

Locost Formula

Concept

The Locost formula is specifically designed to offer both an entry point into motor sport, and to provide a class where a competitor with a limited budget can still be competitive.

Motor sport has become an expensive sport, even with the traditional entry level classes it has become prohibitively expensive to be competitive.

The Locost formula is based around the popular Locost racing series in the UK, this series organised by the 750MC continues to show significant growth in popularity since it's inception in 2000.

The concept of the series is based around the car which can be produced by following the book "Build your own Sports Car for as little as £250", this book written by Ron Champion has promoted many 'home build', and spawned a growing industry of suppliers, Locost cars are now being built throughout the world, here in South Africa the 'bug' has bitten.

Objective of Locost Formula

- To give all participants an equal chance
- To limit costs
- To teach participants the art of fine tuning and set-up of a chassis and suspension and techniques of high speed driving.
- To bring the family back into motor racing

Organisers

The Locost Club of South Africa (LCSA), which is a branch of the Zwartkops Owners club, will be the organisers of the formula in conjunction with the MSA. The club, committee and racing representative are responsible for ensuring compliance with the regulations.

The formula rules will be revised yearly based upon the concept of "If it is cheap enough and benefits everyone, then vote it in". A yearly regulations meeting will be held and all active racing LCSA members will be able to vote on change of rules. Proposed changes will be distributed before the yearly regulations meeting. The list of proposed changes will be compiled from suggestions from LCSA active racing members collected throughout the year.

Interpretation of Rules

The concept of "that which is not specifically permitted, is disallowed" applies to these regulations

The Formula

Vehicles will be open top two-seat, front engine, rear wheel drive with open front suspension and of sufficiently light weight to allow for good performance and handling.

All Vehicles must comply with the road traffic act and be roadworthy, although not necessarily registered.

Eligibility

Cars eligible for the formula will be open top two seat, front engine, rear wheel drive conforming to the regulations as stipulated in this document.

All cars shall be inspected and issued with a race permit by the LCSA committee or it's appointed representative. This will be an annual process at which time all cars will also be dynoed and sealed for the season, or per arrangement for drivers joining mid way through a season. Only cars issued with a race permit will be eligible for racing.

Licences and Affiliations

All competitors must be members of the LCSA and in possession of a valid MSA competition licence as issued by the MSA and be medically fit.

Formula Sponsor

A formula sponsor may be appointed by the LCSA, at such time the following will form part of the regulations:

Sponsor decals and vehicle numbers will be supplied by the Sponsor.

The proper display of all sponsor decals and vehicle numbers is an eligibility requirement.

Decals and vehicle numbers must appear as specified and compliance is mandatory.

Sufficient contrast between the logo and the background must be maintained.

No decals to be defaced or modified in any way at any time.

REGULATIONS

1. Safety

- 1.1. **Roll-Over Structure:** A roll cage is mandatory; Unless equipped with a Roll Cage approved and certified by the FIA for use on that type of vehicle, vehicles must conform to the minimum specification detailed below

Main rollover structures:

Two safety rollover structures (front and rear) are mandatory.

They must be:

At least 600 mm at the front and 900 mm at the rear above the chassis lowest point

Separated a minimum of 800 mm longitudinally

Covered with fireproof foam as far as tubes close to the driver are concerned;

Be symmetrical to the longitudinal centerline of the car.

As viewed from the front, the steering wheel, whatever its position, must not protrude from the front rollover structure.

The rear rollover structure must be supported by a minimum of two rearward facing diagonal braces.

A minimum of two braces must connect the front and rear roll over structures longitudinally.

With the driver at the wheel, his/her helmet must be at a minimum distance of 80 mm from the line connecting the top of front and rear rollover structures.

It must have a minimum of six mounting points and be adequately supported against vertical, longitudinal and lateral forces. Particular care should be taken in selecting the mounting positions for the 'feet' of the cage. It is important that the roll cage is attached to the vehicle in such a way as to distribute the forces over the largest possible surface. It is not sufficient to attach the cage to a tube which is not supported vertically.

Optional reinforcing members may be fitted but none may extend forward of the front roll hoop; a diagonal brace/s within the top of the rollcage are recommended;

Side-intrusion bars may be fitted external to the chassis but may not extend further forward than the front of the driver footwell.

