

## **EXCEL CUP SERIES RULES 2020 (version 1.16: updated 01/02/2020)**

The aim of the Excel Cup is foremost to provide a safe low cost entry level Circuit Racing format that is fun and provides a competitive environment where drivers are able to improve their race craft. The drivers' time will improve through learning car control and basic vehicle setup.

*If you have any questions regarding these specifications, please contact  
Brett Peters 0429 528 400*

**No alteration or modification the standard factory production state of the vehicle is allowed unless it is specifically mentioned or permitted within these regulations.**

**Any questions regarding car specifications which are not previously addressed in this document must be directed to Track Attack Australia for clarification. Please be aware that there will be penalties for any cars which do not pass compliance inspections. Any vehicle found to not comply will be stripped of round points from the event and can incur up to a twelve month ban from any Track Attack event.**

### **1.1 VEHICLE BODY SHELL**

- The body shell of any Hyundai Excel built from July 1994 to June 30, 2000, with any number of doors.
- The body shell is to remain standard and not modified unless permitted by the following.
- Fitment of a roll cage as per 1.15
- No cutting of any sheet metal or bracing. (If the roll cage is positioned between the two rear strut towers this WILL not be considered bracing).
- All bolt on panels to remain standard.
- Sign writing is permitted and is encouraged.
- The strut towers must not be modified – except see 1.22 coil over suspension.
- Seam welding is not permitted except for the bracket that attaches the front lower control arm to the body.
- Sound deadener can be removed.
- Minor reshaping or rolling of the wheel arches to reduce tyres rubbing on the body.

### **1.2 ENGINE SPECS**

Excel - 1994 to 2000, up to G4FK. G4EC not permitted or any part thereof. Engines stamped G4FK which include G4EC block and head castings will not be permitted.

- See Figure 1 for Twin Cam Plus 1.36 – 2020 Cylinder Head regs
- See Figure 2 for Single Cam – Single Cam will be phased out Jan 2017

### **1.3 DRIVELINE**

- Factory standard manual excel 5 speed gearbox. Gearbox ratios shall remain standard.
- The final drive ratio can be either 3.842 or 3.656.
- Locked, Limited Slip and Over-tightened differentials are not permitted. (Refer Appendix B of these regulations for the approved method of testing differentials)
- Only single plate clutches are permitted. A commercially available aftermarket heavy duty clutch is permitted. It must be of similar design and construction to the original clutch. Racing type clutches are not permitted
- Raising of gearstick and lengthening lever throw is permitted

### **1.4 BRAKE SPECS**

- Standard excel brakes (rear drums)/front disc rotors or **Elantra/Lantra upgrade (refer CAMS regs - Control pad TBA)**
- Front disc pads for Excel rotors are a control item DBA DB1252HR purchased from Track Attack.
- Cross drilled rotors are not permitted
- Steel brake lines must be original equipment but it is permitted to replace flexible brake hoses with approved stainless steel flexible hoses.

## 1.5 EXHAUST/INTAKE

- Exhaust Manifold must be standard.
- The exhaust is free after the first juncture but is subject to noise requirements (95DB) at Lakeside.
- Extractors are expressly forbidden.
- Intake manifold is to be standard original excel, the rest of the air intake is free before the original throttle body and air flow meter.
- Pod filters are permitted.
- Throttle body is to be standard - factory as per model (i.e. Twin-Cam throttle body on twin cam motor).
- Forced Induction is not permitted, either by way of ducting or body / panel removal.
- Air boxes are permitted although no ducting is allowed to feed into the air box.

