



750 Motor Club Formula 4 Championship 2012

Sporting & Technical Regulations

Final Version - Page 1 of 19 – 06/01/12

1: SPORTING REGULATIONS - GENERAL

1.1: TITLE & JURISDICTION:

The **FORMULA 4 CHAMPIONSHIP** is organised and administered by the 750 Motor Club Ltd in accordance with the General Regulations of the MSA (incorporating the provisions of the International Sporting Code of the FIA) and these Championship Regulations.

MSA Championship Permit No: CH2012/R021

Race Status: Clubman/National B.

MSA Championship Grade: D.

1.2: OFFICIALS:

1. Co-Ordinator: G.Groombridge, Rose Farm, Upper Oakley, Diss, Norfolk. IP21 4AX. (☎ 01379 741641; ✉ Racing@750mc.co.uk).

2. Eligibility Scrutineer: D.F.D.Smith

3. Championship Stewards:

D.Wells. B.Cottrell. I.Watson.

1.3: COMPETITOR ELIGIBILITY:

1. Entrants must be fully paid up valid membership card holding members of the 750 Motor Club Ltd and possess a valid current year's MSA Entrants Licences.

2. Drivers must be fully paid up valid membership card holding members of the 750 Motor Club Ltd, be registered for the Championship and hold a valid MSA National B (or higher grade) Race Licence or be a professional driver in possession of a valid Licence (featuring an E.U flag) & medical issued by the ASN of a member country of the European Union (MSA Regulation H26.2.1.)

3. All necessary documentation must be presented for checking at all rounds when signing-on.

1.4: REGISTRATION:

1. All drivers must register for the championship by returning the Registration Form with the Registration Fee to the Coordinator prior to the Final Closing date for the first round being entered.

2. The Registration Fee is £110.00 payable to the 750 Motor Club upon registration.

3. Registrations will be accepted from 1st January 2012 until the closing date for the last round of the championship.

4. Registration numbers will be the permanent Competition number for the Championship.

5. If any competitor wishes to change to a different car from the one originally registered for the championship, a completed registration form with registration fee must be sent to the Co-ordinator. If the vehicle is in the same class as the one originally registered then, with the approval of the Co-ordinator, championship points already scored may be transferred. If the new vehicle is in a different class, then points will not be transferred.

1.5: CHAMPIONSHIP ROUNDS:

The **FORMULA 4 CHAMPIONSHIP** will be contested over the following rounds:

Date	Circuit	Round/s
Mar 31 & Apr 1	Silverstone	2
Apr 28	Brands	2
May 26 & 27	Cadwell	2
Jun 24	Donington	2
Sep 1 & 2	Donington	2
Oct 7	Snetterton	2

1.6: SCORING:

1. Points will be awarded to competitors listed in the Final Results as follows: 25, 22, 20, 18, 16, 14, 12, 11, 10, 9, 8, 7, 6, 5, 4, 3. All other finishers: 2; all other starters: 1. Fastest lap 1 point in each class. **Pole position 1 point, to be awarded for fastest time from separate qualifying sessions, in each class. In cases where 1 qualifying session is used to determine position for 2 races on same day, 1 point each for 1st and 2nd best time to be awarded for each pole position respectively in each class.**

2. The totals from all qualifying rounds (excluding any races which are abandoned and are not replaced) less 2 will determine the final championship points positions.

3. Ties shall be resolved by, when more than one competitor have equal totals, adding their next highest or subsequent highest scores until a conclusive result is found. If that fails to find a winner, the highest number of best results shall be taken into account.

1.7: AWARDS:

1. All awards are to be provided by the Organising Club unless agreed otherwise.

2. Per Round: Trophies to 1st, 2nd and 3rd overall plus Awards of 1st, 2nd and 3rd in class will be given, subject to the number of starters as follows:- 2 to 4 starters -1st in Class only; 5 to 7 starters -1st & 2nd in class only; 8 or more starters - 1st, 2nd & 3rd in class.

No driver may collect more than one trophy.

3. Championship: Subject to a minimum of 5 race starts, trophies to:- 1st to 6th overall plus highest placed class A, B, C & D. Best prepared car.

4. Bonuses:

Per Round: not applicable.

Championship: Any monies which are available from sponsorship after the payment of expenses and other deductions will be distributed at the end of the season to drivers who have started at least 5 championship rounds, on the basis of points scored.

5. Presentations: Garlands for 1st in all classes (subject to a minimum of 2 starters in class) and Trophies are to be provided for presentation at the end of each race. Prize money and Bonuses shall be posted to the Entrants within one month of the results being declared final after each season.

6. Entertainment Tax Liability. Not applicable.

7. Title to all Trophies: In the event of any Provisional Results or Championship Tables being revised after any provisional presentations and such revisions affecting the distribution of any awards the Competitors concerned must return such awards to the 750 Motor Club Competitions Secretary in good condition within 7 days.

2: SPORTING REGULATIONS - JUDICIAL PROCEDURES

Rounds & Championship: In accordance with Section C of the current year's MSA Yearbook and 4.2. of these regulations.

3: SPORTING REGULATIONS –

CHAMPIONSHIP RACE MEETINGS & RACE PROCEDURES

3.1: ENTRIES:

1. Competitors are responsible for sending in correct and complete entries with the correct entry fees prior to the close of entry dates as per the entry forms.

2. Incorrect or incomplete entries (including driver to be nominated entries) are to be held in abeyance until they are complete and correct and the date of receipt for acceptance of entry purposes shall be the date on which the Secretary of the Meeting receives the missing or corrected information or fee.

3. Any withdrawal of entry or driver/car changes made after acceptance of any entry must be notified to the Secretary of the Meeting in writing. If driver/vehicle changes are made after the publication of Entry Lists with Final Instructions, the Competitor concerned will be accepted in accordance with D25.1.12.

4. The entry fee for each round shall be as per the Supplementary Regulations.

5. In the event of any rounds being oversubscribed the Organising Club may, in liaison with the Championship Coordinator, at their discretion run Qualification races. For Qualification Race procedures see 3.13 of these regulations.

6. Reserves are to be nominated on the Final List of Entries published with the Final Instructions or Amendment Sheet Bulletins. Reserves will practice and replace non-qualified (including drivers practising out-of-session or qualifying by virtue of having raced at the circuit within the previous 12 months), withdrawn or retired entries in Reserve Number order irrespective of class. If reserves are given Grid Places prior to issue of the first Grid Sheets for any round, the times set in practice shall determine their grid positions. If Reserves are given places after publication of the grid sheet and prior to cars being collected in the Official "Assembly Area" they will be placed at the rear of the grid and be started without any time delay. Otherwise they will be held in the



Pitlane and be released to start the race after the last car to start the Green Flag Lap or last car to take the start has passed the startline or pitlane exit whichever is the later. Such approval to start MUST be obtained from the Clerk of Course.