Main rollover structures must be cold drawn unalloyed carbon steel (Mild Steel)

Minimum Diameter 38mm

Minimum wall thickness 2mm

All bolts securing the rollbar or cage must be at least grade 8.8.

A 5mm hole must be drilled in both main rollover structures to allow the confirmation of tube wall thickness

The use of a rollbar or cage in any way to achieve or supplement aerodynamic effects is prohibited

- 1.2. **Head Restraints:** A head restraint must be fitted, this may be on the roll bar or part of the seat, this must be capable of restraining the drivers head offering rearward support without allowing the drivers helmet to be trapped between the head restraint and roll bar / cage, or bodywork. It is recommended that the restraint is within 5cm of the drivers helmet when normally seated.
- 1.3. **Fire Extinguishers:** A fire extinguisher system which complies with MSA regulations regarding size and period since last check/refill (currently 6 months / 1Kg), must be carried on all vehicles. The minimum requirement being that the system be charged with one of the permitted extinguishant and be operable by the driver whilst normally seated either by manual operation or by a mechanical/electrically triggered system. As per MSA regulations, Fire Stryker is allowed.
- 1.4. **Safety Harnesses:** A 3" 5 or 6 point FIA approved safety harness must be fitted in the drivers position, The harness must be in good condition and securely mounted to well-supported areas of the chassis, Fixture to aluminium panels is not permitted.

Seat belt shoulder straps may be mounted to a cross tube immediately below the roll bar, no lower than 100mm below shoulder height.

- 1.5. **Clothing:** Racing overalls, Fire retardant shoes and gloves, helmet and balaclava to be worn by all competitors, All clothing shall be in good condition and suitable for motor sport use.

2. Electrical

- 2.1. A battery, securely mounted and covered if mounted in the cockpit area, and starter motor capable of repetitive starts must be fitted and operable by the driver whilst normally seated. A fully working alternator/generator must be fitted, and can only be driven off the front crankshaft pulley.
- 2.2. Battery cut-off switches must be accessible both to marshals from outside the car and by the driver whilst strapped in, the use of two switches to achieve this is allowed providing both switches provide the same function and work independently. A sign should show the position of the cut-off switch. The cut-off switch should cause the engine to stop when turned off, and the starter must not operate when the cut-off switch is in the off position.

3. Fuel

Fuel Tanks and pipes: Every effort should be made to isolate the fuel tanks and pipes from the cockpit area. The risk of fuel spillage from accident damage can be reduced by the use of bag-type tanks or by coating metal tanks with GRP. Tanks should be located so that they are given maximum protection by the structure of the vehicle. Vents should be designed to avoid spillage at all times and should the vehicle become inverted. The area above the petrol tank must be completely covered by means of an aluminium cover, secured at its perimeter, to prevent fuel spillage in the event of an accident. The use of any other material must be approved by the organisers.

4. Engine

- 4.1. The engine will be the 1600cc Ford Rocam engine, which is produced in South Africa, thus allowing costs to be kept at a minimum, standard flywheel and clutch assembly will be used. Standard clutch plates with bonded material, or 4 puck button clutches with sprung centers is allowed. The crank and flywheel may be cut to allow fitment of a standard Ford Sierra pilot bearing, but no cutting to reduce weight will be allowed.
- 4.2. Engines must be sealed following the annual dyno test and must fall within the specific performance figures as issued by the organisers of the formula and detailed in appendix A, such seals will be inspected at scrutineering of each event, and may be inspected at any time during a race meeting (practice or racing).
- 4.3. No component of the engine, as supplied, may be disassembled or removed from the engine and no modification may be made to any component of the engine, (unless allowed for elsewhere in these regulations) without the written approval of the organisers of the formula.
- 4.4. A Locost series control camshaft shall be used. This cam will be the "Locost Stage 2" cam available from Locost SA or the Locost Club of SA and will be specifically marked for Locost racing.
- 4.5. In the event of any engine seal being broken, or bearing evidence of having been tampered with, the competitor concerned may be excluded from the race meeting concerned and may be excluded from the next three race meetings of the championship (or the three previous meetings of the championship should the exclusion occur within the final three meetings). The onus is on the competitor to ensure all his/her engine seals are intact at all times and to immediately report any broken or damaged seals to the LCSA racing representative.
- 4.6. The induction system, comprising all components from the throttle body to the cylinder head inclusive, will be standard as supplied with the engine, no modifications to these are allowed.
- 4.7. Sump drain plug and oil filter shall be safety-wired in place.

