# 2020 REGULATIONS AND SPECIFICATIONS FOR THE HISTORIC SINGLE SEATER CLUB CHAMPIONSHIP (162087)

## SPORTING REGULATIONS

### 1. INTRODUCTION

1.1. This category of historic motorsport has a variety of periods and categories and is for single-seat and purpose built open two seat racing cars.

1.1.1. Air cooled Formula Vee (pre-1989)

1.1.2. Purpose-built Sports Cars up to 2000cc engine capacity (pre-1967)

1.1.3. Front engine Single Seaters (pre 1975) and replicas.

1.1.4. Formula Ford Historic FF (pre-1981)& SA Design & manufactured pre 1986

1.1.5. Classic (pre-2003 – Kent 1600cc engines only)

1.1.6. Wings and Slicks F1, F2, F3, Atlantic, F5000, Formula Ford 2000, Formula South Africa and Formula Sigma (all pre 1986)

1.2. Each category is subject to a set of technical regulations (See list of Appendices1-7) which need to be read in conjunction with these Regulations and Specifications.

1.3. The final decision as to the eligibility of any vehicle and its period shall rest with the HSSA Eligibility sub-committee whose decision shall be final.

1.4. Before commencing the construction of specialised vehicles and/or replicas, where there are no clear specifications, the concept and plans must be presented to the chairman of HSSA. A technical evaluation will be conducted and approval will be issued or not.
Cars built in the spirit of a period car must substantially resemble the original after which it is built and must contain **NO** parts that will provide an unfair advantage. Modern components may not be substituted and the car must resemble the silhouette as well as the technical & mechanical workings of the period.

### 2. ADMINISTRATORS

2.1. The controllers of Historic Single Seater Racing in South Africa shall be Motorsport South Africa (hereafter referred to as MSA) through the Historic Single Seater Association (hereafter referred to as HSSA) and the relevant MSA Regional Committee.

2.2. The MSA GCR's and SSR's, which shall prevail in the event of a conflict, must be read and understood in conjunction with these rules and regulations. Please see appendices applicable to HSSA's various Racing Categories.

### 3. ELIGIBILITY AND CLASSIFICATION

3.1. Only cars that have been registered with and approved by the HSSA, acting on behalf of MSA shall be eligible to compete in the Historic Single Seater Racing events.

3.2. Drivers must hold a current and valid, "Club Category" MSA licence which is applicable to the series.

3.3. The final decision as to the classification type/period of any vehicle shall rest with the HSSA Eligibility sub-committee, which shall be entitled to make that decision in its sole discretion. Aspirant competitors are strongly advised to consult with the HSSA regarding compliance with the Technical Specifications prior to starting their investment programme. The HSSA shall, upon submission of an HSSA registration form by the competitor, determine the Category and Class under which such vehicle shall race.

3.4. No car shall be permitted to race in any Historic Single Seater Racing Championship unless approved by and registered with the HSSA Committee.

3.5. Competitors will be required to complete an MSA HTP (Historic Technical Passport) for every vehicle to be raced, and on which full details of engine, gearbox, suspension, lightweight panels, wheel sizes, etc. and any other information required by the committee, shall be recorded. Once a vehicle has been accepted and approved by the HSSA, this registration form must be stamped and signed by the responsible officer of HSSA and registered with MSA.

3.6. Any proposed change to the specification of the vehicle must be recorded on an HSSA registration form and submitted to the HSSA for approval, once approved, it shall be included in the registration document.

3.7. Any competitor whose vehicle is found to differ in specification from his/her registration form and/or logbook will be requested to make the necessary changes and if such changes are not made, will be excluded from any future races.

## 4. NUMBERS; SPONSORS; ADVERTISING AND OTHER MARKINGS

4.1. Advertising material, as deemed necessary by the relevant administering club in terms of the promotion of a series sponsor/s or any other ad hoc sponsorship material, shall be displayed on each competitor's car and/or racing apparel and in a specified position.

4.2. Should such advertising material not be placed on a competing vehicle or in the specified position, that vehicle will not be allowed to compete until such time as the specified advertising material is placed on the vehicle and in the correct position.

4.3. Advertising material (other than period) may be displayed, upon approval of HSSA.

4.4. HSSA shall allocate racing numbers of cars, as well as classes, within which specific cars shall compete (see para 3.3 above)

## 5. CODE OF CONDUCT

5.1. **Spirit of Historic Racing**

5.1.1. HSSA competitors must undertake to race within the spirit of the regulations and the HSSA will be the final judge of that fact.

5.2 Any competitor found to be seeking advantage by using performance enhancing components/devices or entering a car which either doesn't comply in all respects to THAT of the car of the period or has an engine capacity larger than the original, shall have their car inspected by the relevant Technical Representative (T.C.) of HSSA and be required to comply with the decision of the HSSA Eligibility Committee. Non-Compliant cars shall be recorded and monitored – ultimately being declared unfit to participate in HSSA events.

## 6. CHAMPIONSHIP

6.1. **Championship Aim**

6.1.1. The aim of the HSSA championship is to declare a Champion. The Champion shall be the competitor who accumulates the highest number of points in the season in the Index championship.

6.1.2. A parallel competition is run for scratch racing and the Tyler trophy is awarded.

6.1.3. In the case of a tie, the competitor with the greater number of first place points will be declared the champion. If this does not resolve the tie, then the greater number of second places failing this, third places and so on until the tie is resolved.

6.2. **Championship Format**

6.2.1. The HSSA Championship will consist of four (4) events less any cancelled events. Each event will consist of two races.

6.2.2. The length of the championship races will be a minimum of 24 kilometres in length.

6.2.3. Races can be in three formats: Scratch, Index of Performance & Handicap. Notwithstanding this, and with consensus of the competitors, alternative starting and race formats may be considered to cater for circumstances at the time.