## 1.6 FUEL AND IGNITION

- Fuel injection is to be the standard factory system. The fuel injection system must be standard for that engine type.
- Injectors are to be standard - for that engine type.
- Ignition is to be standard - for that engine type (a push button starting switch can be fitted).
- Spark plugs and leads are free.
- Computer is to be factory standard for that engine type and not modified in anyway. – i.e. Twin Cam has Twin Cam computer, Single Cam to use Single cam computer – see section 1.8 for further clarity
- Fuel pressure regulators are free.
- Fuel pumps are to be factory Excel as per model of the car.
- Fuel lines are to be factory standard.
- Surge Tanks / Swirl Pots are not permitted

## 1.7 BATTERY

- The Battery can remain in the factory position or be relocated to the inside of car and to be secured and placed within a battery box
- Battery type is free
- Positive Battery terminals must be insulated
- Battery location must be marked with Blue triangle

## 1.8 COMPUTER ECU AND MODULES

### Chipping, Flash Tuning and wiring harness modifications are not permitted

- At any time during any track attack event, (which includes practise, qualifying or racing) the series scrutineer can check your vehicles computer, and swap it with another *competitor's ECU* or series computer. For ease of removal please mount your ECU on the side of tunnel or firewall of passenger side.
- Any vehicle found to contain any after-market performance enhancing device will be removed from the event and will incur up to a twelve month ban from any Track Attack event
- Any driver to be found to be in control of a race car regardless of ownership to be found to contain any after-market performance enhancing device will be removed from the event and can also incur up to a twelve month ban from all Track Attack events.

## 1.9 FUEL

- Racing fuel is not permitted
- Fuel additives are not permitted
- Octane boosters are not permitted
- Fuel must be available from the bowser at most service stations in SEQ. Octane levels 91, 95, 98 are permitted. Bowser Ethanol blended fuel is permitted, for example E10

## 1.10 AERODYNAMICS

- The factory Hyundai Excel low profile rear wing may be maintained or fitted.

- All other aerodynamic aids are not permitted

### **1.11 STEERING**

- Power steering can be added or delated
- Either the manual or power steering rack can be used
- Steering wheels are free but must meet ADR, FIA or SFI standards.
- Power Steering coolers are permitted

### **1.12 STRUT BRACES**

- Front strut braces is permitted
- The rear suspension towers may be braced by either the safety cage or a strut brace.

### **1.13 LIGHTS**

- The original headlights, brake lights, tail lights and indicators are to be kept in place,
- brake lights are to be functional, no spray tint or dark film is to be applied
- indicators are to be in position but are not required to be functional
- The fitment of a Hi Vis rain light on the centre of the rear boot/hatch, mounted centrally to the rear key access point is recommended.
- Headlight sponsor sticker must have hole cut in it if racing at night.

**Note: During rain events headlights must be illuminated during the event, the direction of same will be at the digression of the race controller – if working head lights are not in place your exclusion from the race will be enforced.**

### **1.14 INTERIOR**

- The front door trims must remain in place or be replaced by a suitable safe material.
- The original dash is to be retained. However relief cuts may be made for fitment of roll cage. If no original dashes are available, approval will be required for fibreglass replacement before assembly.
- Race seat and harness are mandatory. Replacement seats and harness must comply with a suitable design standard, eg ADR, SFI, FIA. The seats and harness must be suitable for motorsports applications. Fitting must be to the manufacturers recommendations. Seats are to be fixed back style. Four point harnesses are a minimum safety requirement. Minimum fitment standards are to adhered too
- Original bolts must be used – no less than GR 8.8 bolt tensile
- Original bolt mounting holes must be used to secure mounting plates if required to floor
- A minimum of four (4) mounting points must be in use at all times, seat to mounting plate or seat to sub frame
- Minimum of 50 mm or 2 inch diameter plate must be in use on the underside of both hex bolt and hex nuts
- Minimum thickness of ANY mounting plates is to be five (5) mm, preferably 50 x 50 x 5 angle

### **1.15 ROLL CAGES**

- Roll cages must be 6 point for racing. Driver's intrusion bars must be fitted.
- All bars must be contained within the Cabin.
- Bar-work must be welded in.
- Steel must be CDS or CDW.
- Molly cages are not permitted.
- Cages must be manufactured to SFI, FIA, Andra, CAMS or other suitable specifications.
- CAMS approved Bolt in Roll Cages that have full certification are allowed.