4.8. Engine breathers must be routed into a catch tank of at least 1 litre capacity.

5. Transmission & Diff

- 5.1. Transmission is a Ford 4 or 5 speed gearbox, only standard Ford ratios as fitted in the chosen gearbox are allowed, straight cut or sequential gearboxes are disallowed.
- 5.2. Differentials will be restricted to Ford Escort, Capri, Cortina, Sierra or Sapphire differential with ratios within the range of 3.32 - 4.11.
- 5.3. Locked or Limited Slip Differentials of any type are not allowed.
- 5.4. Traction and launch control or similar system of any description is prohibited.

6. ECU

- 6.1. Engine Management electronics (ECU) will be the Perfect Power XMSL or XMS4A as supplied by Perfect Power or it's dealers. Cars will be dynoed and sealed by a LCSA appointed agent.
- 6.2. ECU seals will be inspected at scrutineering of each event, and may be inspected at any time during a race meeting (practice or racing). In the event of any seal being broken, or bearing evidence of having been tampered with, the competitor concerned may be excluded from the race meeting concerned and may be excluded from the next three race meetings of the championship (or the three previous meetings of the championship should the exclusion occur within the final three meetings). The onus is on the competitor to ensure all his/her seals are intact at all times and to immediately report any broken or damaged seals to the LCSA racing representative.

7. Fuel

Only 'standard pump fuel' available from a retail outlet is allowed, Race fuel or any Fuel additives are not permitted.

8. Suspension

- 8.1. The suspension is free except that the front dampers and springs must be placed in the air flow, steel bodied dampers only, all suspension mounting to the chassis must be through rubber/metalastic or polyurethane bushes.
- 8.2. Suspension should be free to travel through their full range of movement without interference from any other source.
- 8.3. No rose joints/spherical bearings will be allowed other than one each side in the case of Independent rear suspension purely as a means of tracking adjustment, in the case of a live axle rear suspension one joint on the panhard rod and one on each trailing arm will be allowed, purely as a means of adjustment.
- 8.4. Anti-roll bars may be fitted front and/or rear. The use of spherical rod ends and rose joints is allowable for anti-roll bar links.
- 8.5. Bolting should be Grade 8.8 minimum throughout.

9. Brakes

- 9.1. Brake calipers and drum brakes are restricted to one caliper / slave cylinder per wheel and only items commercially available as standard on the following SA vehicles:
Ford Escort, Capri, Cortina, Sierra, Sapphire or Bantam front and rear.
VW MKI & MKII Golf front and rear callipers.
- 9.2. Drums and discs must not be cross drilled or grooved in any way, brake lining and pad material is free but carbon fibre is prohibited.
- 9.3. Brake bias adjustment is allowed but must not be adjustable by the driver whilst normally seated.
- 9.4. ABS systems are not allowed.

10. Chassis & Bodywork

- 10.1. Kevlar, carbon fibre and titanium materials are not permitted.