6.2.3.1. **Scratch**

In the case of scratch racing, the starting position on the grid for any competitor in the first race of any championship event will be determined by the fastest lap in official practice/qualifying of that competitor. Starting positions for the second race grid will be determined by the finishing order of the first race. Any competitor that does not finish the first race will start at the back of the grid for the next race. In scratch racing the result is according to the order in which the

competitors cross the finishing line.

6.2.3.2. **Index of Performance**

a. An index of performance race may, be held for all competitors in each race no matter the category of the car.Taking the Ideal Race Time and dividing it by the Actual Race Time (in seconds) and multiplying by 100 will calculate the index. The Ideal Race Time is calculated by taking the driver's fastest lap in the relevant race in seconds and multiplying by the number of race laps.

b. Point Scoring per 6.5.

6.2.3.3. **Handicapping**

(Not currently in use- but could perhaps be raced in the future)

The position on the grid for each race is determined by taking the individual handicap time for that race and multiplying by the number of laps and deducting 0.3 seconds per car to be passed using the following formula:

a. Heat One:

The handicap lap time is set for the first race based on the fastest practice lap time on the day with an option for the driver to nominate a faster time to avoid breaking the handicap lap time including the allowance (the allowance is 2.5% in the first race and 1.5% in the second). If that handicap lap time is improved upon by more than 2.5% in the first race (in any lap) then the driver is placed last in the results for that race. If more than one driver breaks handicap, then they are relegated in order of their improvement, the largest improvement starting last. The calculated handicap lap time for each competitor shall be used to determine the grid positions for each competitor in the first race. The grid will be formed in reverse order i.e. slowest to fastest.

The slowest competitors' handicap lap time - the "scratch starter"- is used as the datum for determining the starting times for each competitor in the heat. The starting time handicap for each car is calculated in the following manner:

i. Each competitor's timed practice lap time or nominated lap time is subtracted from the slowest competitor's practice lap time.

ii. The time difference determined in (a) above is multiplied by the number of laps to be completed in the first heat to determine the un-adjusted starting time.

iii. The un-adjusted starting time handicap determined in (b) above is reduced by 0.3 seconds for each car that is slower than the competitor. This is done to determine the time after the "scratch starter" that the competitor must start.

***Example:***

*Slowest car does 1 min 50 sec per lap = 110 seconds,*
*Competitor does 1 min 40 sec per lap = 100 seconds.*
*If it is a 6 lap race and the competitor is 11th slowest*

*110 sec minus 100 sec = 10 seconds*
*10 sec x 6 laps = 60 seconds*
*There are therefore 10 slower cars*
*0.3 x 10 Cars = 3 seconds*
*60 sec minus 3 Sec = 57 seconds after the slowest competitor has started*

b. Heat Two:
The start positions for the second heat will be determined from the fastest lap time from official practice, the nominated practice lap time or the first heat lap time. The fastest lap time will be used for calculations of the handicap lap time, grid positions and starting times. Calculation of starting time will be done in the same manner as set out for heat one above

c. General:

i. Should the competitor feel that his or her fastest lap time in official practice was not realistic; the competitor has the option - within 30 minutes after the official practice times were published - to find the handicapper and nominate an alternate time with the handicapper. This alternate time may only be quicker than the time posted in official practice.

ii. Cars are then consolidated into groups with a minimum of 5-second intervals between groups. Cars are set off at different intervals with the slowest car or group starting first and the fastest last.

iii. The handicap lap time is set for the first race based on the fastest official practice lap time on the day with an option for the driver to nominate a faster time to avoid breaking the handicap lap time including the allowance. (The allowance is 2.5% in the first race and 1.5% in the second). If that handicap lap time is improved upon by more than 2.5% in the first race (in any lap) then the driver is relegated to last place for that race. If more than one driver breaks handicap, then they are relegated in order of their improvement, the largest improvement starting last.

iv. The second race handicap time uses the best lap time from the first race or official practice time or nominated practice time, whichever is fastest (no options for change). Should the lap time in any single lap in the second and subsequent races be an improvement of more than 1.5% on the handicap time, the driver is relegated to last place for that race. If more than one driver breaks handicap, then they are relegated in order of their improvement, the largest improvement starting last.

v. The clerk of the course must be notified by the competitor should he/she be unable to compete in a race.

vi. Should weather conditions or conditions of the circuit during the race be very different to the conditions which applied during official practice, the exclusion of competitors due to beating handicap time including the relevant allowance may be waived by the handicapper after consultation with the HSSA representative.

6.3. **Point Scoring**

6.3.1. Points are allocated according to the number of starters for each race, counting down from the winner who scores the highest number of points to the last placed car which will score one point.

6.3.2. At the end of the day, after the heats have been completed, the points are added for each car. The ten finishers with the highest number of (day's) points are allocated points towards the championship on the basis of 10 down to 1.

6.3.3. Where an event is held with more than one race, each race will be scored as a separate race. Where an event is run with only one race of longer duration, double points will be scored.

6.3.4. Driver points from different categories may not be accumulated.

6.3.5. For every event, where a driver commences official practice, an extra three points will be awarded.

6.3.6. For all "away" events, any competitor who resides more than 300 kms from the circuit and who participates by commencing a lap, whether in official practice or in a race, will be awarded an extra three points towards the Championship.

**TECHNICAL REGULATIONS**

These are general. In instances where category specifications are explicit, these will take preference and must be detailed, approved by the HSSA Technical Committee and appear in the relevant appendix (1-7) to this document.

## 7. DEFINITIONS

7.1. Single-seat (open wheel) racing car
A car built for the sole purpose of racing and conforming to those internationally or locally recognised regulations of MSA and/or FIA which governed the category, formula and competitions in which it originally raced in period in its present configuration. Cars built and raced to a national formula may be accepted.

