTERIOR/BODYWORK

3.1 REQUIRED MODIFICATIONS

- a) The chassis design and material must remain as standard. Lightening or reducing chassis strength is prohibited. Additional strengthening of the chassis is prohibited (e.g. seam welding). The chassis as produced by the manufacturer with the original material must be retained in all aspects in respect of material, thickness and contour. For the benefit of doubt, chassis is defined here to include the body shell, wings, doors, bonnet, boot-lid, roof, panels, floor and all bumper bars and support devices.
- b) Unless specifically permitted within these regulations, the steering system including rack, tie rods, front sway bar, steering arms and column shall remain as standard E30 fitment.
- c) Tow bars, mud flaps and non-retractable aerials must be removed.
- d) A genuine BMW E30 lower lip on the front panel is mandatory on all models. This item must be correct for each particular model (eg, Facelift or pre-facelift).
 - Pre-facelift vehicles (320i only) may have either part number 51711911983 or part number or 51711933402.
 - Facelift vehicles (318i or 320i) may have either part number 51711945559 or the sport alternative part number 51711968488.

3.2 MODIFICATIONS PERMITTED (BUT NOT MANDATORY)

- a) It is permissible to remove the factory applied body under seal.
- b) A strut brace between the front strut towers may be fitted, either bolted or welded in place.
- c) Sunroof mechanisms may be removed entirely. If a sunroof panel is removed it must be replaced with the same material and thickness as the roof skin. Alternatively, the complete roof panel may be replaced with another standard roof that does not have a sunroof.
- d) A metal skid plate may replace the plastic panel that protects the sump and lower engine provided that the plate is not more than 100mm wider than the sump and extends no further back than the front bulkhead. It cannot be designed in any way which would further enhance aerodynamics.
- e) A boot spoiler may be fitted to the rearmost edge of the boot lid. This spoiler must be of the same material and dimensions as BMW part number 51711945710.
- f) The bonnet catch mechanism may be replaced with an alternative device provided the bonnet remains adequately secured. Bonnet hinges/support struts may be removed however refer to 3.1a.

- g) Power assisted steering may be disabled or replaced with an E30 non power steering rack, but all other steering components must be retained in their standard form, as per 3.1b.
- h) The inside edge of the rear wheel arches may be “rolled” to prevent tyre rub when using wheels with the minimum offset of 15mm. As per 3.3c the outside profile of wheel arches cannot be modified in any way.
- i) The standard exterior rear-view mirrors must be retained, and it is recommended that one or more wide angle mirrors glasses are fitted. BMW part numbers 51161926853 (RH) and 51161926845 (LH).
- j) To aid airflow to the filter / inlet manifold, it is permissible to remove the webbing between the grille blades of the left-hand grille section only so long as the external appearance/profile of the grille is maintained. The centre and right-hand grill sections cannot be modified in any way.

3.3 MODIFICATIONS STRICTLY PROHIBITED

- a) All spoilers, dams, splitters, aero foils and diffusers are prohibited, other than the spoiler mentioned in 3.2g.
- b) The use of any under-trays, diffusers or any other aerodynamic device fitted to the underside of the vehicle other than those fitted as standard are prohibited however refer to 3.2e & 3.2f.
- c) Except as specifically allowed no external body parts may be modified in any way to improve the flow of air around the vehicle or into the engine / engine bay.
- d) All window glass must be retained as originally fitted and be fully operational. If a window net is used to cover an open side window, then the window glass must still be retained
- e) Use of window tinting film is not permitted, however refer to 12.2f.
- f) Plan view must be as standard with no extensions to wheel arches permitted.
- g) All bumpers must remain in complete original condition. All bumper dampers, bumper mounting brackets, mounting points and trim must be retained as fitted standard by the factory.

4. INTERIOR

4.1 REQUIRED MODIFICATION / EQUIPMENT

- a) All standard seating must be removed. The driver’s seat (and passenger seat if installed) must be replaced as per 2a of these technical regulations.

- b) The standard heater/demisting unit must be retained in its entirety and not modified in any way. However, the heater core does not need to be connected to the engine's cooling system.