### **1.16 MINIMUM WEIGHT**

- The minimum racing weight of the car is measured with driver and all his race apparel. At no time during an event can the car weigh less than the following;
- Minimum wet weight is to be 999kg

### **1.17 GLASS**

- ADR compliant Glass must be maintained
- Use of light weight window materials is not permitted. No Perspex (polycarbonate) materials
- Vehicles must not have any tint on any side windows or the rear windscreen.

### **1.18 TELEMETRY**

- Live telemetry is not permitted
- Stored Video & other GPS style telemetry is permitted - eg performance box or video box etc.
- Water temp and Oil pressure gauges or warning lights are permitted
- After - market Tacho may be fitted
- Pit to car radio communication is permitted
- Race control radio devices are to be positioned on person not to car, not to the vehicle or part there of

### **1.19 COOLING**

- Oil Coolers are permitted
- A Larger radiator may be fitted provided that the original fixing points are used
- Radiator Hoses are free
- Brake ducts are permitted

### **1.20 TYRES**

- The Dunlop Direzza II 195/50/15 is the mandatory control tyre. Supplier is Queensland Raceways
- Tyre Buffing is allowed.
- Wet weather tyres of a different brand are not permitted.

### **1.21 WHEELS**

- Wheels must be maximum 15" diameter/7.5" width
- Alloy wheels are permitted
- Wheel Spacers are permitted however must not be diecast. Available from Autobarn, Racer Industries, Wheelworx etc
- Long wheel studs must be fitted if spacers are used, ie. thread must stick out of wheel nut

### **1.22 SUSPENSION**

- Racing suspension is not permitted, ie. No canisters or external reservoirs.
- Commercially available coil over suspension is allowed, however together with the following;

Camber must not exceed 4.0 degrees negative and minimum ride height with competing driver in driving seat must be 100mm excluding exhaust.

The ride height will be measured with the car parked on level ground. No part of the car except the exhaust is to be under 100mm when measured at the cross member with tyres inflated to a minimum of 35 pounds.

The use of replacement adjustable strut tops is permitted, providing that each use the standard body shell mounting points. The removal of metal from the suspension tower is forbidden, except that a hole in each strut tower may be enlarged to a maximum of 60mm diameter and remain circular and concentric with the original hole.

- After-market springs are permitted provided that they are readily available at retail outlets
- After-market shocks are permitted provided that they are readily available at retail outlets
- Cut springs are allowed
- Camber pins are permitted to achieve negative camber
- Original mounting points must be maintained for all components
- Bottom of struts may be slotted but must be reinforced by locating washers to be welded to strut ears

- Longer wheel studs must be fitted if using wheels spacers
- Track Measurement will be carried out by measuring from the centreline of each tyre across the axle at the point where the tyre contacts the ground.
- Max front track is 1515mm
- Max rear track is 1485mm
- It is permissible to fit off set caster bushes

### **1.23 SWAYBARS**

- It is permissible to install readily retail available after market sway bars up to 18mm in thickness on the rear and 22mm thick on the front  
Original mounting points must be maintained for all components  
Sway bars must be non-adjustable.

### **1.24 RACE SEAT**

- Fixed back race seat to SFI, FIA or Australian Standards
- Seat mountings to a minimum ADR requirements and 1.14 section of this document

### **1.25 RACING HARNESS**

- Minimum 4 point racing harness to SFI, FIA or Australian Standards
- Mountings to ADR requirement

### **1.26 WINDOW NETS**

- Are mandatory and may be installed on the driver's door (when installed on the driver's door the door must be able to be opened with the window net in place). However, it is recommended that the window net be attached at top and bottom to the roll cage, not the body of the vehicle.

### **1.27 APPAREL**

- Helmets must comply with, or exceed, the standards AS1698.
- Full face helmet, goggles or visors must be worn in open cars – no glass is permitted in accord with AS 1609-1981
- Must wear one piece overalls, socks, shoes, balaclavas and gloves, made of Nomex or a similar a flame protecting material to FIA Standard 1986 or Australian Standards
- Please be aware that HANS's devices are mandatory at Queensland raceway and Lakeside Park.