7.2. Open two-seat racing cars
Cars with space for two seats and built solely for use in racing competition.

**CHASSIS MONOCOQUE OR UNITARY CONSTRUCTION**

7.3. The chassis must conform to the design, dimensions and construction of the original chassis.

## 8. FRONT AND REAR SUSPENSION

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

The system of suspension (spring type and location of wheels or axles) must not be altered nor must any additional location or springing medium be added unless this was

## 9. ENGINE

9.1. The engine components and ancillaries must be of period specification, must be of the same make, model and type fitted and conform to a manufacturer's specification for which period evidence exists.

## 10. IGNITION

10.1. The use of electronic engine management systems must comply to period specification or be approved by HSSA.

## 11. FUEL SYSTEM

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

11.2. Cars with fuel injection may be converted to carburettors of the same period.

11.3. Fuel injection and/or supercharging may only be used if used in the period and only the original system may be used.

11.4. Mechanical fuel pumps may be replaced by electrical pumps, or vice-versa.

11.5. Any fuel tank must not exceed the originally specified capacity, and must be in the original location or in the rear of the car.

## 12. INSTRUMENTATION

12.1. Electronic instrumentation must be period specification, however data acquisition system which provides the following functions: engine RPM, engine oil pressure, engine oil temperature, engine water temperature and fuel pressure may be used. On- board lap timers may be used in all racing formats, except handicapped racing.

## 13. GEARBOX

13.1. All cars must be fitted with their period specification “H-pattern” gearboxes. Automatic transmissions, overdrives and additional forward speeds are not permitted, unless they were a period specification.

13.2. When an alternative gearbox is fitted, only a gearbox of the same or an earlier period will be permitted. It must comply with the “H-pattern” and have the same number of forward speeds.

## 14. FINAL DRIVE

14.1. Limited slip differentials may only be fitted if a period specification.

## 15. BRAKES

15.1. Brake components must be entirely to period specification of the model with the exceptions described here after.

15.2. Disc brakes, ventilated discs and multiple pot calipers are only permitted if a period specification of the model.

15.3. Hydraulic braking systems may be converted to dual circuit operation which provides simultaneous operation on all four wheels via two distinct hydraulic circuits.

15.3.1. Hydraulic lines may be replaced with «Aeroquip» type piping.

## 16. WHEELS

16.1. All Wheels must be period specification and of the original diameter used during the car’s international and/or local life.

## 17. BODYWORK

17.1. The car must retain its original silhouette of the period in which it originally competed and show no additional air ducts, scoops or blisters. The addition of a roll-over bar is not considered to be a change to the silhouette.

17.2. Replacement body panels must faithfully follow the original design constructed in the period for that original chassis and be made of the original material type.

17.3. Tonneau covers must be flexible unless an original body part of the car (proved by a period photograph), in which case the edges must be protected. Passenger seats may be removed.

## 18. AERODYNAMIC AIDS

18.1. Aerodynamic devices may only be fitted to the car if period specification.

18.2. The devices used must conform in design, positioning and dimensions to those used during the car's period.

## 19. LIGHTING

19.1. Cars originally fitted with lighting systems have the option of having them in working order. A rain light (conforming to MSA specifications) for wet weather races is obligatory

## 20. WHEELBASE, TRACK, GROUND CLEARANCE

20.1. Wheelbase
The wheelbase may not vary from the period specification.

20.2. Track
The track must not vary from the period specification.

## 21. WEIGHT

21.1. The minimum weight for a car is that specified in the original regulations for the car's category, or a period published weight when this weight is not specified in the original regulations. Weight limits are however not enforced by HSSA.

## 22. TYRES

22.1. It is always the competitor's responsibility to ascertain with the manufacturer the suitability of the tyre for the competitor's specific use.

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

22.3. Historic Formula Ford category must use Avon ACB 9 tyres

Classic Formula Ford category is permitted to use Avon ACB 10 tyres.

22.4. No slick/semi-slick tyres may be used unless on a Wings and Slicks car

## 23. SAFETY

23.1. Car preparation must comply with standing MSA regulations as specified from time to time in the MSA White book (GCR)

23.2. Fire extinguishers or systems as specified by MSA regulations from time to time must be fitted.

23.3. Seat belts as specified by MSA from time to time must be fitted and must comply with date-stamp and age regulations

23.4. Roll hoops, if originally fitted, must comply to FIA appendix K and J or MSA regulations as specified from time to time.

23.5. An electrical cut-out switch, as specified by MSA must be fitted, either externally or on the dash. The cut–out switch MUST be clearly indicated by means of the relevant sticker.

23.6. Safety Attire (FIA approved), according to MSA White book, is to be worn by all drivers.

23.7. Particular reference to helmet, fire retardant driver suits/ underwear, gloves and shoes

## 24. SPECIFIC CATEGORY REGULATIONS (TO BE OBTAINED FROM HSSA IF REQUIRED)

| | | |
|---|---|---|
| 24.1. | Formula Vee (Air cooled) | Class D |
| 24.2. | Historic Formula Ford ('71,'81,'86 Local design & manufacture) | Class C |
| 24.3. | Classic Formula Ford ('82- 2003- 1600 cc Kent engines) – Appendix 3 | Class B |
| 24.4. | Purpose Built Sports Cars Pre '76 | Class E |
| 24.5. | Front Engined Racing Cars Pre '75 & replicas | Class E |
| 24.6. | Wings and Slicks Up To Dec '86 | Class A |

**APPENDICES**

Appendix 3 (Classic Formula Ford –Class B

Appendix 3 **TECHNICAL REGULATIONS AND SPECIFICATIONS FOR THE 2020 CLASSIC FORMULA FORD CATEGORY (CLASS B).**

### 1. DESCRIPTION

a) Four wheel, single seater racing car with open coachwork and complying with HSSA regulations. Fitted with a Ford 1600ccGT"Kent"engine.