- 10.2. The maximum overall length is 3400mm, the maximum permitted wheel track is 1780mm measured at the outside edge of the tyre including the bulge made where the tyre contacts the ground.
- 10.3. The maximum width of any bodywork forward of the centre line of the front wheels is 600mm, the minimum height of bodywork at the centre line of the front wheels is 600mm, no bodywork must protrude more than 300mm forward of the tyre on the front wheel.
- 10.4. Chassis cockpit width shall be as per the Locost Book. Bodywork (Nosecone, scuttle, front and rear fenders) shall be same shape and size as described in the Locost Book.
- 10.5. Nosecone may only extend to the bottom of the chassis, no lower intake/scoop allowed to protrude below the bottom of the chassis.
- 10.6. Minor differences to general bodywork allowed, and it is up to the committee to approve.
- 10.7. All wheels must be covered. Cycle Fenders are permitted on the front wheels. Front wheel arches/fenders must not protrude further than the front tyre and must cover the full width of the tyre tread and at least 30% of the tyre diameter, no vents, louvers or similar holes are permitted in wheel arches.
- 10.8. Aerofoils, spoilers, diffusers, side pods or any aerodynamic aid devices are prohibited. The underside of the car must be flat.
- 10.9. The vehicle must have 2 seats. Only a fire extinguisher, battery, ballast and any roll bar bracing may impinge upon passenger space. No loose carpets or other items may be present in the vehicle. The passenger area must remain open at all times, covers of any description are not allowed.
- 10.10. The engine and transmission must be fully enclosed, exhaust system may protrude through the bodywork without the need for any cover but must be a reasonably close fit. Air filters or any part of the induction system must not protrude outside of the bodywork. One NACA duct/bonnet scoop allowed as per regulated size on the left hand side of the bonnet. This duct should match the colour of the bonnet. Bonnet louvers allowed as per regulated size. Bonnet louvers should match the colour of the bonnet. No other intakes, scoops, ducts or holes are allowed in any part of the bodywork other than is standard with the commercially available Locost / Velocity / Birkin bodywork or equivalent.
- 10.11. The construction of the transmission tunnel must be sufficient to restrain a broken prop shaft, steel hoops may be fitted to achieve this, indicated towing points must be provided front and rear.
- 10.12. The cars may not weigh less than the specified minimum weight as specified in appendix A at any time during racing or practice, this weight includes fuel, lubricants and coolants and the driver on board. Any ballast used to achieve the minimum weight must be placed in the passenger side of the cockpit area.
- 10.13. Minimum ground clearance with the driver normally seated is 75mm excluding exhaust system and sump. Minimum ground clearance under the sump is 50mm. It is permitted to add shims to or modify the engine mountings in order to comply with these minimum heights.
- 10.14. All vehicles must be fitted with a full width windscreen of minimum vertical height, as set out in appendix A, measured from the point where the windscreen meets the centreline of the scuttle.
- 10.15. All exterior lighting including front headlights, rear brake, tail and indicators must be fitted and functioning to full roadworthy requirements. Headlights must be a minimum diameter of 5¾”.
- 10.16. All cars shall have mirrors on both sides, positioned such as to have an unobstructed view behind the car.

11. Wheels & Tyres

- 11.1. The wheel rim diameter will be 15“, with a maximum width of 7“. Wheels must be of steel or aluminium alloy, magnesium or split rims are not allowed.
- 11.2. Wheel nuts should have at least 1.5 x stud diameter engagement with studs.
- 11.3. A control tyre as specified in appendix A will be used.

- 11.4. No alteration to the tyre from the manufacturer's specification is permitted.
- 11.5. Re-cutting, re-grooving or in any other way modifying the tread pattern is not permitted.
- 11.6. All the manufacturer's data must be clearly visible. Buffing of sidewalls to remove data is prohibited.
- 11.7. Tyres must meet road legal requirements in every respect, the tyre tread depth must be at least one millimetre over the entire circumference and 80% of the width of the tread surface of the tyre at all times.

12. Point system

- 12.1. Points will be awarded as follows.

1st – 10 points	5th – 4 points
2nd – 8 points	6th – 3 point
3rd – 6 points	7th – 2 point
4th – 5 points	8th – 1 point

- 12.2. In addition 1 point will be awarded for fastest qualifier and fastest lap of the race, were such information is provided by the race organisers or their appointed time keepers.
- 12.3. 3 points will be awarded to drivers entering away races as specified in appendix A, to qualify for these away points a drivers must complete at least one lap in either practice qualifying or race.
- 12.4. The Champion is the driver with the most points at the end of the season. Should there be a tie then the competitor with the greater number of first places will be declared champion. If this does not resolve the tie then seconds, failing this, thirds and so on will be used.

13. Qualifying Times And Starting Grid Positions

- 13.1. The fastest recorded official practice (Qualifying) times will determine the grid positions for Heat 1.
- 13.2. The finishing positions for Heat 1 will determine the grid positions for Heat 2.
- 13.3. Where no official time is established in Qualifying, the competitor concerned will be allocated a starting position for Heat 1 at the back of his grid, should this apply for more than one competitor then positions at the back of the grid will be allocated on current point standing, then at the discretion of the committee.