4.2 MODIFICATIONS PERMITTED (BUT NOT MANDATORY)

- a) An aftermarket steering wheel may be fitted but must comply with Appendix Two, Schedule A, Part 1, Article 6 of the MSNZ manual.
- b) Any interior trim (including dashboard trim, sound proofing and heat shielding may be removed. However window winding mechanisms, boot and door locks and catches must remain in place but may be disabled for safety reasons.
- c) The dashboard may be modified to allow the fitting of the roll cage and the opening / removable glove box unit may be removed provided the dash remains securely fastened.
- d) Mechanically operated items may replace electrically operated items provided that the mechanical parts were available on the 318i / 320i E30 models. It is not permitted to replace an electrically operated part with a non-standard alternative mechanical part or mechanism.
- e) Interior door trim panels may be removed. If removed they must be replaced with an alternative door panel that protects the driver from sharp edges and the intrusion of metal structures in the event of a side impact.
- f) The rear bulkhead may be modified to accommodate the safety cage. Where holes have been cut to fit the safety cage, they shall be no more than twice the diameter of the roll cage member to be fitted.
- g) A spare wheel may be fitted in the original location but must be securely mounted as per Appendix Two, Schedule A, Part 2, 7.2(3)
- h) A footrest may be added next to the clutch pedal.
- i) The three pedal pads may be modified by the addition of a non-skid surface.

5. ENGINE RELATED COMPONENTS

5.1 OVERVIEW

- a) Only the 8-valve, four-cylinder engine (designated M40B18) or the 12-valve six-cylinder engine (designated M20B20) as fitted to the BMW E30 318i or 320i models is eligible. For the avoidance of doubt both the 8 valve (M10) and the 16 valve, four cylinder 318is engine (designated M42) are not eligible.

- b) Unless specified in these technical regulations, no modification to the engine or any ancillaries, including the fuel, ignition systems or ECU are permitted. For the benefit of doubt, this includes grinding or machining or lightening. The engine must retain the standard specification block, pistons, crankshaft, con-rods, flywheel, cylinder head, camshafts and valves. “Balancing” of engines by the removal or addition of material is specifically prohibited.
- c) Unless otherwise stated, all parts must be standard, original BMW parts.

5.2 CYLINDER HEADS

- a) Only the following cylinder head part numbers are permitted:
M40 = 11120030299 **M20** = 11129068671 or 11129068672.
- b) The cylinder head may have the head gasket surface only skimmed, with a minimum finished head height of 140.6mm for the 318i and 124.7mm for the 320i. Additionally, cylinder heads may be cleaned and/or decoked, but additional porting, polishing, machining, or any other modifications are prohibited.
- c) Valve seat inserts must be positioned as per the manufacturer’s original specifications.
- d) Valve seat inserts cannot be modified other than the machining of the valve sealing surface. Triple-cut machining of valve seats is allowed but none of the three angled faces may be more than 6mm in width as measured across the machined face, and the valve sealing face must be the centre one of the three faces.
- e) Valves must be the original parts specified for the relevant model - 318i or 320i. Valves from another model, such as 325i, cannot be used – either modified or original.
- f) Only the sealing edge of the valve may be machined as part of the reconditioning process. The profile of the valve, including head and stem, may not be modified in any other way.
- g) Only the following camshafts part numbers are permitted:
M20 = 11319058572 or 11311716139 (in both L-Jetronic or Motronic engines)
M40 = 11311709580 (OEM) or the optional camshaft available through BMW Race Driver Series.

5.3 LOWER ENGINE

- a) Pistons from either of the four BMW OE suppliers are permitted - Mahle, Kolbenschmidt, Borgo or Nueral/Alcan. These must be manufactured to Original BMW specifications, with a maximum oversize of +0.5mm. Pistons from all other suppliers are specifically prohibited.
- b) All three piston rings must be fitted per manufacturer’s specifications and normal trade practice.