### 2. SAFETY REQUIREMENTS

2.1 Fire extinguisher – min. 1 kg hand held, within reach of driver when strapped into the seat or 2.5kg remote controlled. Evidence must be available of purchase or service within the previous six months.
2.2 Roll over bars and head rests are to comply strictly with the FIA Year Book for the year of manufacturer of the vehicle concerned.
2.3 Safety harness – a full 6-point harness is compulsory.
2.4 Rain light – a rear facing red warning light of minimum 21 watts with surface area min. 20 sq. cm. Max 40 sq. cm. must be located within 100mm of the Centre line of the vehicle and be clearly visible from behind the vehicle.
2.5 The warning light must be switched on when visibility conditions are reduced or when instructed by the Clerk of the Course.
2.6 The use of a Hans Device is recommended

### 3. CHASSIS

3.1 The chassis must be of tubular steel construction with no stress bearing panels except bulkheads and undertray. Undertray curvature must not exceed 25mm. The undertray / floor extends from the

bulkhead forward of the pedals to the bulkhead between the fuel tank and the engine. Monocoque chassis construction is prohibited. Stress bearing panels are defined as sheet metal affixed to the frame by welding or bonding or by rivets, bolts or screws which have centres closer than 150mm. Bodywork must not be used as stress bearing panels. The use of stabilised materials, composite materials using carbon and/or Kevlar reinforcement is prohibited.

**3.2 Cars built after 1.1.1987**

The internal cross section of the cockpit from the driver's feet to behind his seat, shall nowhere be less than 700cm2 and minimum width must be 25cm over the whole length of the cockpit. The only intrusion permitted into the cross sectional area being the steering column.
Cars built after 1.95

The chassis must include an impact-absorbing structure fitted ahead of the front bulkhead of the tubular steel frame. This structure must be independent of the bodywork and must solidly fixed to the extremities of the bulkhead ( i.e. with bolts requiring tools for removal).
It must constitute a box of 30cm minimum length,15cm height in any vertical section and 400 $cm^2$ minimum total cross section. It must be metallic using honeycomb sandwich construction with a panel thickness of 15mm minimum. It is recommended, but not mandatory ,that this safety feature is fitted to older cars. Cars manufactured prior it 1st January 1987.

**4. BODYWORK**

See tables of single seater dimensions. (Appendix "B"). Bodywork is not required behind the vertical plane taken through the front of the topmost portion of the roll over structure. If bodywork is used it must conform to the following regulations:
All bodywork must comply with either these regulations applicable for the year of manufacture of the car in their entirety.

4.1 Any device designed to augment aerodynamically the downthrust on the vehicle is prohibited, as are aerofoil, nose fins or spoilers of any type.

**4.2 For cars built after 1.1.1987**
The engine cover must not extend rearwards past the rearmost point of the gearbox housing (no gearbox extensions permitted). The shape of the cover must not include any reflex curves and no flat surfaces are permitted within 15° of the horizontal.

**4.3 For cars built after 1.1.87**
The lower rear bodywork (located below the wheel centre line) is only permitted alongside and beneath the engine and can only extend from behind the cockpit to a line drawn through the rear wheel axis. The incorporation of suspension or other fairings in this bodywork or separately is prohibited.

4.4 It is not permitted to construct any suspension member in the form of an aerofoil or to incorporate a spoiler in the construction of any suspension member.

4.5 All cars must have at least two mirrors mounted so that the driver has visibility on both sides of the car.

4.6 For cars built after 1.1.95 cockpit opening :The opening giving access to the cockpit must allow a designated horizontal template to be inserted vertically into the cockpit ( not considering the steering wheel) down to 25mm lower than the lowest point of the cockpit opening. This template is defined by dimensions J,K,L in Appendix B

4.7 See also Lateral Protection Structures.

4.8 All competitors must run with complete (all) bodywork during all practice sessions which shall normally commence on the Friday of the race meeting, this includes both race heats. Unless the bodywork is damaged in such a way that it cannot be fitted and fastened to the vehicle to prevent it from coming loose and endangering other competitors.

4.9 Cars manufactured after 1.1.1998 must retain the original type sidepods as per manufacture and may fit larger radiators and sidepods ,but not smaller as the sidepods are part of the crash safety structure.

4.10 These cars were designed with safety structures ,sidepods are part of the safety structure.1998 onwards.

4.11 Cars built prior to 1.1.1998 cars sidepods are free of restriction.

## 5. ENGINE

### 5.1 General

a) Engines will be mounted upright, and aligned fore and aft in the chassis.
b) The addition of any material be it metal, plastic or composite, etc. by means be it welding, bonding, encapsulation or encasement to any component, is prohibited. However, specific repair of the mounting points of the cylinder block to the transmission are allowed, whilst other casting repairs may be allowed with prior written approval of the Formula Ford Association appointed technical representative.