7. Acceptance of Entries: Up to Closing Day, Race meeting organisers may accept up to the maximum number of starters permitted on the Track Licence for the circuit ("the maximum"). If entries received by closing day exceed the maximum, selection will be made in order of receipt. Those in excess of the maximum and up to 20% more will be treated as 'reserves'. If the maximum has not been reached by closing day, entries received after that date will be accepted strictly in order of receipt until the maximum is reached.

3.2: BRIEFINGS:

Organisers must notify competitors of the times and locations for all briefings in the Final Instructions or Official Race Day Bulletins for the meetings. Competitors must attend all briefings.

3.3: PRACTICE:

Practice sessions will be as per MSA Regulations Q4.5. Should any practice session be disrupted, the Clerk of the Course shall not be obliged to resume the session or re-run sessions to achieve the championship criteria and the decision of the Clerk of the Course shall be final.

3.4: QUALIFICATION:

Each driver should complete a minimum of 3 laps practice in the car to be raced and in the correct session in order to qualify for selection and order of precedence as set out in MSA regulations Q4.5.

Where races are to take place on separate days, an individual qualifying session will take place for each race on the corresponding day. If 2 races are to take place on the same day, 1 qualifying session will be used to determine positions for both races with 1st and 2nd best qualifying times being used to determine positions.

Drivers practising out-of-session or qualifying by virtue of having raced at the circuit within the previous 12 months will be placed at the back of the grid. The Clerk of the Course and/or Stewards of the Meeting shall have the right to exclude any driver whose practice times or driving are considered to be unsatisfactory - as per MSA Regulation Q4.5.

3.5: RACES:

The standard minimum scheduled race distance shall be 13 minutes plus 1 lap but should any race distance be reduced at the discretion of the Clerk of the Course or Stewards of the Meeting, it shall still count as a full points-scoring round.

3.6: STARTS:

Unless modified by the Organising Club's Standing Regulations, the following regulations shall apply:-

1. There will be a minimum elapsed period of 3 minutes from cars being released from the Assembly Area to the start of the green flag lap.
2. Start Procedure: A 'two minute' board will be shown on the startline; engines should be started at this stage and the grid cleared of any pit crew. A 'one minute' board will be shown, followed by a '30 second' board; a green flag will be waved from the start to commence the green flag lap. The pole position driver should set a reasonable pace during this lap and slow down on approaching the startline to allow the grid to close up. Drivers should resume their correct grid positions with the minimum of delay. Any drivers unable to start the green flag lap or start the race are required to indicate their situation as per MSA regulation Q12.13.2. Drivers may make up any lost grid position during this green flag lap, BUT any drivers unable to maintain grid position to the extent that ALL other cars are ahead of them, may complete the green flag lap but MUST remain at the rear of the last row of the grid but ahead of any cars to be started with a time delay.
3. A '5 second' board will be displayed when the grid is stationary. Approximately 5 seconds after this board is withdrawn the red lights will be switched on; after between 2 seconds and 7 seconds they will be switched off to start the race. In the event of the failure of these lights a National Flag will be used to start the race.

4. Any car removed from the grid or driven into the pits after leaving the Assembly Area shall be held in the pitlane and may start the race after the last car to take the start from the grid has passed the startline or pit exit lane whichever is the later.

5. Excessive weaving to warm-up tyres - using more than 50% of the track width - and falling back in order to accelerate and practice starts, is prohibited.

3.7: RACE STOPS:

As per Q5.4.3 of the current MSA Yearbook.

3.8: RE-SCRUTINY:

All vehicles reported involved in contact incidents during races or practice must be re-presented to the Scrutineers before continuing in the races or practice.

3.9: PITS AND PITLANE SAFETY:

1. Pits: Entrants must ensure that the MSA, Circuit Management and Organising Club Safety Regulations are complied with at all times.
2. Pitlane: The outer lane or lanes are to be kept unobstructed to allow safe passage of cars at all times. The onus shall be on all drivers to take all due care and drive at minimum speeds in pit lanes.
3. Refuelling may only be carried out in accordance with the MSA Regulation Q13, Circuit Management regulations and the SRs or Final Instructions issued for each Circuit/Meeting.

3.10: RACE FINISHES:

After taking the chequered flag drivers are required to: - Progressively and safely slow down, remain behind any competitors ahead of them, return to the pitlane entrance as instructed, comply with any directions given by Marshals or Officials and to keep their helmets on and harnesses done up while on the circuit or in the pitlane.

3.11: RESULTS:

All Practice timesheets, grid sheets and Race Results are to be deemed PROVISIONAL until all vehicles are released by Scrutineers after post-practice/race scrutineering and/or after completion of any judicial or technical procedures.

3.12: TIMING MODULES:

The 750 Motor Club utilises AMB transponder-based timing and competitors **must** have a compatible transponder fitted and advise the race organisers of its number prior to the event. The transponder is a TRANX 260 Direct Powered and is available from HS Sports Ltd – 01260 275708.

3.13: QUALIFICATION RACES:

If on closing date the number of entries received is at least 12 more than the maximum number of starters permitted, the race meeting organisers will endeavour to run two practice sessions and two races, divided by classes and/or known performance.

3.14: CANCELLED/ABANDONED RACES:

There may be occasions when, due to circumstances on the day, a scheduled race is not run, a race meeting is abandoned or the circuit curfew is reached. The 750 Motor Club will use its best endeavours to find space in another race meeting in the same season in order to run a replacement championship round; preference will be given to a race meeting where the affected formula is already scheduled to race. No change of vehicle or class will be permitted without the permission of the Championship Stewards and then only in exceptional circumstances.

A: The qualifying session for a race/s does not take place.

Entry for the replacement race will be restricted to those who were 'signed on' for the race which is being replaced. A separate qualifying session will normally be held. If no space can be found for a replacement race, the number of championship scoring rounds will be adjusted accordingly.

B: The qualifying session for a race/s has taken place, but the race did not come under starters orders.



Entry for the replacement race will be restricted to those who were qualified for the race which is being replaced; the grid for the cancelled race will be used for the replacement race. If no space can be found for a replacement race, the number of championship scoring rounds will be adjusted accordingly.

C: A race is 'red flagged' before the leader has completed two laps, but there is no time available to restart the race.