14. Yellow Card system

- 14.1. The Locost Formula is intended to encourage participation in motor sport for all levels and as such should be viewed as a 'non-contact' form of motor sport. To encourage this philosophy a yellow card system will apply.
- 14.2. Yellow cards will be given to competitors who are deemed, by the LCSA committee, guilty of unsporting behaviour. Unsporting behaviour may include contact between cars in a race.
- 14.3. The LCSA Committee reserves the right to investigate any incident and issue yellow cards at its discretion.
- 14.4. Where contact between two cars occurs it is the responsibility of the competitors involved to bring this to the attention of the LCSA racing representative. Where such contact is reported the following will apply.
 - If the lead car is contacted in front of the rear wheel, both drivers will receive a yellow card regardless of guilt
 - If the lead car is contacted on or behind the rear wheel, the incident will be investigated and yellow cards may be given at the discretion of the committee.
- 14.5. If a competitor receives a yellow card he or she will be penalised as follows:

Yellow cards will remain with a competitor for the whole season

- 1st yellow card - warning, no penalty
- 2 yellow cards, 1 point will be deducted for each yellow card
- 3 yellow cards, 2 points will be deducted for each yellow card
- 4 yellow cards, 15 points will be deducted and the competitor suspended for the remainder of the season.

15. Protests

- 15.1. Whilst the Locost Formula is intended for competitors to achieve the most enjoyment there may be times when one competitor against another might lodge a protest. Where this is a driving incident, then the MSA white book covers the type and timing of such protests and this is outside of the jurisdiction of the Formula. Where such protest is to do with the eligibility of a car and/or driver, then this should be lodged with a committee member as soon as possible and no more than 30 minutes after the completion of any race where the eligibility is in question. All protests must be submitted in writing and be accompanied by the requisite protest fee. It is intended that all protests be handled as quickly as possible, but where the protest entails the stripping of a car or the measurement of engine performance then the committee has until the next race to declare the result of a protest.
- 15.2. Protest Fee - Note that to dyno a car and/or to strip it for inspection involves time and cost for the competitor and the committee member(s) undertaking the inspection. Any protest in this regard must be accompanied by a protest fee of R 500 which will be held until the outcome of the protest is known. Where a protest is successful then the protestor will have the R 500 protest fee returned and the protested competitor will be held liable to reimburse the committee member(s) handling the protest. Where a protest is not successful then the R 500 protest fee will be used to defray the incurred expenses of the protested competitor as well as the committee member(s) handling the protest. Any of the protest fee not utilised to defray expenses will then be paid into club funds.

16. Rookie Mentor System

- 16.1. A mentor system has been put in place, where before a rookie (someone that has not raced in a Regional series before) can join the Locost Formula on track and score points, the committee needs to assign a mentor to the rookie. The duty of this mentor is to ensure that the Rookie is familiar with flags, proper driving conduct etc. The mentor will "sign-off" the rookie once he is satisfied that the rookie is ready to compete in a Regional event.
- 16.2. It is recommended that a rookie attend at least 3 "Super Trax day", "Driver instruction day" or "Practise day" events, where the mentor should ideally be present, and provide on-track guidance. This will ensure that the rookie is comfortable with track etiquette and that the rookie can maintain a fair pace.

Appendix A

Engine Performance

Maximum Power	63 kw
Maximum Torque	114 Nm

Minimum Weight 650 kg

Windscreen minimum vertical height 300 mm

Windscreen minimum angle 60 degrees from horizontal

Intake duct maximum dimensions: As supplied by the club

Bonnet louvers regulated size: No louvers allowed at this stage

Control Tyre

Manufacturer - Dunlop
Type - Type R 195/55/15 H1 Compound
Supplier - ATS Motorsport Supplies, 20 Schoongezicht Rd, Bergbron

- No alteration to the tyre from the manufacturer's specification is permitted.
- Re-cutting, re-grooving or in any other way modifying the tread pattern is not permitted.
- All the manufacturer's data must be clearly visible. Buffing of sidewalls to remove data is prohibited.
- Tyres must meet road legal requirements in every respect, the tyre tread depth must be at least one millimetre over the entire circumference and 80% of the width of the tread surface of the tyre at all times.

Away Races: Events at either Phakisa or Lichtenburg