c) Balancing of reciprocating and rotating parts is permitted only by removal of metal from locations so provided by the manufacturer.
d) Pump, fan and generator drive pulleys and their retention bolts are free.
e) Mechanical tachometer drives may be fitted.
f) The use of non-standard replacement fasteners, nuts, bolts, screws, studs and washers which are not connected with, or which do not support, any moving parts of the engine or its compulsorily retained accessories, is permitted. Freedom granted to any fastener does not allow for freedom to move items relative to each other. For components that are granted the freedom for the fitment of a key or dowel, then material may be removed to allow the fitting of the key or bowel. Only one hole or keyway per component is allowed.
g) The use of thread locking compounds is permitted.
h) Gaskets are free except as follows:
    i) the inlet manifold gasket and carburettor base gasket must be of standard Ford manufacture for the Ford Kent 1600cm$^3$ GT uprated engine. The inlet manifold gasket compressed thickness may not exceed 1mm. The carburettor base gasket thickness may not exceed 5,7mm (⍰ 0,35mm).
    Note: Ford V6 bridge plate base gaskets, flexible carburettor mountings and rubber base gaskets or any other gaskets not specifically allowed in these regulations are prohibited.
    ii) the cylinder head gasket may be of standard Ford manufacture or any equivalent gasket having a minimum compressed thickness of 0,85mm providing no performance advantage is gained.
    i) Any process of cleaning may be used on any component providing the surface finish, which must remain standard, is not affected.
    j) Forced induction is prohibited. Ram Air generated by the forward motion of the car is not considered as forced induction.
k) The exterior surface only (of the complete engine assembly) of ferrous parts and the exterior surface of the aluminium cam cover may be protected by paint or similar means. No internal component or surface may be coated by any protective finish. Other Ford produced aluminium components may be protected only on their external surfaces by transparent clear varnish, or similar.

### 5.2 Permitted engine

The only permitted engine is the FORD 1600 GT “Kent” with a Maximum nominal bore 81.007mm and a Maximum stroke 77.62mm +/- 0.10mm. Production Tolerances are permitted providing the Total Swept Volume does not exceed 1600cc

### 5.3 Induction

a) The air cleaner may be removed or replaced and a trumpet fitted.
b) Carburettor Type: Weber 32/36 DGV and DGAV (from 1600 GT “Kent” or 2000 SAHC NE engine). Number on engine 1

| | |
|---|---|
| Number of Main Venturi | 2 |
| Maximum dia. of Main Venturi | 26.0/27.0mm |
| Maximum dia. of carb outlet to inlet manifold | 32.0/36.0mm |

c) It is permitted to change jets, open both throttles together, remove cold start devices and diffuser bar, fit internal and external anti-surge pipes, remove seals on emission control carburettors. No other modifications are permitted, choke must remain standard and no polishing or reprofiling is permitted. Any means of reducing intake air temperature is

prohibited. Any form of water injection is prohibited.

d) Inlet manifold: standard Ford production inlet manifold for 1600 GT "Kent" engine. The carburettor seat face may be machined to horizontal in the fore and aft plane. The water passage must remain intact but may be blanked off or plugged. The manifold may be machined externally to clear the throttle mechanism.

e) Carburettor to inlet manifold gasket, including Spacer + 2 x Gaskets Thickness 5.70mm ± 0.35mm Inlet manifold to cylinder headThickness 1.00mm (max)
3.5, 4.0, 4.5, full width cross tube auxiliary Venturi's are the only ones permitted, they may not be modified in any way whatsoever.

**5.4 Exhaust System**

a) The exhaust system and manifold are free, within Vehicle Regulations.

b) The exhaust system must comply with the noise test level as per GCR 245.

**5.5 Cylinder Head**

a) Non-standard rocker covers are permitted providing they in no way improve the performance of the engine. Water passages are not permitted in rocker covers.

b) Standard valve spring retainers must be used, only single valve springs are permitted. Shims are permitted, otherwise valve springs are free.

c) Push-rods, rockers, tappets, pedestals and shafts must remain standard except that recontouring of the valve stem contact pad on the rocker arm is permitted providing the maximum specified lift at the spring cap is not exceeded. Rocker shaft springs are free.

d) Maximum permitted lift at the spring cap with zero tappet clearance:
Inlet 10,00mm Exhaust 10,10 mm
Maximum permitted lift at the top of the push rod:
Inlet 6,50mm Exhaust 6,536mm

e) Valves must remain standard, no reprofiling or polishing is permitted. The original 45° seat angle must be maintained.

| | | |
|---|---|---|
| Distance apart at centres | | 39,12 ± 0,5mm |
| Maximum face diameter, | inlet | 39,62mm exhaust 34,00mm |
| Overall length | inlet | 110,92 ± 0,5mm |
| Overall length | exhaust | 110,61 ± 0,5mm Valve stem seals are optional |

f) It is permissible to reshape inlet and exhaust ports by removal of metal only. Addition of material in any form is prohibited.

g) It is permitted, as a means of repair, to replace damaged valve guides and valve seats by replacement valve guides and valve seat inserts, all standard dimensions.

**5.6 Cylinder Block**

a) Bores may be repaired by the fitment of cast iron liners up to a maximum diameter of 81,007mm.

b) Localised machining of the block is permitted to allow fitment of a dry sump system.

c) Crankcase breather may be removed or altered.

d) The block may be machined to achieve correct deck height.

e) The crankshaft horizontal axis (in the block looking from the front of the cylinder block) may not be offset in any way from the original location.

**5.7 Compression Ratio**

The maximum compression ratio will be controlled as follows:

a) Minimum combustion volume in piston, 41.00cc (with piston at TDC in cylinder and no account taken of volume down from the crown to the top piston ring).This measurement is achieved using Regular Paraffin only as the liquid.

b) Standard Ford cylinder head gasket or equivalent only are permitted.
The Only Cylinder Head gasket with Part No: 781M 6051 AA or 931 M 6051 AA are permitted.
minimum compressed thickness 0,85mm
minimum diameter of cylinder aperture 82,50mm

c) Pistons must not protrude above the cylinder block face at TDC. The cylinder block may be machined.

d) Maximum permitted protrusion of the valves into the combustion chamber: 1.20mm.

**5.8 Camshaft**

a) The only permitted camshaft is that approved by the HSSA class B Technical Consultant (T.C.). The 270 degree profile Camshaft that is Profiled and Heat Treated by the HSSA-approved supplier may be used.

b) Specifications and serial numbers for the camshafts will be kept by the HSSA Class B appointed technical consultant (TC) for the purpose of scrutineering checks.