Entry for the replacement race will be restricted to those who would have been able to restart the race which is being replaced; the grid for the cancelled race will be used for the replacement race. If no space can be found for a replacement race, the number of championship scoring rounds will be adjusted accordingly.

D: A race is 'red flagged' after the leader has completed two laps but less than 75% of its duration, but there is no time available to implement MSA regulation Q5.4.2.

If the Clerk of Course decides that a replacement race should be run it will be in accordance with MSA regulation Q5.4.2. If no space can be found for a replacement race, a result will be declared retrospectively based on the order of crossing the finish line at one lap less than at the first time of the showing of the red flag and only cars which were under their own power at the showing of the red flag will be classified.

If a race is 'red flagged' twice and the second red flag is before the leader has completed two laps, the Clerk of Course may decide to rerun the race on the same day subject to circuit curfew but is not obliged to do so. If the decision is taken that it should not be rerun on the day or it cannot because of circuit curfew, it will be considered an abandoned race and the number of championship scoring rounds will be adjusted accordingly.

3.15: Additional Sporting Regulations issued for the Championship.

1. Any driver competing in the Championship may be called before a meeting of the Championship Stewards who, at their discretion, may take further action that could include exclusion from part or all of the Championship.
2. The Organisers will use any evidence available to them to request that the Championship Stewards investigate any drivers who are deemed to show poor driving standards or bring the championship into disrepute in any such manner through on and / or off track incidents. This will include any complaints made officially by registered competitors.
3. Championship Stewards are also empowered to consider any request from the Championship co-ordinator to penalise any Competitor for any breach of Championship regulations and, after holding a formal hearing if they deem it necessary, to impose a penalty in accordance with MSA Regulation C.2.1.1 (subject to the rights of appeal provided for in Section C).
4. One or more of the following may be imposed by the Championship Stewards as appropriate:
 - a) Reprimand.
 - b) Fine. This may be also applied in the case of a driver receiving three reprimands from the Championship Stewards in one season.
 - c) Time Penalty.
 - d) Suspension from all or part of the Championship. This may also be applied in the case of a driver receiving two fines from the Championship Stewards in one season.
 - e) Disqualification.

4: CHAMPIONSHIP RACE PENALTIES:

4.1: INFRINGEMENT OF TECHNICAL REGULATIONS:

1. Arising from post-practice scrutineering or judicial action: Should a vehicle be found ineligible, the Clerk of Course will impose the penalty set out in MSA Regulation C3.3.
2. Arising from post-race scrutineering or judicial action: Should a vehicle be found ineligible, the Clerk of Course will impose the penalties set out in MSA Regulation C3.5.1 a & b and may impose the penalty set out in MSA Regulation C3.5.1 c. Technical infringements

may be referred to the Championship Stewards for further action/penalties.

4.2: INFRINGEMENT OF NON-TECHNICAL MSA REGULATIONS and the Sporting Regulations issued for the Championship:

1. In the case of a driver being excluded from a race, the Clerk of Course will impose the penalties set out in MSA Regulation C3.5.1 a & b and may impose the penalty set out in MSA Regulation C3.5.1 c.
2. In order to maintain standards of conduct, the Championship Organisers will monitor all Officials/Observers reports of adverse behaviour at race meetings. If any individual is included on two such reports during one racing season the Championship Organisers will request the Clerk of Course at future race meetings to consider specific observation of that driver's conduct.
3. The Clerk of Course may impose a 'Stop-Go' or 'Drive through' penalty during a race, in accordance with MSA Regulation Q12.6.
4. Any Competitor who is penalised under the Championship Sporting Regulations at any stage of a Championship event and receives an allocation of penalty points on their race licence in accordance with MSA regulations, will receive a grid slot penalty at the next round in which they compete following the allocation of penalty points, equal to the number of penalty points which were allocated. Double headers will be considered as two separate rounds; however if the decision to allocate penalty points is delayed such that further round/s of the Championship have taken place since the offence, the grid slot penalty will be implemented at the next round in which they compete after the allocation of the penalty points. The penalty will mean that a Competitor will be moved back grid slot places from their grid position (e.g. if a Competitor with a three grid slot penalty had a qualifying time that was good enough for pole position then the Competitor will start fourth on the grid). If for any reason the imposition of this grid penalty is impractical (such as the competitor's qualifying time, starting from the pitlane etc) or the offence occurs at the final meeting of the season, a time penalty of 5 seconds will be added to the elapsed race time of the competitor.
5. Additional specific Championship penalties as per 3.15 of these regulations.

5: TECHNICAL REGULATIONS

5.1: INTRODUCTION:

The following Technical Regulations are set out in accordance with the MSA specified format and it should be clearly understood that if the following texts do not clearly specify that you can do it, you must work on the principle that you cannot. The fact that some modifications are mentioned as prohibited does not imply that others are allowed.

5.2: GENERAL DESCRIPTION:

The **FORMULA 4 CHAMPIONSHIP** is for Competitors participating in single seater, rear engine racing cars, in four categories: –
Class A: Cars built after January 1st 1995; all F3 derived cars.
FFord Zetec cars and **FFord Duratec** cars must be fitted with front & rear aerofoils as per Appendix 6 and are additionally subject to 5.5; 5.6; 5.6.1.3; 5.6.2.3; 5.12; 5.13 & 5.14 of these regulations.
Class B: Cars built before 1st January 1995.
Class C: FFord Zetec cars (see class C Zetec section for relevant technical regulations)
FFord Duratec cars (as per the regulations available from the 750 Motor Club Office – no modifications from the aforementioned regulations).
Class D: FF1600 (Kent) as per the regulations available from the 750 Motor Club Office, with tyres as per 5.13.
Class E: Invitation class.

5.3: SAFETY REQUIREMENTS:

The following Articles of MSA Section K Safety Criteria Regulations will apply: - K1.6.3 or 1.6.4, K2.1.3, K3.1.2, K5 – 14. Extinguishers must comply with MSA regulation K 3.1.2 a). Seat belts must be FIA homologated in accordance with Q19.14.2.

5.4: GENERAL TECHNICAL REQUIREMENTS & EXCEPTIONS:

All cars must comply with the requirements of sections J and Q19 of



the current MSA Yearbook. All vehicles must be of sound construction and mechanical condition and be well maintained. Two mirrors must be fitted, each with a minimum surface area of 50 sq cms and giving a clear view to the rear, one on each side of the centreline of the vehicle.

STANDARD: The word 'standard' used within these technical regulations is to be interpreted as per 'Standard Part' defined in Section B – Nomenclature & definitions in the MSA Blue Book. Checking will be by comparison to spare parts supplied by the manufacturer's official agent.