- c) NOTE: High-compression pistons from the L-Jetronic engine cannot be used in a Motronic engine. For clarification, the following piston formats are permitted.
- | | | |
|-------------------|-------------------------|-------------|
| Motronic | 8.8:1 compression ratio | 0.8mm dome |
| Motronic | 9.4:1 compression ratio | 2.3 mm dome |
| L-Jetronic | 9.8:1 compression ratio | 3.3mm dome |
- d) Conrods must be Original E30 BMW Parts. Under no circumstances can they be modified to alter their effective length.
- e) M40 pistons and conrods can only be those fitted to E30 models and not E36 which has a longer conrod and shorter piston.
- f) The head gasket surface only of an engine block may be machined during reconditioning, but the maximum protrusion of the piston above the top of the block will be restricted as follows:
- | | |
|---------------------|---------------------|
| M40 = 0.50mm | M20 = 0.60mm |
|---------------------|---------------------|
- This measurement is taken at the outer edge of the piston, ignoring any domes or raised surfaces.
- g) The block may be machined to take oversize pistons of up to +0.5mm, with a revised bore of up to 84.5mm for the 318i and 80.5mm for the 320i. However, as per 5.3a, the requirement to use only Mahle, Kolbenschmidt, Borgo or Nueral/Alcan pistons remains. Even if a certain size / piston type is not available from any of these suppliers, then pistons from other suppliers can still not be used.
- h) To repair bore damage the block may have one or more cylinders sleeved provided all other rules are followed.
- i) Non-OEM BMW bearings may be used for the crankshaft. (big-end & main bearings)
- j) The crankshaft may have the bearing surfaces only machined during reconditioning to allow the fitment of oversized big-end and main bearings. However, "offset" grinding to alter the crank throw is strictly prohibited.
- k) The standard sump may have baffles fitted to prevent oil surge as follows:
- 318i** - any additional baffles cannot project above the gasket line between the upper and lower sump sections.
 - 320i** - the original sump baffle must be retained. Additional baffles can be fitted but cannot go above the level of the lower horizontal section of the original baffle. i.e. approximately 55mm above the bottom of the sump.
 - No other sump modifications are permitted and no additional parts can be fitted to provide any form of windage or scraping effect.

5.4 FUEL SYSTEM

- a) Fuel pressure regulator, fuel rail and injectors must be the original part and no modification is permitted, including restricting vacuum supply.
To avoid confusion regarding injectors, the Bosch part number and colour codes listed below are permitted. Note that you may not use 318 injectors in a 320.
318 All 0280150715 Blue plug connector Black Injector Shield
318 All 0280150211 Blue plug connector Yellow Injector Shield
320 All 0280150716 White plug connector Yellow Injector Shield
320 All 0280150208 White plug connector Black Injector Shield
- b) The design and location of the fuel tank shall be as per manufacturer's specification.
- c) The standard fuel pump must be used, with no additional pumps permitted.
- d) No swirl tanks or other means of fuel baffling is permitted.
- e) Only fuel with an octane rating between 91 and 98 is permitted. It must be commercially available from a New Zealand service station forecourt pump.
Ethanol or alternative Bio Fuels, E85 etc are not permitted.
- f) Fuel must be used as purchased - no fuel additives are permitted.

5.5 ENGINE MISCELLANEOUS

- a) Gaskets are open in terms of supply but must be manufactured to Original BMW specifications. Only one gasket may be used in any location.
For the head gasket, inlet manifold gasket and exhaust manifold gaskets, the following dimensions are supplied for clarification:
- | | |
|--|---|
| - Cylinder Head Gasket (both M20 & M40) | Minimum non-compressed thickness = 1.7mm* Minimum compressed (used) thickness = 1.5mm* |
| | *measured at the fire ring |
| - Exhaust Manifold Gasket | Maximum thickness = 2.0mm - Inlet Manifold Gasket Maximum thickness = 2.0mM |
- b) Flywheels may have the friction and pressure plate mounting surfaces skimmed. No other parts of the flywheel can be machined or modified in any way. Regardless of the starting measurements, at all times the minimum operating thickness and weight for each flywheel must be:
- | | |
|-------|--|
| M20 = | 29.7mm on the inner surface (clutch plate friction area) and 29.1mm on the outer surface. (pressure plate mounting) and weigh no less than 8.05kg. |
| M40 = | 22.7mm on the inner surface (clutch plate friction area) and 44.5mm on the outer surface. (pressure plate mounting) and weigh no less than 9.00kg. |

NB: These weights are inclusive of the three dowels but exclude all other components such as bolts, bearings, etc. See Appendix 1 for detailed pictures of the flywheels.