**5.9 Pistons**

a) Pistons must be standard production pistons for the Ford 1600cc Kent engine, unmodified in any way except for balancing and as detailed.

b) All three piston rings must be fitted, and must be standard production or similar replacements, i.e. The compression rings must be one piece, with conventional plain gaps, chromium plating of the top ring is optional, the oil control rings must be either single piece twin land type of apex three piece (two rails and an expander). Molybdenum faced top compression rings are permitted.

c) Localised machining of the bowl including valve relief and gudgeon pin and bosses of the piston to achieve volumetric and weight balance is permitted. Minimum weight complete with piston rings and gudgeon pin is 516gm.

d) Teflon buttons as gudgeon pin retainers in place of circlips are permitted.

e) Machining of the underside of three of the piston crowns to achieve mass balance is permitted.

**5.10 Connecting Rods**

a) Connecting rods must be standard Ford components for the 1600 Kent engine. Machining is permitted to remove metal from the balancing boss on the big end cap and around the small end to achieve balancing only. Polishing is prohibited. Minimum weight ( including bolts and small ends bearings ) is 640 grams.

**b)** Standard 1600 Kent Big end bolts or Ford 3000 V6 Big end bolts or ARP big end bolts are permitted.

**5.11 Crankshaft**

a) A Standard crankshaft or a Steel equivalent Crankshaft specifically manufactured for the Ford 1600 Kent engine may be used.
Spot Machining to achieve balance is permitted.
Tuftriding, Shotpeening and shot blasting are permitted. Polishing is prohibited.

Standard Cast Crankshaft
minimum weight = 11.10 Kg

Steel Crankshaft
minimum weight = 11.50 Kg

b) Crankshaft pulley is free as a tooth belt drive.

c) It is not permitted to alter the number of bearings or fit bearings of less than standard production width.

d) Standard, oversize and undersize bearings are permitted.

e) The rear main journal may be fillet rolled in the radius.

**5.12 Flywheel and Clutch**

a) The flywheel and clutch assembly must be standard components. To achieve minimum weight and balance, material may be removed. For rectification, the clutch mating face may be

resurfaced. It is permitted to use a similar pattern replacement clutch (i.e. conventional single diaphragm spring) driven plate with shock absorber springs. Organic friction material only is permitted. Racing clutches are prohibited.

b) Flywheel bolts are free and locating dowels are permitted.
c) It is permitted to secure the starter ring to the flywheel.
d) Flywheel minimum permitted weight: 6.250 kg ( Flywheel ONLY including Ring Gear).

**5.13 Lubrication Systems**

e) The lubrication systems, external to the engine, are free. Existing standard production oilways, linings or oil grooves may be enlarged or reduced, but no additional ones are permitted. Friction surfaces must remain unchanged. Dry sump is permitted, oil coolers are free. Oil Pipes are Free.

**5.14 Cooling System**

f) A liquid cooling system is mandatory but radiator/s and water pump are free.
g) The radiator/s, if housed in or incorporating a cool air scoop or deflector, must comply with bodywork regulations.

**5.15 Fuel Pump**

h) Only standard mechanical fuel pump for engine is permitted.
i) Fuel pipes are free. Fuel cooling radiators are permitted, within safety regulations, but must be mounted within the main chassis frame.

**5.16 Distributor**

j) Distributors are free providing they retain the original drive and location.
k) The distributor is defined as the component which triggers the LT current and distributes the HT ignition current. The ignition timing may only be varied by vacuum and/or mechanical means. It is prohibited to use any other method or component to trigger, distribute or time the ignition.
l) It is permitted to mount a simple indicating pointer to the engine to facilitate the timing of the distributor with respect to the crankshaft/flywheel.
m) Electronic ignition is permitted providing this is by means only to replace the current points and condenser in the distributor. Electronic programmable Distributors are not Permitted.
n) Points and condenser may be retained

SUSPENSION

5.17 The following parts must be of alloy steel or other ferrous material: wishbones, rockers, push and/or pull rods. All other stress components must be metallic with no composite materials allowed. It is permitted to incorporate suspension mounting points on the engine and transmission assembly.

5.18 Active suspensions are prohibited, as is any system which allows control of the flexibility of the suspension springs, shock absorption and trim height when the car is moving.

5.19 Anti-roll bars from front and/or rear suspension may be capable of manual adjustment by the driver when seated in the car.

5.20 Simple ovalised tubes which have the same section top and bottom are not considered to be an aerofoil.

## 6. BRAKES

Only brake discs made predominantly from ferrous material are permitted. Callipers must be of ferrous material with a maximum of two working cylinders per caliper. Brake pad materials, including carbon metallic, are free.

## 7. SHOCK ABSORBERS

Light Alloy or Steel casings are Permitted . Each Dampers may only have a maximum of two way adjustable ie: ( 1 x Bump + 1 x Rebound Adjustment). Separate reservoirs/canisters for fluid/gas are prohibited. Otherwise free . Any form of active damping is prohibited. Any method of altering the damper performance by the driver whilst seated in the car is prohibited. The shock absorber casing is defined as the item which contains the piston, fluid/gas ,and the moving parts which control the damping action.

## 8. STEERING

The steering must consist of a mechanical link between the driver and the wheels, rear wheel steering prohibited, otherwise free.

## 9. WHEELS AND TYRES

a) 13 Inch diameter wheels with a maximum rim width of 6 inches and minimum mass of 5.0 kg (Including

4 x Retaining Wheel Nuts) are the only wheels permitted. They must be of standard manufacture but the off-set may be altered. Madin Alloy three piece rims are allowed providing they conform with the required mass and width.

b) Tyres must be used as directed by the HSSA Class B technical consultant, from the official tyre supplier.

c) The HSSA Class B technical consultant will determine which races will be "new tyre" races. The onus is on the competitor to ascertain which races are new tyre races.

d) The HSSA Class B appointed technical consultant reserves the right to introduce a new tyre and size of rim and tyre.