5.5: CHASSIS:

Classes A & B:

ZETEC and **DURATEC** cars: No restriction on chassis construction. Cars utilising carbon-fibre chassis must be presented at scrutineering with a Vehicle Log Book issued by the MSA.

MOTORCYCLE & CVH ENGINED cars: may only be constructed of a steel space frame, or aluminum, or steel monocoque.

Renault ENGINED cars: The chassis must be of tubular steel construction. Monocoque chassis construction is prohibited.

FF 2000 cars: The chassis must be of tubular construction. Monocoque chassis construction is prohibited.

Class C:

FFord Zetec refer to class C section. Duratec as per regulations available from 750 Motor Club Office.

Class D:

FF1600 refer to regulations available from 750 Motor Club Office.

5.6: BODYWORK:

1: Modifications permitted

- General:** See table of dimensions and drawing in Appendix 6.3. Formula Renault cars may change wings and bodywork to F4 regulations.
- Interior:** Free, subject to MSA regulations.
- Exterior:** Free, subject to MSA regulations. Class A & B must be fitted with a front & rear aerofoil within the measurements stated in Appendix 6.
- Silhouette:** Free, subject to MSA regulations.
- Ground Clearance:** In accordance with MSA regulation **J5.20.11**.

2: Modifications prohibited

- General:** None, subject to MSA regulations.
- Interior:** None, subject to MSA regulations.
- Exterior:** None, subject to MSA regulations.
- Silhouette:** None, subject to MSA regulations.

FF2000/PINTO

The bodywork must comply with the dimensions given in appendix 6. The bodywork must be standard for the year of the chassis.

1: Modifications permitted

- General:** The requirements for flat bottoms are waived.
- Interior:** None.
- Exterior:** None.
- Silhouette:** None.
- Ground Clearance:** In accordance with MSA regulation J5.20.11

2: Modifications prohibited

- General:** Underbody diffusers between/behind the rear wheels are prohibited.
- Interior:** Any in contravention of 5.6.1.2.
- Exterior:** Any in contravention of 5.6.1.3.
- Silhouette:** Any in contravention of 5.6.1.4.
- Ground Clearance:** Any in contravention of 5.6.1.5.

5.7: ENGINE

Classes A & B: the following engines are permitted

- Ford 1800 ZETEC
- Series-production four-stroke motorcycle engines as per 5.7

- Renault Laguna 2000cc 8V F3R
- Ford PINTO
- Ford 1.6 type CVH/1.4 code LPA or LUA of British Manufacture
- The FFord DURATEC

Class C: the following engines are permitted

Ford Zetec 1800 & Ford Duratec 1600

Class D:

Ford Kent 1600

A) FORD ZETEC

1: Modifications permitted

The 16 valve ZETEC engine in its 130ps form with nominal bore of 80.0mm and stroke of 88.0mm; a rebore allowance of 0.5mm is permitted, using AE piston No: 23984. Machining of the cylinder block is permitted to allow fitting of the dry sump system. The crankcase breather may be modified. The block may be machined to maintain deck height.

CYLINDER HEAD INCLUDING VALVES AND VALVEGEAR: It is permitted, as means of repair, to replace damaged valve guides and valve seats by replacement valve guides and valve seat inserts all to standard dimensions. No work that removes, adds, replaces, or transfers material is allowed on the cylinder head with the following exceptions:

- Simple cleaning which does not alter in any way the shape of the component.
- Minimal material removal from the head face to correct combustion chamber volume and/or reclaim head flatness. No internal reworking of any combustion chamber is permitted.
- Fitting of replacement valve seat insert to a position that replicates the standard closed valve position. The oil filler cap shall be permanently sealed by lock wire or similar. All valve train components, other than simple shims under valve springs, may not be modified or replaced. The hydraulic tappets cannot be modified in any way. It is not permitted to "lock up" the hydraulics within the tappets. Valves must remain standard, no reprofiling or polishing is permitted. The original 45degrees (90 degrees included) seat angle must be maintained. Distance apart at centres (inlet) 35.20+ 0.5mm. Distance apart at centres (exhaust) 35.20+ 0.5mm. Maximum face diameter (inlet) 32.13mm. Maximum face diameter (exhaust) 28.13mm. Overall length (inlet) 97.101 + 0.5mm. Overall length (exhaust) 96.70 + 0.5mm. Standard valve stem seals must be retained.

COMPRESSION RATIO: The maximum compression ratio will be controlled as follows:

- Minimum combustion volume of the cylinder head (with the race spark plug fitted) = 42.4cc.
- Standard Ford cylinder head gasket with a minimum compressed thickness of 1.54mm, and a minimum diameter of cylinder aperture of 82.00 mm.
- The piston will protrude a maximum of 0.65mm out of the cylinder block when the piston is at TDC. The cylinder block head face surface may be machined.

CAMSHAFT: The only permitted camshafts are the Kent Cams DH 61/63 Inlet and DH 62/64 exhaust or the KC75061234 inlet and exhaust. The Serial Number of the camshafts must be notified to the 750 Motor Club Limited on the Championship Registration form. The camshaft must remain entirely unmodified other than the machining of a woodruff key or dowel. Vernier timing wheels are permitted.

PISTONS: Pistons must be standard production Ford Zetec 1800cc pistons or standard pattern parts unmodified in any way except for balancing. All three piston rings must be fitted; piston rings must be standard production. The combustion chamber face of the piston cannot be modified, other than a machining cut at 90 degrees to the stroke in order to obtain correct piston to top of block dimensions. The minimum weight of the connecting rod and piston assembly shall be 1004gm. (Complete piston with rings and pin, and connecting-rod with bolts but excluding crankshaft bearings). The piston cooling oil squirt jets, and the oil feed lines to them, must be retained. It is permitted



to strengthen the fixing of the nozzle to the body of the piston cooling jet provided the original function is maintained and unaltered.

CONNECTING RODS: Connecting rods must be standard (Ford Part No. 928M 6200 AU). Metal may be removed to achieve balance only from the production balancing-boss on the big end cap. Polishing is prohibited. The minimum weight of the connecting rod and piston assembly shall be 1004gm. (Complete piston with rings and pin, and connecting-rod with bolts but excluding crankshaft bearings). Conrod bolts are free.

CRANKSHAFT: A standard crankshaft must be used. Spot machining (by radial drilling or milling) to achieve balance is permitted. (Area for balancing defined in Appendix "E"). Polishing is prohibited. Crankshaft minimum weight is 13.6Kg (including gearbox spigot bearing). Crankshaft journals may be reground provided the standard stroke of 88.0mm is not altered. Crankshaft pulley and damper may be retained, modified or removed. Additional drives to oil pump, alternator etc. may use this pulley, or extra pulleys mounted in front of the crankshaft damper. It is not permitted to alter the number of bearings or fit bearings of less than standard production width.