- c) The throttle body water heating system must be retained in its entirety and be fully operational.
- d) Throttle bodies cannot be modified in any way. For the avoidance of doubt the 320i standard throttle body diameter measured at the butterfly should be 51.1mm, for both L-Jetronic and Motronic models. The 318i standard throttle body diameter measured at the butterfly should be 55.0mm.
- e) The induction system must retain the standard airflow meter and throttle body, but upstream of the airflow meter is free. No mechanical or electrical forced induction is allowed. For the avoidance of doubt air intake ducting cannot be channeled through any additional holes cut into body work or other components.
- f) The standard exhaust manifold must be retained and not modified in any way, but the remainder of the system is free providing that it shall conform to current WOF noise limits. (maximum of 95db @ a 30 metre right angle from the exhaust)
- g) The standard cooling fan must be retained; however, the addition of a single electric cooling fan is permitted. The original radiator cowling may be removed but cannot be replaced by a non-standard cowling. Coolant hose material is free and may be modified to accommodate an additional temperature sender unit. Fan clutches must be the Original BMW part and be in a fully operational condition and must not be modified in any way.
- h) Radiator – must be an Original BMW radiator that was factory-fitted to an eligible E30 model (318i or 320i) or an aftermarket radiator of similar dimensions and format to a BMW E30 radiator as described above.
In either case the original radiator mounting points must be used.
- i) Only standard, unmodified, genuine E30 BMW ECU's can be used in the 320i models, and either standard or the series-controlled ECU for the 318i models. ECU's may be sealed by the scrutineers and are not to be tampered with. Broken seals will be deemed a breach of the Series technical regulations.
Competitors must clearly mark ECU's with their cars competition number, as series scrutineers may interchange these units between cars, or by using a control ECU.
- j) Rev limits will be monitored by the scrutineers, and must conform to the following:

| | |
|---|----------------|
| 318i with standard ECU/camshaft | 6,200 ± 50 rpm |
| 318i with series ECU/camshaft | 6,400 ± 50 rpm |
| 320i Motronic or L-Jetronic with ECU-limiter | 6,200 ± 50 rpm |
| 320i L-Jetronic with mechanical rotor limiter | 6,200 ± 50 rpm |

In all cases, if engine revs measured by the scrutineers are higher than the specified limits, this will be deemed a breach of the E30 technical regulations and appropriate penalties applied.

- k) Engine mounts from the 320i with part number 11 81 1132 321 may also be used on 318i due to the standard mounts often breaking. In addition, a retaining cup (p/n 11 81 1133 377) may also be used on both 318i and 320i.
The fitment of aftermarket mounts is also allowed provided they support the engine in the same position as the original mounts.
- l) Oil coolers are not permitted, however an oil catch can may be fitted as per Appendix Two, Sch A, Part Two, Article 5.1(5).
- m) Any camshaft and crankshaft angle sensors must remain in their standard unmodified location. This means that mounting points cannot be modified or slotted.
- n) The use of applied High Performance or Friction Coatings on any internal engine or gearbox components is prohibited.

6. SUSPENSION

6.1 MANDATORY EQUIPMENT / CONTROL PARTS

- a. The only springs that can be used are the King Springs brand with the following part numbers:

Fronts

318i KBFL-318

320i KBFL-320

Rear

Four-door/two-door 318i/320i KBRL-14-SL

Touring 318i/320i KBRL-14

NB: Wherever possible all springs should be mounted so that the official markings are visible once the wheel is removed. Springs without official markings will be deemed illegal.

- b. KONI externally adjustable shock absorbers as detailed below must be fitted.

Fronts

318i/320i

45mm - 8641-1029-SPORT

51mm - 8641-1021-SPORT

Rear

318i/320i

8041-1067-SPORT

NB: The original rear shock absorber mounts have a 10mm hole in the mounting bush and will need to be drilled to 12mm to accept the Koni shock.

6.2 PERMITTED EQUIPMENT / CONTROL PARTS

- a) The maximum allowable negative camber at the front wheel is **3°** on either side, measured on a level surface with the car in full race trim meeting minimum weight requirements including driver.
- b) Adjustable camber plates are not permitted.
- c) Suspension bush material is free, provided they are not made entirely of metal.
- d) All suspension bushes must only use the original unmodified mounting points and brackets, however offsets within bushes are permitted.
- e) 51mm diameter strut housings as from the BMW E30 325i model may be used.
- f) Rear shock absorber upper mounts may be replaced with the E36 rear mount, part number 33521092362 which has a heavier bush. However, it will still need to be drilled out to 12mm.
- g) Rear shock absorber upper mounts may be modified to use spherical bearings but must retain the standard body shell mounting. However, the total height of the mount including bearing must not exceed 50mm.
- h) The original BMW rubber spring spacers may be retained or removed from one or more corners to assist with equalization of ride height. However, no other spacers / packers may be used to adjust ride height.
- i) The use of bump-stops is recommended. If fitted, the bump stop must be of one-piece construction, made from closed-cell foam and have a maximum length of 50mm.
- j) A standard BMW E30 front anti roll bar of 18mm or 20mm diameter is permitted.