**Tyre Restriction**

a) Competitors will only use the AVON ACB 10 tyres purchased from the HSSA recognized supplier, unless otherwise notified in writing. Purchased tyres may be selected at random from the stock.

b) Competitors shall be limited to the use of two sets of new tyres (i.e. 4 front + 4 rear) for the entire season. Competitors may use tyres recorded from previous season during the course of the new season. Only 2 x Sets of Tyres, Old or New may be used for Official Timed Qualifying and Races 1 +2 for the event of the 2018 Championship ( Recorded Tyre Serial Numbers with TC )

c) The championship tyres registration of the allocated tyres will officially begin at the official timed qualifying session for the first race of the championship season.

d) The serial numbers of all tyres to be used, as specified above, will be recorded. The onus is on the competitor to ensure that these serial numbers are recorded timeously and correctly. The race scrutineers and/or HSSA, TC will check the serial numbers at random at any time. The use of tyres with incorrect serial numbers, during any official practice or race, may result in exclusion from the race meeting concerned as well as the imposition of further penalties.

Tyre Size: Front : 6.0 x21x13 inch Rear : 7.0 x 22 x 13 inch

**10. TRANSMISSION**

a) The gearbox must contain no more than four forward gears and include an operable reverse gear, capable of being engaged by the driver whilst normally seated. The gear ratios are free.

b) Rear wheel drive only is permitted.

c) Final drive ratio is free.

d) Torque biasing, limited slip and lock differentials are prohibited. Non-ferrous differential components are permitted provided that at any temperature they do not provide any form of torque biasing etc. The only differential permitted is the "SALISBURY TYPE FREE DIFFERENTIAL". The car stationary with one rear wheel lifted off the ground, must allow the lifted wheel to be rotated continuously by hand relative to each other in both directions."
Note: This wording does not exclude other makes of differentials or "Diff carriers" as long as they do not produce limited slip or torque biasing.

e) Gear change must be manual in operation. The gear change must use the conventional H-pattern gear change gate. Any gear change mechanism that allows sequential selection of gears is not permitted.

f) The only position for the main gear cluster will be wholly behind the rear axle output shaft centre line, and in line with the crankshaft centre line. Transverse, vertical, or other non in-line configurations will not beallowed.

**11. FUEL SYSTEMS**

a) Tanks outside the chassis frame must comply with FIA Spec FT3.

b) Inboard tanks, covered externally with a fireproof coating, are acceptable for events less than 70km.Only PUMP FUEL with a Maximum Octane Rating is permitted, Unleaded or LRP. Fuels specified in the 2018 MSA Handbook (GCR 240) shall be used. The addition of any additive which improves the performance of the fuel is prohibited.

c) Maximum capacity 40 litres unless carried in FIA Spec FT3 tank.

d) The Single Seater Association appointed technical representative has the right to introduce a control fuel at any time at their discretion.

e) Fuel from breather pipes must be routed in such a manner that irrespective of the angle of the vehicle no fuel spillage will occur.

**12. STARTING**

a) Compulsory electric starter with electrical source of energy carried on board the car, and able to be

controlled by the driver when normally in his seat.

b) A supplementary external source of energy temporarily connected to the car may be used to start the engine whilst in the pit area or on the dummy grid.

**12.1 ELECTRICAL SYSTEM**

**To be equipped with an externally operated circuit breaker having positive ON-OFF positions clearly marked. An internal ignition switch must be operable by the driver when normally seated irrespective of whether a safety harness is worn or not.**

12.2 External circuit breakers: the circuit breaker, when operated, must isolate all electrical circuits with the exception of those that operate fire extinguishers and other specifically specified components. On the cars, it should be situated on the lower main hoop of the rollbar. The location to be identified by a "red spark on a white-edged blue triangle", and the "ON" and "OFF" positions clearly marked, Note: When the cut-out is operated there must be no power source capable of keeping the engine running.

**13. MASS**

**a) CarsManufacturedafter31/12/06**

(Cars with Pushrod type suspension & LD 200 Gearbox) Minimum car mass at any time during a competition = 440kg

Minimum mass,car plus driver at any time during a competition = 540kg

**b) Cars manufactured after31/12/90**

(i.e. cars with a pushrod type suspension & LD200 gearbox) Minimum car mass at any time during a competition = 430kg

Minimum mass, car plus driver, at any time during a competition = 530kg

**c) Cars manufactured after31/12/86**

(Cars fitted with Hewland Mk9 or LD200 gearbox)

Minimum car mass at any time during a competition = 420kg

Minimum mass, car plus driver, at any time during a competition = 520kg

**d) Cars manufactured before 31/12/86**

**(Cars fitted with Hewland Mk8/9 gearbox)**

Minimum car mass at any time during a competition = 400kg

Minimum mass, car plus driver, at any time during a competition = 500kg

The HSSA may vary the minimum weight requirements for some cars/models in order to equalize performance between older and newer cars. Any variation in minimum weights will come into effect fourteen days after written notice of a variation is given by the HSSA Class B Technical Consultant.