FLYWHEEL, CLUTCH & LUBRICATION SYSTEM: All these are free as are oil coolers and windage trays.

EXHAUST SYSTEM: Free subject to 5.7:6

2: Modifications prohibited: Any not specifically permitted in this class A Zetec section.

B) MOTORCYCLE ENGINES: Any of the following engines produced before July 2003 may be used: -

- Honda Fireblade
- Honda Blackbird
- Suzuki RF900R
- Suzuki GSXR 1000 (K1 – K4)
- Kawasaki ZX 9R
- Yamaha R1

Kawasaki ZX7R (Bike model P1 – P6) 1996-2001 Spec With original airbox, ECU and exhaust down pipe to the collector.

Other engines may be accepted by application to the Championship Co-ordinator.

The engine must remain entirely standard - your attention is drawn to 5.4.

C) RENAULT ENGINE

The engine must be the F3R engine together with all accessories as supplied in the Renault Sport Kit. Cubic Capacity 2000cc.

1: Modifications Permitted:

Cylinder bores must retain the standard bore of 82.7mm with a maximum bore size (inc 0.1mm wear allowance) of 82.8mm. Standard production crankshaft with a standard production stroke of 93mm must be retained. Spot machining to achieve balance is permitted.

The original 45-degree Valve seat angle must be retained. Maximum face diameter inlet 40.0mm. Maximum face diameter exhaust 32.5mm. Minimum valve stem diameter 8.0mm. The camshaft must be the Renault Racing cam as supplied with the engine in the Renault Sport Kit.

2: Modifications Prohibited

The removal of material from the cylinder head is prohibited. The addition to the cylinder head of material in any form and by any means is prohibited.

D) FF 2000/ PINTO

The engine must be Ford 2000 SOHC (Pinto) engine.

1: Modifications Permitted: Cylinder bores may be increased in size by no more than a + 0.5mm rebore on the standard 90.84mm, giving a maximum bore size (incl 0.1mm wear allowance) of 91.44mm. Standard production crankshaft with a standard production stroke must be retained; maximum capacity not to exceed 2025 ccs. Spot machining to achieve balance is permitted. Tuftriding,

Parkerising, shot peening, shot blasting and polishing are permitted. Minimum crankshaft weight 12.7kgs. The flywheel must be the standard component. The clutch may be a standard unit or an AP Cover plate assembly CP2511-1 with driven plate CP2374 or 2374-1. Spot machining to achieve balance is permitted. Flywheel bolts are free and locating dowels are permitted. Flywheel and clutch assembly minimum weight 12.5 kgs including all flywheel and crankshaft securing bolts. A Ford 'Kent' 1600GT starter ring gear may be fitted. Maximum compression ratio will be controlled as follows:-

i) Minimum combustion chamber volume 50ccs.

ii) Standard Ford head gasket (part no: 92HM6051AA or 85HM6051B3C or 85HM6051B2E) or dimensionally identical aftermarket gasket to be used. Minimum thickness 0.9mm; minimum diameter of cylinder aperture 92mm.

iii) Pistons must not protrude above cylinder block surface at TDC. Pistons must be either KS Part No: 90606600 (Std) or 90606610 (+ 0.5mm), AE Part No: 21426, Mahle Part No: 01421/00 (Std) or 01421/01 (+ 0.5mm) or Ford Part No: 6171403 (Std) or 6171404 (+ 0.5mm), unmodified in any way except for balancing as follows:- To achieve balance material may be removed from the internal surfaces at any location below the lowest point of the gudgeon pin. All external surfaces, dimensions and profiles must remain standard for the nominal size of piston being used, with the exception of the top surface of the piston crown which may be subjected to simple machining to achieve balance and the objectives of the above clause regarding compression ratio. Minimum weight of piston complete with rings and gudgeon pin and connecting rod less big end bearings 1255gms. All three piston rings must be fitted and must be standard production or similar pattern replacements ie the compression rings must be one piece single homogenous material type with conventional plain gaps; chromium plating of the top ring is optional; the oil control rings must be either single piece twin land type or apex three piece (two rails and expander).

Connecting rods must be Ford Part No: 1626447. Machining is permitted to remove metal from the balancing bosses to achieve balance only. Tuftriding, Parkerising, shot peening, shot blasting, polishing etc are permitted. It is permitted to radius the area around the big end cap retaining bolts. Big end bolts are free.

The camshaft and rockers must remain entirely unmodified; they must be fully manufactured and ground by the Ford Motor Co (FoMoCo). It is prohibited to grind from blanks, regrind or reprofile. Tuftriding or Parkerising is permitted. The Key/Keyway in the camshaft pulley may be offset or adjustable vernier pulley/s may be used. Maximum valve lift at determined points by camshaft rotation will be established as per Appendix 6.3.

It is permissible to reshape inlet and exhaust ports by removal of metal within limits. Addition of material in any form is prohibited except for the repair of damaged valve guides or valve seats with replacement valve guides or valve seat inserts all to standard dimensions. Maximum diameter of inlet port at manifold head face 39.5mm. Maximum dimensions of exhaust port at manifold face 35.5mm x 27mm. The distance between the valve centres and the angle of the valves must not be altered, but the combustion chamber is otherwise free within the constraints of the clause regarding compression ratio. Valves must remain standard; no reprofiling is permitted. The original 45 degree seat angle must be retained. Maximum face diameter inlet 42.2mm. Maximum face diameter exhaust 36.2mm. Minimum valve stem diameter 8.4mm. Standard valve spring retainers must be used and single valve springs only are permitted. Shims are permitted and valve springs are otherwise free.

2: Modifications Prohibited: Any not specifically permitted in this FF2000/Pinto class A section. The addition of material by any means to any component is prohibited.

E) FORD 1.6 TYPE CVH/1.4

The engine must be Ford 1.6 type CVH/1.4 engine code LPA or LUA of British Manufacture.