### **1.28 OIL CATCH CAN**

- Oil catch cans are mandatory, preferably within a drain back to the sump.
- A minimum holding capacity of one eight hundred ml's (800) is required. No plastic vessels are permitted, Must be of a metal construction – with a minimum of two mounting points, - no plastic ties allowed

### **1.29 BATTERY ISOLATOR/ENGINE KILL SWITCH**

- Battery isolator/ignition kill switch must be fitted and must isolate the battery and kill the engine simultaneously
- Battery isolator/ignition kill switch must be able to be operated by the driver when in normal seated position
- Battery isolator/ignition kill switch must be fitted with a remote cable which is to be located near the drivers A pillar and be able to operate from the exterior of the vehicle remote battery isolator/ignition kill switch cable must be identified by a blue triangle with red lightning bolt sticker

### 1.30 TOW POINTS

- Suitable tow points to front and rear are required – **ENSURE FRONT TOW HOOKS CAN BE REACHED BY RECOVERY VEHICLES**
- Tow points to be marked with red tow stickers

### 1.31 Miscellaneous

- A. The reinforcement of jacking points under the automobile is permitted by the addition of metal plate/s provided reinforcing does not exceed a surface area of 150 mm x 150 mm and follows the contours of the original.
- B. All cars must have a minimum forward facing (action) camera. Vision must be clear (no dash cams unless High Def) and it must be positioned in such a way that the steering wheel is in the picture. Footage must be made available at DSO request. Memory cards must be emptied each round. Failing to provide footage will result in a penalty. 1<sup>st</sup> penalty rear of grid for next race. 2nd Penalty same race meeting zero points for round.

### 1.32 Fuel testing

Fuel samples may be drawn for testing from a competing automobile at any time during the period of time from the commencement of the event until the vehicle is released from parc fermé at the conclusion of the event, should one be organised.

It is the competitor's responsibility to provide the means by which fuel samples may be taken from the Automobile; the method being subject to the approval of the Chief Scrutineer. Sampling requiring the disconnection of hoses containing fuel under pressure is not acceptable under any circumstances.

Whilst the fuel samples for testing are being taken, the competitor, or his nominated representative must be in immediate attendance to observe the process.

The competitor must declare to the scrutineers, at the time of sampling, the brand and type of fuel that is in the automobile's fuel tank. Any additive, including lubricants, must also be disclosed to the scrutineers

### 1.33 RACE NUMBERS

- Race numbers are mandatory and are to be supplied by the competitor. Refer to the table below for details.

Item	Size	Colour	Positioning
Race Number	200mm High	Yellow (Fluro)	Side back window, both sides
Race Number	<b>150mm high, with 75mm "C" in white below if running coil overs</b>	Yellow (Fluro)	Top left windscreen

### 1.34 SERIES SPONSORS

- **Sponsorship decals must be displayed in the designated positions. (Windscreen, front and rear number plate, Headlights and in front of rear wheel on sides are compulsory and stickers are provided by sponsors )**



### 1.35 DRIVING STANDARDS

All drivers must get a copy of the RACERS (Recreation and Competition Event Resources & Services) manual from Queensland Raceway when receive their race licence, read and understand this document. A reminder the ethos of RACERS is that it is recreational motorsport and the overtaking driver is always in the wrong. There is no such thing as a "racing incident". Car to car contact is not acceptable and the overtaking car is always in the wrong.

A. In addition to RACERS Track Attack Australia have the following critical driver and team code for all competitors.

1. Multiple defensive movements across the track will be considered blocking. No weaving, no trying to break the tow.
2. "Bump and Run" will not be tolerated.
3. Racing Room - Giving your competitors racing room is one of the first rules. NEVER force your competitor off the track by squeezing or failing to allow them adequate track space.
4. Protecting your line – To protect your racing line into a corner you are allowed ONE movement to position your car. Multiple defensive movements across the track will be considered blocking. Once there is overlap you cannot keep moving over. As per the RACERS manual this will be dealt with as "unsportspersonlike" driving.
5. If you are being overtaken and the overtaking car (that is always in the wrong) is beside you and you contribute to car to car contact by moving across and steering towards that car (no conceding the pass) you will also get the same penalty as the overtaking car.