**14. ENGINE SEALING**

All engines should have provision for scrutineers wire seals. 1,5mm dia. holes pre-drilled in readily accessible locations on installed engines, must be available. Failure to comply renders the entrant liable to a fine or exclusion.

a) Sump – two holes through the cylinder block/sump joint flange, one either side of the engine.
b) Timing cover – at least two retaining screw heads must be cross-drilled.
c) Rocker cover – at least two retaining screw heads must be cross-drilled.
d) Inlet manifold – at least two retaining bolt heads to the cylinder head must be cross-drilled.
e) Carburettor – at least two retaining nuts to the cylinder head must be cross-drilled.

f) Bellhousing – at least two retaining bolts to the engine must be cross-drilled to enable clutch and flywheel to be adequately sealed, OR competitors must be prepared to remove either engine or transmission to enable sealing of clutch and flywheel in which case at least two clutch cover retaining bolts must be cross-drilled. Failure to comply renders the engine ineligible.

**15. MISCELLANEOUS**

a) Use of titanium, high strength composites and similar materials is prohibited.
b) No data logging is permitted. All instrumentation is subject to the approval of HSSA.
c) Competitors are reminded that only modifications or additions specifically covered by these regulations are permitted. Engine components not covered by these regulations must remain completely standard and unmodified. In case of dispute on engines, reference will be made to Ford Motor Company Limited drawings.
d) Vehicles defined in these regulations are required to comply with the requirements of the 2018 MSA Handbook.
e) Ground clearance is defined as the clearance between the ground and the lowest part of the bodywork, and or of the suspended part of the car in normal race trim with driver on board the car.

**SPECIFIC REGULATIONS FOR CARS MANUFACTURED BEFORE 01/01/87**

**1. Description**

Single seater racing cars complying with current Formula Ford 1600 Kent regulations, and these regulations, manufactured prior to 1st January 1987.

**2. Chassis**

The chassis specification must remain fundamentally unaltered from original manufacture. Wheelbase, track and pick-up points must remain to manufacturer's specifications.

**3. Permitted Modifications**

To current FF-1600 Kent regulations.

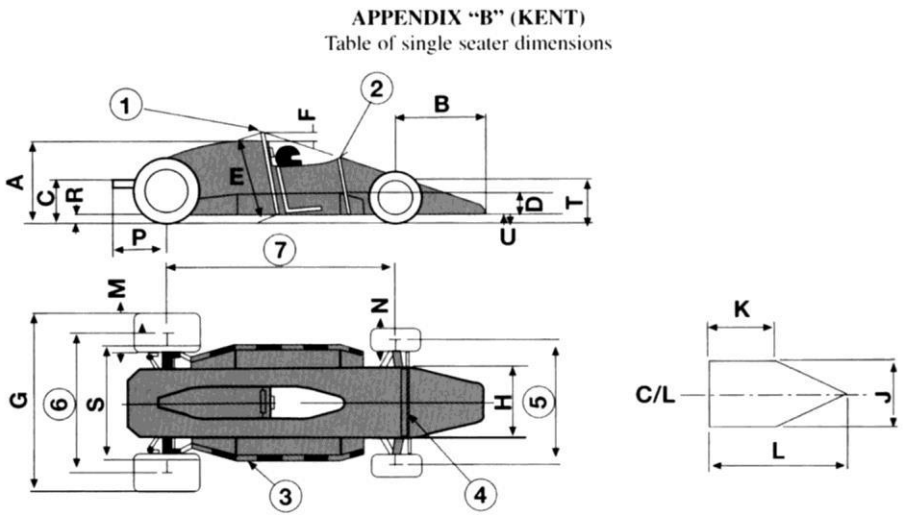
3.1 Any modifications of which the primary purpose is safety or driver comfort.
3.2 Bodywork is free within FF-1600 dimensions but must remain the same as that fitted to the vehicle in its year of manufacture.( As per car was manufactured) This regulation applies to side-pods. Specifically for cars manufactured after 01 January 1998 must retain original side-pods.
3.3 Coil springs, shock absorbers, anti-roll bars and steering racks are free providing they fit the same original locations and comply with regulations.
3.4 Wheel off-sets may be varied to alter track dimensions.
3.5 All transmissions in production before 1st January 1987 in FF are permitted.
3.6 Make and type of drive shaft is free.
3.7 The number, type and location of radiators is free.

**4. Miscellaneous**

Cars may be upgraded to the specification of the latest model built by the manufacturer and supplied to customers in South Africa before 1st January 1987.

**APPENDIX "B" (KENT)**
Table of single seater dimensions

**FORMULA FORD**




1. Safety roll over bar
2. Substantial support structure
3. Lateral Protection structure
4. Substantial structure
5. Front track
6. Rear track
7. Wheelbase

**NOTES**:
Maximum height is measured with the driver aboard.
Maximum height excludes safety roll-over bar on which there is no maximum height.

**SINGLE SEATER DIMENSIONS (KENT) – REFER TO DRAWING**

| | | |
|---|---|---|
| A) | Maximum body height measured from ground | 90 |
| B) | Maximum front overhang from front wheel axis | 100 |
| C) | Exhaust height measured from the ground | 60 max. |
| D) | Minimum height of Lateral Protection Structure | 15 |
| E) | Minimum safety roll-over bar length in line with drivers spine | 92 |
| F) | Minimum allowed helmet clearance | 5 |
| G) | Maximum width | 185 |
| H) | Maximum body width behind front wheels | 95 |
| J) | Minimum cockpit opening | 45 |
| K) | Minimum cockpit parallel opening length | 30 |
| L) | Minimum cockpit overall opening length | 60 |
| M) | Maximum rear wheel width | 6.0 inches |
| N) | Maximum front wheel width | 6.0 inches |
| P) | Maximum exhaust length from rear wheel axle | 60 |
| R) | Minimum ground clearance | 4 |
| S) | Maximum width including lateral protection structure | 130 |

T) Maximum height of any part wider than 110cm ahead of the front wheels is not to exceed the front rim height

| | |
|---|---|
| Minimum wheel base | 200 |
| Minimum track | 120 |
| Wheel diameter | 13 inch |

Note: All dimensions in cm unless otherwise stated