1: Modifications Permitted:



- i) Production tolerances are permitted provided the bore does not exceed 81.1mm (standard 80mm bore + 1.0 mm rebore allowance + 0.1mm wear allowance) and the swept volume does not exceed 1643cc measured at the point of maximum ring travel.
- ii) The standard Ford crankshaft of 79.52mm stroke must be used. Spot machining to achieve balance is permitted as are polishing, tuffriding, shotpeening and shot blasting. Machining to enable fitting the first motion shaft and flywheel is permitted.
- iii) Pistons must be standard Ford part no 6098522 (XR3), AE part no 20760 or KS part no 93363. Alternatively the standard Ford CVH 1300 pistons (Part no 81SM6102CA or 81SM6102GA, AE part no 20761, or KS part no 93362) may be used. All three rings must be used. Piston crowns and valve pockets may be modified by the removal of material. It is permitted to remove material from below the lowest point of the gudgeon pin to achieve balance.
- iv) Connecting rods must be standard Ford production part and may be modified by any means on all surfaces other than that inside the 'H' section. Surface treatment and bolts are free.
- v) The cylinder head must be from either the standard 1.6 litre engine code LPA or from the XR3 engine code LUA. It is permissible to reshape the ports by removal of material.
- vi) The valves must remain in the standard production position. It is permitted to repair damaged valve seats and guides.
- vii) The camshaft must be from the Ford XR3 (carburettor model or mechanical fuel injection models only, part nos: 1614767 or 6186554) and remain entirely unmodified; it must be fully machined and ground by the Ford Motor Company. Tuffriding and/or parkerising is permitted.
- viii) The standard hydraulic tappet must be used.
- ix) Standard valve spring retainers, rockers and rocker bearings must be used. Shims, valve springs and valves are free.
- x) Offset dowels, keys or vernier timing sprockets are permitted.
- xi) Flywheel and clutch are free.

2: Modifications Prohibited:

- i) The addition of material in any form and by any means to the cylinder head is prohibited.
- ii) It is prohibited to grind camshafts from blanks, to regrind or to re-profile.
- iii) It is not permitted to modify any of the component parts of the tappet or to add material by any means. Solid tappets are not permitted.

F) DURATEC

Permitted Engine:

The only permitted base engine is the Ford 1600cc, 16 Valve Duratec engine in its 100PS Non-VCT (Focus & Fiesta) form (code FYJA or FYJB) with nominal bore 79.0mm and stroke 81.4mm

General:

No rework may be carried out on any component unless specifically authorised by the regulations. The engine and associated parts must remain exactly as produced by the Ford Motor Company unless expressly detailed in these regulations.

Engine modifications allowed:

If the regulation allows a change, then that authorization would allow the change to be carried out. However any statement defining minimum weight or dimensions does not grant permission for rework to obtain these minimum values, unless carried out in accordance with these regulations.

No treatment that alters in any way the surface finish, hardness, or other property of the original production component is allowed.

Cylinder head including valves and valvegear: It is permitted, as means of repair, to replace damaged valve guides and valve seats by replacement valve guides and valve seat inserts all to standard dimensions. No work that removes, adds, replaces, or transfers material is allowed on the cylinder head with the following exceptions:

- i) Simple cleaning which does not alter in any way the shape of the component.
- ii) Minimal material removal from the head face to correct combustion chamber volume and/or reclaim head flatness. No internal reworking of any combustion chamber is permitted.

Fitting of replacement valve seat insert to a position that replicates the standard closed valve position. The oil filler cap shall be permanently sealed by lock wire or similar. All valve train components, other than simple shims under valve springs, may not be modified or replaced. The hydraulic tappets cannot be modified in any way. It is not permitted to "lock up" the hydraulics within the tappets. Valves must remain standard, no reprofiling or polishing is permitted. The original seat angle must be maintained. Standard valve stem seals must be retained. Distance apart at centres (inlet) 33.00mm Distance apart at centres (exhaust) 31.50mm Maximum face diameter (inlet) 30.25mm Maximum face diameter (exhaust) 24.25mm Overall length (inlet) 98.98±0.25mm Overall length (exhaust) 101.40±0.25mm Valve stem diameter, inlet 5.97mm Valve stem diameter, exhaust 5.96mm

Compression Ratio:

The maximum compression ratio will be 11.15:1 and be controlled as follows:

- i). Minimum combustion volume in the cylinder head (with the spark plug fitted) = 30cm³.
- ii). Standard Ford cylinder head gasket with a minimum compressed thickness of 0.30mm, and a minimum diameter of cylinder aperture of 79.50mm. The piston will sit below the block head face by a minimum of 1.00mm when the piston is at TDC. The cylinder block head face surface may be machined whilst respecting the head gasket thickness.

Cylinder Block:

It is permitted, as means of repair, to replace cylinder bores with 'dry' cast iron cylinder liners. 'Nicasil' or any other types of bore plating / treatments are prohibited. All materials and dimensions must remain Ford standard.

Camshaft: The only permitted camshafts are those specified for Formula Ford use. Part N°s: Inlet MS06FF-6A266-AA and Exhaust MS06FF-6A269-AA. Camshafts must remain entirely unmodified and must be fully manufactured and ground by the designated supplier. It is prohibited to grind from blanks, regrind or re-profile. Only the production surface finish is permitted. Shot peening, shot blasting or polishing are prohibited.

Piston:

Standard Ford supplied production pistons must be used (Part N° 4M5G-6110-EC/ED, for reference only) unmodified in any way except for machining to achieve balance. At least one piston from the set must be completely untouched. Although balancing is permitted by these regulations Ford does not recommend such machining. All piston rings must be fitted; piston rings must be standard production.

Combustion chamber face of the piston may not be modified. The minimum weight of the connecting-rod and piston assembly shall be 695g. (Complete piston with rings and pin, and connecting-rod with bolts but excluding crankshaft bearings).

Connecting Rods:

Standard Ford supplied production connecting rods must be used (Ford Part N° 98MM-6200-DC for reference only). Machining is permitted to remove metal from the big end cap machine locator areas to achieve balance only. Although balancing is permitted by these regulations Ford does not recommend such machining. Polishing is prohibited.

Note: connecting rod caps are fractured and therefore matched to the connecting rod. Do not mix connecting rod caps.

Connecting rod bolts are free subject to them remaining in ferrous material and their fitment requiring no machining of the connecting rod or bearing cap to fit, and the minimum weights respected.

Crankshaft:

The standard Ford supplied production crankshaft must be used (Ford Part N° 98MM-6303-CA/CB). Spot machining (by radial drilling or milling) to achieve balance is permitted. Polishing is prohibited. Crankshaft minimum weight is 9750g (including gearbox input shaft spigot bearing). Crankshaft journals must remain within Ford positional tolerances if a repair regrind is carried out.

The mandatory crank damper pulley (MS06FF-6B321-AA) must be retained but may be modified to remove the additional (smaller) pulley. Additional drives to oil pump, alternator etc. may use this pulley, or extra pulleys mounted in front of the crankshaft damper.