### 1.36 CYLINDER HEAD / CAMSHAFT / VALVES – Engine builders pls refer -

<http://www.seriesx3qld.com.au/uploads/RA23-Group-3E-CircuitExcel-2020%20Final.pdf> for detailed drawings.

(a) The camshaft profile (lobes & their position) must remain standard. No machining of the camshaft is permitted.

(b) The timing of camshafts in relation to each other and the crankshaft must remain standard as detailed in the Hyundai Factory Excel Workshop Manual/s in the resultant position from the unmodified factory camshaft wheel and sprockets installed in the standard position.

(c) The gasket face of the cylinder head and of the block may be machined by parallel machining only, other than listed below. No modifications, machining, addition or removal of material from the cylinder head is permitted.

(d) It is permitted to regrind the valve seats, including over cuts and undercuts, the purpose of which is to obtain the desired valve seat width. The top cut of the valve seat is limited to a maximum overall diameter of 29.0mm for exhaust and maximum overall diameter of 32.0mm for the inlet valve seats. Concurrently the maximum distance between the valve head to combustion chamber wall is 3.0mm. "The removal of any other casting material from the combustion chamber is NOT permitted

(e) The cylinder head casting immediately under the valve seat may be machined to a maximum depth no further than the short-turn radius corner of the throat. But must not be greater than the maximum valve seat throat diameter (refer Appendix 1). Where the machined valve throat meets the cylinder head port a distinct edge is formed, which must not be modified either by hand or by compound throat machining.

(f) Valve seat inserts may be replaced but must be no larger than the original OE inserts or their .012" and .024" oversize variants and must be fitted in the original locations.

(g) Valve throat machining must be concentric to the original valve guide position and orientation. Valve guides must be original dimensions and position within the cylinder head.

(h) Other than these exceptions, no modifications, machining, addition or removal of material from the cylinder head is permitted

(i) Valve springs must be OEM or aftermarket equivalent in all dimensions and ratings. Springs must be parallel inside and out.

(j) The replacement of components with componentry from other Hyundai models or with replacements machined from billet materials is not permitted.

(k) K Line Valve Guide Inserts can be used to bring valve stems in cylinder heads back to within standard specifications

(l) Valve heads must maintain original cast finish and be equivalent material and specification to OEM. Custom made valves are not permitted. Swirl polishing is not permitted. No cuts or dishes are permitted to be machined into the valves other than Valves may be back-cut to a minimum cut diameter of 22.0mm for inlet and 18.0mm for exhaust valves.

**Engine & Gearbox seals are used for scrutineering purposes.**

**N.B. All competitors who finish in the top 20/or lap within 103% of the lap record must present their engine for scrutineering and sealing.**

1. All competitors will have their rocker covers sealed so that your engine can be inspected and sealed by either of the series Engine eligibility officers Shane Beikoff 0418 722 156. The cost is \$160 + small travel cost. N.B. Shane is after work hours.

2. Track Attack Australia can direct any competitor to have its Engine & Gearbox sealed, at a cost to the competitor.

3. If you wish to seal or break a seal, you **MUST** notify our category scrutineer by calling him on 0418 722 156

4. be aware that if you do not notify before you break the seal, you will incur a championship point's penalty. If re-sealing is required at a location/time other than a scheduled race meeting, this will be done at the competitor's expense. See below for specific sealing procedure.

### Engine sealing Procedure

- Engines requiring a full check and seal are to be separate from the race car.
- All machining is to be completed, components are to be clean and organised ready for efficient assembly, but with the cylinder head, camshafts, and sump removed.
- The crankshaft, conrods, and pistons must be fitted, but the engine sealer will ask for one piston of his choice to be removed for checking, then be refitted.
- The cylinder head should be fitted with all valves, springs, and retainers, but without camshafts, and the engine sealer will ask for some valves of his choice to be removed for checking.
- At any time the engine sealer can supply camshafts on an exchange basis from the Category, the supplied camshafts will have been checked and measured against standard camshaft specifications. The camshafts must be fitted in the presence of the engine sealer, along with the timing components.
- Various engine components will be checked by the engine sealer during your assembly of your engine. Components checked will include, but not be limited to crankshaft, conrods, pistons, bore, stroke, castings, valves, cylinder head and ports, timing components.
- The engine components must be pre-drilled to accommodate sealing wire in the areas of Engine sump rail to block, cylinder head block casting to cylinder head casting, and bolts for two camshaft bearing caps.
- The engine builder must check that all components conform to the current Excel Cup Series Regulations before an appointment is made for the engine sealer to attend, and in the event that an engine is unable to be completed or sealed, a full sealing fee is due and payable for that visit by the engine sealer.
- Efficient and timely assembly of the engine in the presence of the engine sealer is requested.