6.3 SUSPENSION MODIFICATIONS PROHIBITED

- a) No changes to suspension pick up points are permitted.
- b) Aside from suspension bushes (covered under 6.2b & 6.2c) all suspension components must be of the same design and made of the same material as that on the standard vehicle. Specifically, aluminum components may not be used to replace steel components (or vice versa) and no component may be replaced with a composite material or alloys that include any element of Titanium or Magnesium.
- c) No alterations to suspension geometry are permitted other than that available on the standard car and as per 6.2a & 6.2c.

- d) Rod ends or other spherical bearings are not permitted except as allowed in 6.2f.
- e) A rear anti roll bar is not permitted for Sedan / Coupe models, however a factory OEM BMW E30 rear sway bar is allowed on Touring models.

7. DRIVE TRAIN

7.1 CLUTCH

- a) Original BMW clutch kits (pressure plate, friction plate & release bearing) fitted to the E30 may be used as follows: **318i = 21211223569, 320i = 21211223101 or 21211223102**
- b) Pressure plates, friction plates and release bearings from other suppliers are permissible but must be of the same design as the OEM parts both dimensionally and operationally.
- c) For the avoidance of doubt, the lightening or modification of clutch components - either BMW or aftermarket is prohibited, as is the use of paddle, puck or carbon Kevlar clutch components.

7.2 GEARBOX

- a) Only standard (Original BMW) overdrive gearboxes as fitted ex-factory with approved engines in the E30 318i and 320i model ranges will be permitted, this specifically excludes both the automatic transmission and M3 dogleg gearbox. For the avoidance of doubt:
318i = Getrag 240
320i = Getrag 240 or ZF S5-16 THMH
- b) Gear ratios must be as supplied with the gearbox in production form, namely:
1st = 3.72:1 2nd = 2.02:1 3rd = 1.32:1 4th = 1.00:1 5th = 0.80:1
- c) Short shift gear lever BMW part number 25 11 7527 252 may replace the standard item. All other gear shift components / linkages must be Original unmodified BMW parts as fitted to E30 models.
- d) Gearbox mounting and location points must be retained and used as intended by the manufacturer.

7.3 DIFFERENTIAL

- a) The standard E30 318i/320i differential must be used, with a final drive ratio of 4.10:1.
- b) Limited slip or locking differentials are prohibited. Furthermore, the differential (including all internal components) cannot be modified in any way, nor have any parts added that might provide any kind of locking or additional frictional action.

- c) Differential mounting and location points must be retained and used as intended by the manufacturer.

8. ELECTRICAL

8.1 REQUIRED EQUIPMENT / MODIFICATIONS

- a) The battery must remain in its original location within the engine compartment and must be capable of starting the car unassisted.
- b) The standard battery position must be retained and the battery fitted in accordance with App Two, Sch A, Section 5.5.
- c) The alternator must remain in its standard configuration and be operational at all times while the engine is running.
- d) Circuit breakers or battery isolating switches can be fitted as per MSNZ requirements.
- e) Engine electronic control units (ECUs) may be exchanged between competing cars with the same engine type or for a standard reference ECU held by the organizers. ECU's must therefore have good access, be quickly removable, and must be clearly marked with the vehicle's race number.