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

The crank journals may be reground for reclaim, as long as the minimum crank weight is respected. Only Ford Standard oversize and undersize bearings are permitted and cannot be modified. Only bearings made specifically for the engine, and marketed by companies that supply Ford with original equipment bearings are allowed. Chamfering of the entry/exit holes of oil ways is permitted.

A marker must be fitted which accurately aligns the crankshaft to the cylinder block at No.1 piston TDC. This marker must be visible and fully accessible to the scrutineers without removing any component other than external body panels, and without removing the engine from the car.

It is permitted to machine the nose of the crankshaft to fit a woodruff key to allow positive location of the cam drive sprocket.

Flywheel, clutch and lubrication system: All these are free as are oil coolers and windage trays.

Exhaust system: Free subject to 5.7:6

2: Modifications prohibited: Any not specifically permitted in this class A Duratec section.

3: Location:

Rear engine only.

ZETEC, Duratec, FF2000, CVH & RENAULT only: Engines must be mounted upright and be located fore and aft in the chassis.

4: Oil/Water cooling: Lubrication systems free. Dry sump is permitted. Localised machining to allow fitting of oil pump or to modify internal oil ways is permitted. Any system may be used for oil and water-cooling provided radiators are within the periphery of the vehicle.

FF2000/PINTO

Oil/Water cooling: Lubrication system is free. Dry sump is permitted. Localised machining of the block is permitted to allow fitting of the oil pump. Oil coolers are unrestricted. A liquid cooling system is mandatory but radiator and water pump are unrestricted. The radiator, if housed in or incorporating a cowl, air scoop or deflector, must comply with body regulations.

5: Induction Systems: Air filtration system is free on all engines.

ZETEC & DURATEC classes A & B only

The induction must be provided by either:-
Weber 40DCOE or Dellorto 40DHDLA carburettors, mounted on a commercially available inlet manifold. Maximum choke size is 34mm; chokes may be machined to the correct size from a smaller original. The 750 Motor Club reserves the right to alter the maximum choke size to equalise performance, at any stage during the season.

As an alternative, with bodywork fitted with a front & rear aerofoil as per Appendix 6 and/or wheels and tyres as per 5.2, 5.6.1.3, 5.12, 5.13, 5.13.1 and 5.14., the engine may be fitted with the standard ZETEC or DURATEC induction components as detailed in the appendix to these regulations. The ECU may be as detailed in Class C 5.7 or as in 5.7.7 i. The restrictor may be removed. The 750 Motor Club reserve the right to alter add and subsequently modify the restrictor size to equalize performance after rounds 4 & 8.

MOTORCYCLE

The induction system must be standard for the engine being used; this must include carburettor / injection, though jetting, slide springs, needles and programming is free. Carburettor slides may be modified and additional drillings may be made to the carburettor bodies. Throttle bodies and injection must remain standard but loom and pipe work may be adapted.

Kawasaki ZX7R: The induction system must remain entirely standard including carburettors, although the jets may be changed. The original airbox must be used.

RENAULT

Permitted Modifications

The induction system must remain entirely standard but the restrictor may be removed. The 750 Motor Club reserves the right to re-introduce a restrictor to equalise performance, after rounds 4 & 8.

Prohibited Modifications

It is not permitted to use non-standard injectors or modify the induction system by the addition, by any means, or removal of material.

FF2000/PINTO

Induction Systems: A single carburettor only may be used on a standard inlet manifold. The carburettor will be a Weber 32/36 DGV 26/27mm venturi, its origin being from a 1600GT 'Kent' or 2000 SOHC NEA engine. The air cleaner may be removed and a trumpet fitted, jets may be changed, both chokes may open together, cold start devices and diffuser bar may be removed, internal and external anti-surge pipes may be fitted, seals on emission-controlled carburettors may be removed. No other modifications are permitted; chokes must remain standard and no polishing or profiling is permitted. Only the standard inlet manifold may be used. No modifications will be permitted and the bore of the casting must remain untouched and in its original condition. The carburettor seat face may be machined to horizontal in the fore and aft plane. The water passage in the inlet manifold may be blanked off or plugged. Flexible mounts for the carburettor may be utilised providing they do not exceed a maximum of 25.4mm from flange to flange.

CVH

i) Inlet manifolds are free.

ii) Carburetion must be by either twin Weber 40 DCOE or twin Dellorto 40 DHDLA carburettors and the following must remain as standard to those carburettors:-

a) The bore of the carburettor immediately downstream of the throttle butterfly must not exceed 40.1mm.

b) The throttle butterflies must be retained and their position in the body of the carburettor may not be changed.

c) The maximum main venturi (choke) size is 37mm and their position in the carburettor may not be modified.

d) Standard Weber or Dellorto auxiliary venturis must be used and their position in the carburettor body and relative to the main venturis may not be modified. Any standard size of auxiliary venturi is permitted.

iii) Slide throttles and/or fuel injection are not permitted.

6: Exhaust systems: Design and type of exhaust system including manifold and silencer is free, but must comply with MSA noise restrictions as per MSA yearbook J5.16.5 & J5.17. or as specified for any individual venue in the final instructions.

MOTORCYCLE

Kawasaki ZX7R standard exhaust down pipe to the collector must be retained.

FF 2000/PINTO

Exhaust systems: Must comply with MSA regulations. Ford Silencer part no: 9095317 must be used.

Prohibited Modifications: Any other than those listed in 5.7:6

7: Ignition systems: Traction control is not permitted in any class.

ZETEC & DURATEC

The ignition must be provided by either: -

i. A commercially available kit e.g. Weber Alpha, MBE, Lumination. The ignition and ignition timing may be controlled by a 3-sensor system i.e. crankshaft position indicator, air temperature sensor and throttle position indicator.

ii. Where the bodywork is fitted with a front & rear aerofoil as per



Appendix 6.3, and/or wheels and tyres as per 5.6.1.3, 5.12, 5.13, 5.13.1 and 5.14., and the standard 130ps ZETEC/DURATEC induction system is retained, all standard production engine sensors that have any influence whatsoever on the engine management system must be retained in the correct position and in working order. It is not permitted to reposition positional sensors. Reprogramming of the main engine "Electronic Control Unit" (ECU) is permitted. The only ECUs allowed shall be 92FB 12A650 BC or BD; MS97FF I 2A650 AA (or its current production derivative); plus any other ECU specifically defined and notified to competitors by the organisers. For ECUs with Part number commencing 92FB, Pin number 1 on the Engine ECU is to be fed with a permanent 12 Volt feed from the car battery. This power feed shall not pass through the normal battery master switch, and to protect the car the line must be fitted with a 3 Amp rated fuse as close as possible to the battery. This feed must only feed pin 1 and must have no other connections into the car-wiring loom. For ECUs with Part number commencing MS97FF, no permanent feed is required to the ECU.