#### APPENDIX B

##### TESTING OF DIFFERENTIALS

the initial method of checking that differentials comply with "Mechanical Items - Item L" of these regulations shall be as follows:-

The engine of the car is to be turned off and the gearbox placed in neutral and the handbrake fully off.

The car will be jacked up so both front wheels are clear of the ground and each spins freely.

One front wheel will be rotated by hand, and the front wheel on the other side of the car will be observed.

Should the observed wheel rotate in the same direction to the wheel being rotated by hand, then the differential will be deemed to have failed this test.

Additional tests may still be required to determine eligibility at the scrutineer's discretion.



## Excel Twin Cam

1	Bore	76.0mm max
2	Stroke	83.5mm
3	Piston above Block	Std
4	Block Thickness Limit for correction of cylinder block upper face distortion	.010
5	Piston Dish - Volume	Std
6	Inlet Valve throat –	25.0mm
7		
8		
9	Valve Stem diameter	6.00mm
10	Valve Springs -	Refer 1.36
11	Inlet Valve –	Refer 1.36
12	Inlet Port	Refer 1.36
13	Inlet Manifold	Refer 1.36
14	Inlet Manifold Throats	No match porting
15	Exhaust Valve – no larger than	Refer 1.36
16	Exhaust Valve throat - It is permitted to machine valve seats and throats but they must only be machined with cutter concentric to the valve guide. No hand finishing is permitted whatsoever. Also see point 35.	Refer 1.36
17	Exhaust Port	Refer 1.36
18	Exhaust Manifold Inlet	Refer 1.36
19	Exhaust Manifold Outlet	Refer 1.36
20	Exhaust Pipe Flange	39.4mm max
21	Valve Springs set height/ permissible to shin	
22	Throttle body	48mm (+/- .25mm)
23	Cylinder Head Thickness – No angle milling permitted – Cylinder head face must remain flat within .125mm / 5 thou from inlet manifold to exhaust manifold side. This measurement will be determined from the two centre head bolt holes measured from the head face to an UN-machined head bolt face.	
24	Cylinder head combustion chamber capacity – with spark plug as raced	37.0cc min
25	Camshaft – The camshaft profile (lobes & their position) must remain standard. The timing of camshafts in relation to each other must remain standard. A Vernier adjustable camshaft gear is permitted.	Std factory
26	Flywheel thickness	29.9mm min
27	Flywheel weight inc pressure plate & bolts	10.5kg min
28	Gearbox ratios & final drive ratio to be standard twin cam.	
29	Weight piston with pins & rings	318 grams min
30	Crank/conrod journal diameter may be machined to .5mm/020 thou Crankshaft main journal diameter may be machined to .5mm / 020 thou	
31	After market Hydraulic lifters may be used, but must remain hydraulic– Solid lifters are not permitted	
32	Spark plug	Free
33	Crank Shaft Weight – It is permitted to lighten the crankshaft by way of drilling the counterweights, and or turning down the ends of the crankshaft in a mill/lathe. No hand finishing is permitted whatsoever.	11.2kg min

34	Conrod weight includes piston, rings, pin, conrod with bolts and nuts and bearing – For the purpose of balancing it is only permitted to remove metal from the ends of the conrod.	839.5 +/- 30g
35	Abrasive or mechanical blasting of the cylinder head and inlet manifold is not permitted	
	<b>Note: Hand finishing – includes by hand or with any form of hand held tool whether or not it is powered by any means.</b>	