8.2 MODIFICATIONS PERMITTED (BUT NOT MANDATORY)

- a) Electrical controls (eg window switches and light switches) may be repositioned as required to accommodate any permitted changes to the interior trim.
- b) The size and type of battery is free.
- c) The fitment of a simple shift light (to an rpm source), auxiliary gauges and video recorders is permitted as long as these do not contravene any MSNZ regulations and are adequately secured.
- d) The fitment of "standalone" lap timers, including GPS units is permitted if such fitment and use does not contravene any regulations from the meeting organizers or MSNZ. When fitted these must not require any driver input during a race and must connect to the car for power supply only. Any connection (wired or wireless) to the cars wiring loom, installation of additional sensors or electronics, including data logging or electronic dash displays is not permitted.
- e) The standard BMW distributor cap, rotor, plug leads and spark plugs may be replaced with aftermarket items, provided they have similar specifications to the original items.
- f) The standard BMW Ignition coil may be replaced with an aftermarket item of oil-filled cylindrical design. No modification to facilitate fitment is permitted. NB: Solid-State or transistorized ignition coils are prohibited.

g) The following items originally fitted as standard, or as optional extras to the vehicle, may be removed along with any associated wiring:

- Cruise control
- Air conditioning
- Headlamp wash/wipers
- Front fog lights
- In-cabin headlamp height adjuster
- Check control console
- On board computer
- Interior courtesy lamps
- boot illumination
- Glove box illumination
- Electric window over-ride switch. NB: windows must remain operational
- Front fog lamps and switch gear
- In-car entertainment systems, including speakers, amplifiers, aerials and head units

8.3 MODIFICATIONS STRICTLY PROHIBITED

- a)** No devices may be added or modified to provide any form of traction control, launch control or full throttle gearshifts.
- b)** Electrical switches can only be used to operate the function for which they were originally fitted into the car for, and for no other additional purpose.
- c)** Aside from any permitted modifications listed in these regulations, including the rerouting of existing wiring, no other changes may be made to the electrical system.
- d)** The fitment and / or use of radios or any electronic communication / signals between a driver and his / her crew or pits are prohibited. By way of clarification the only allowable communication method between pits and cars is via manual lap boards or hand signals.

9. BRAKES

9.2 REQUIRED EQUIPMENT

- a)** The braking system shall be standard Original BMW equipment as fitted to either 318i or 320i models, including master cylinder, brake booster, metal brake lines, wheel cylinders and brake calipers.

9.3 MODIFICATIONS PERMITTED

- a)** Brake pad and shoe material is free but dimensions are to remain as per original equipment.

- b) Brake discs are free in terms of supply but must be of one-piece steel construction.
- c) Standard (non-vented) front discs have a maximum diameter of 260mm and thickness of 12mm. These may be replaced with vented front discs (and calipers) from E30 320i / 325i models. These discs have a diameter of 260mm and a thickness of 22mm.
- d) Rear discs as per standard fitment to the BMW E30 318i, 320i or 325i are permitted. With a diameter of 260mm and thickness of 10mm.
- e) The flexible rubber portion only of the brake lines may be replaced with a steel braided brake line.
- f) To improve front and rear brake cooling only the removal of OEM splash guards / backing plates is allowed. Addition of ducting is permissible but this cannot be designed in any way which would otherwise enhance aerodynamics.
- g) All components relating to the anti-lock braking (ABS) system must be removed.

9.4 MODIFICATIONS STRICTLY PROHIBITED

- a) No adjustment to the brake bias is permitted

10. WHEELS AND TYRES

10.1 WHEELS

- a) Only single-piece steel or aluminium alloy road wheels are permitted of 15" diameter and width 7J with a negative offset of between 15 and 25mm. Competitors are reminded that no modification to the external surface of wheel arches is permitted and that the tyre should not foul either the body or chassis when the steering is turned under both static and dynamic suspension load.
- b) The use of wheel spacers is prohibited.
- c) Standard specification wheel hubs must be retained, however wheel studs may be fitted to the standard hub.

10.2 TYRES

- a) The control tyre for the Dunlop E30 Championship is the 205/50R15 Dunlop Direzza DZ03G 85V R2.
- b) It is prohibited to alter the tread or tread pattern of the tyres. For clarification this includes re-grooving, buffing, skimming, or any other method, including chemical application.

- c) At the conclusion of a qualifying session or a race, tyres must be of a standard that would pass a Warrant of Fitness test, such as the legal requirements for minimum tread depth and coverage. Tyres found to be outside of these guidelines will incur points penalties

11. WEIGHTS

- a) Minimum post-race weight including driver for all competing vehicles is listed below (see 11a). All cars weighed after each race or qualifying session. Drivers who do not present their cars for weigh-in after qualifying will receive point penalties or be disqualified from the qualifying session or race.
- b) Different minimum weights have been set for each of the three models (318i, 320i L-Jetronic / 320i Motronic) and apply regardless of the body style. (two-door, four-door or Touring) For 320i the type of engine fitted rather than the body type (Facelift or Pre-facelift) shall be used to determine the applicable minimum weight.
The following weights will apply for the start of the 2020/2021 season:
318i: 1075kg **320i:** 1175kg
- c) So long as no other rules are breached regarding vehicle modifications it is at the driver's discretion how and where the additional weight is achieved, subject to MSNZ regulations – see Appendix Two, Schedule A, Part One, Article 6.1.

12. VEHICLE LIVERY – REFER TO APPENDIX TWO

12.1 SPONSOR DECALS

The following decals will be made available to registered entrants and must be fitted as supplied to all BMW Race Driver Series cars, at all BMW Race Driver Series events.

See Appendix Two – Vehicle Livery for the correct fitment.

- a) **DUNLOP Windscreen banner:** To be applied to the top of the windscreen, with a maximum finished depth of 100mm, using the section of the supplied banner that has the DUNLOP logos printed.
- b) **DUNLOP decal (580 x 135mm):** To be applied on centreline of bonnet, no more than 75mm from the BMW bonnet badge.
- c) **DUNLOP decal (320mm x 45mm):** To be applied on the front fender on both sides, within 20mm of front door, and above side indicator. NB: If body is of similar colour to decal, a contrasting colour strip (340 x 55mm) must be applied first underneath the Dunlop decal.
- d) **DUNLOP decal (550mm x 55mm):** To be applied on the vertical face of the boot lid to the left of BMW badge. NB: If body is of similar colour to decal, a contrasting colour strip (340 x 55mm) must be applied first underneath the Dunlop decal.
- e) **KING SPRINGS decal (200mm x 80mm):** To be applied on fender on both sides behind the front wheel, and above the side sill.
- f) **KONI decal (200mm x 65mm):** To be applied on fender on both sides behind the front wheel, and above the “KING SPRINGS” decal.

12.2 OTHER BMW RACE DRIVER SERIES SIGNAGE

- a) **BMW Race Driver Series Number Box:** to be applied on the front door on both sides 40mm of the front edge of the door and split above and below the body molding.
- b) **BMW Race Driver Series decal** – both sides on the front fender above the DUNLOP decal
- c) **Allocated Race Number:** Must be a solid black number and applied inside the number box with a minimum height of 280mm and minimum stroke of 50mm. The font must be Helvetica or similar. Must comply to MSNZ requirements (see Appendix Two, Schedule A, Part Two, Article 6.2).
- d) **Screen Numbers:** to be applied on both the front and rear screen in the passenger side upper corner, with a minimum height of 150mm and minimum stroke of 20mm in white, fluorescent yellow or green in a Helvetica font or similar. Must comply to MSNZ requirements (see Appendix Two, Schedule A, Part Two, Article 6.2).
- e) **Race Weight:** to assist with identification of the cars for weigh-in and for commentary purposes each car will carry an 80mm-wide coloured stripe along the full length of the top edge of the rear side window on both sides. (See Appendix Two)

The stripes (to be supplied by the Race Driver Series) will be colour-coded as follows:

| | | | |
|---------------|-------------|-------------------|---------------|
| Blue | 318i | | 1075kg |
| Green | 320i | L-Jetronic | 1175kg |
| Yellow | 320i | Motronic | 1175kg |

- f) **Driver Name:** The driver surname at a minimum must be applied on both rear side windows, closer to the lower edge with a minimum height of 80mm with a minimum stroke of 10mm, in white or fluorescent green/yellow in a Helvetica font or similar.
- g) **Novice Markings:** The FIA mandated novice sticker must be run in a visible location on the rear of the car. These will be supplied.
Regardless of previous experience in other classes, drivers who are new to the BMW Race Driver Series must display this sticker for the whole season.
- h) **Windscreen:** To provide sun shading, additional material may be added below the windscreen banner to a maximum total depth of 200mm at any point, including the windscreen banner. This additional material shall be a single solid colour in black or similar to the Dunlop logo, with no additional wording or graphics.

12.3 PERSONAL SIGNAGE

The following restrictions apply to any personal signage or sponsorship carried on cars competing in the BMW Race Driver Series:

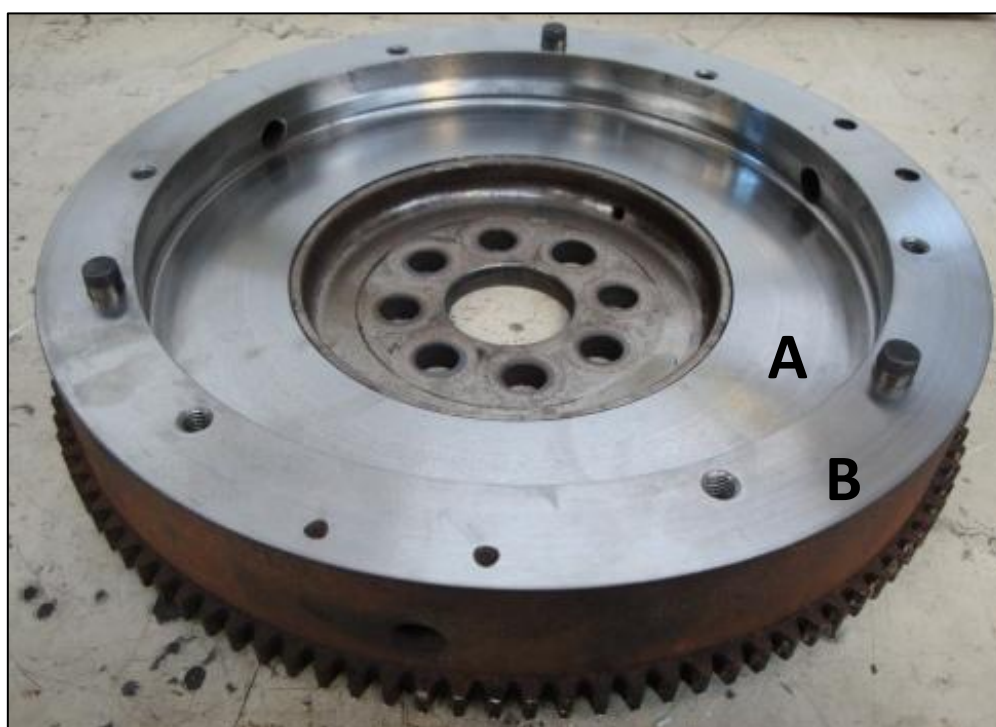
- a) **Front Screen** – This is reserved exclusively for the E30 Championship sponsor (Dunlop) and apart from race numbers (see 12.2b) no other signage can be carried on the front screen.
- b) **Rear Screen** – Personal advertising may be fitted to the rear screen so long as it complies with MSNZ regulations.
- c) **Side Sills** – No signage at all shall be fitted to the sills forward of the rear edge of the number box.
- d) **Competitive Signage** – No signage for any brands that compete with any of the series sponsors can be carried on the front section of the car - defined as being all panels “forward of a line through the rear edge of the number boxes on each door”. The current BMW Race Driver Series sponsors include: **Dunlop, Racer Products, King Springs and Koni.**
BMW Race Driver Series Committee decisions on any conflicting advertising are final, as are any decisions to introduce new and/or additional series sponsors.

APPENDIX ONE – FLYWHEELS (REFER TO ARTICLE 5.5B)

- M20** Minimum of 29.7mm on the inner surface. (Point A)
Minimum of 29.1mm on the outer surface. (Point B)
Minimum weight of 8.05kg including 3 dowels but no mounting bolts.



- M40** Minimum of 22.7mm on the inner surface. (Point A)
Minimum of 44.5mm on the outer surface. (Point B)
Minimum weight of 9.00kg, including 3 dowels but no mounting bolts.



APPENDIX TWO – SIGNAGE (REFER TO ARTICLE 12)

- 12.2 a) BMW Race Driver Series Race Number Box*
- 12.2 b) BMW Race Driver Series decal
- 12.1 c) Dunlop decal
- 12.1 f) Koni decal
- 12.1 e) King Springs decal



- 12.1 a) Dunlop windscreen banner
- 12.2 b) Front screen number*



- 12.2 d) Dunlop boot lid decal



- 12.2 b) Rear screen number*
- 12,2 e) Novice Sticker



- 12.2 c) Weight Stripe
- 12.2 d) Driver Name*