MOTORCYCLE

The standard Ignition systems must be retained and no additional units (e.g. advancer, interrupters or similar which modify the ECU mapping) may be used. Wiring loom/harness is free.

RENAULT

The ignition System is free.

FF2000 & CVH

Ignition systems: Distributor is free, must be used and remain in the standard position; it must be the sole ignition system. A rev limiter is permitted. No engine management system is permitted. Only ignition systems that use only one trigger, inside the distributor or external, to initiate the low tension current will be permitted. Any system that requires more than one sensor or input to provide another signal/voltage for any electronic/microprocessor control system will not be permitted.

8: Fuel delivery systems:

Free but only solid metal or metal-braided flexible petrol lines are permitted. If solid fuel lines are used, each must contain at least one flexible coupling.

Filler caps must be wired shut or similarly secured. Screw threaded spring locked caps are recommended.

ZETEC/DURATEC engined cars retaining the standard induction system the fuel system must conform to the requirements detailed in the appendix to these regulations.

FF2000/PINTO

Only the standard mechanical fuel pump for the engine is permitted.

5.8: SUSPENSIONS:

- 1. Permitted modifications:** free, subject to MSA regulations and below.
- 2. Prohibited modifications:** None, subject to MSA regulations and below.

Wheelbase/track- As per appendix 6.3.

FF2000/PINTO

All parts must be of steel or ferrous material with the exception of springs, hubs, hub carriers, hub adaptors, bearings and bushes.

- 1. Permitted modifications:**
 - 2. Prohibited modifications:** Dampers/shock absorbers with light alloy casings are prohibited.
- Wheelbase/track:** see appendix for dimensions.

5.9: TRANSMISSIONS:

- 1. Permitted modifications: ZETEC, DURATEC, FF 2000 & CVH:** The gearbox must contain not more than four forward gears and must include an operable reverse gear, capable of being engaged by the

driver whilst normally seated.

Motorcycle Engined cars: The gearbox must be standard for the engine. No modifications permitted. The clutch is free. Final drive may be by chain or gear. Reverse - Cars will be required to drive in reverse a distance of 3m on the flat during which one of the wheels will be required to pass over a block 40mm high by 40 mm wide.

Renault Engined cars: The gearbox must be a Hewland LD 200; all 5 ratios are free. The gearbox must contain an operable reverse gear, capable of being engaged by the driver whilst normally seated in the cockpit.

2. Prohibited modifications: Torque biasing, locked or limited slip differentials are prohibited; this includes Quaife, Torsen, Suretrac, Powerflow, ZF, Salisbury or any unit using similar principles. Any differential containing high friction non-bearing materials or cams and/or rollers will be deemed to be acting as a torque biasing or limited slip differential. Electronic traction control devices are prohibited.

3. Transmissions & Drive ratios: Motorcycle Engined cars:

Final drive must be through a differential as per 5.9.2. No restrictions except as above.

5.10: ELECTRICS

1. Exterior Lighting: Not applicable.

2. Rear Warning Light: An LED rear fog light to EU regulation 7, an FIA homologated LED rear warning light, or an LED stop light to EU regulation 38 is mandatory and must be mounted in accordance with MSA Regulation K5.

3. Batteries: An electrically powered starter motor and battery are mandatory and must be operable by the driver whilst normally seated and must be capable of repetitive starts.

4. Generators: A charging system is optional.

5.11: BRAKES

1. Permitted Modifications: No restrictions.

2. Prohibited Modifications: No restrictions.

FF2000/PINTO

Prohibited Modifications: Brake calipers of any material other than cast iron are prohibited.

5.12: WHEELS / STEERING

1. Permitted Options: Free.

2. Prohibited Options: Any in contravention of MSA regulations.

3. Construction & Materials: Free.

4. Dimensions: Free.

FF 2000/PINTO

Wheels must be 13in diameter front and rear. Maximum rim width front 6ins; rear 8ins.

5.13: TYRES

The use of tyre heating/heat retention devices, tyre treatments and compounds is prohibited.

Classes A, B & FFord Zetec in Class C

SLICK TYRES: Free.

WET TYRES: No restrictions on types or compound. However wet tyres must have at least 4 evenly spaced 7mm wide circumferential grooves to the full depth of the tread or be a full wet pattern as defined in 6.1.

Class C Duratec

As per regulations held at 750mc office.

Class D FFord 1600 Kent

Front Tyre: 6.0/21.0-13 Avon 7317

Rear Tyre: 7.0/22.0-13 Avon 7319

5.14: VEHICLE WEIGHT:

All minimum weights are including driver and race overalls, helmet etc: -

Class A:

Motorcycle Engined Cars: 435kg including driver.

ZETEC, Duratec and Renault engined Cars: 540kgs including driver.

FF2000 Cars: 520kg (without driver 440kg)

CVH engined cars: No minimum weight

Class B:

Motor cycle engine cars: 435kg including driver

ZETEC & DURATEC: 540kg including driver

FF2000 Cars: 520kg (without driver 440kg)

CVH engined cars: No minimum weight

Class C: 535kgs including driver.

For any vehicle, any ballast added to the vehicle in order to achieve the minimum weight must be within the overall periphery of, and be securely bolted to, the chassis.

5.15: FUEL TANK / FUEL

1. Types: Free. F.I.A homologated safety tanks are mandatory if fitted outside the chassis frame. Tanks within the chassis frame should be covered externally with a fireproof coating as per K14.1.2. A non-return valve must be incorporated in the vent system.

2. Locations: Inside or outside the chassis frame subject to the above.

3. Fuel: Only petrol as defined in Section B Nomenclature & Definitions, Pump Fuel a) section of the MSA Yearbook for the current year and complying with BS4040, BSEN228 or BS7800 may be used; fuel which exceeds the stated RON (max) levels in Appendix 1 of

Section B Nomenclature & Definitions is prohibited even if it is sold/promoted as being legal for UK Competition and/or obtainable from 'roadside' pumps. The use of additives by competitors which boost the octane rating (RON) in any petrol is prohibited. At the end of practice and the race at least 3 litres of petrol from the tank of the competing car must be available to the scrutineers for analysis. Compliance with minimum weight for the car will be taken before the petrol is removed.

5.16: SILENCING:

All vehicles must comply with the relevant maximum noise limits set out in MSA Blue Book regulation J. Chart 5.18.

5.17: NUMBERS & CHAMPIONSHIP DECALS

1. Positions: Race numbers including class letters must be displayed on each side of the vehicle alongside the cockpit or on rear wing end plates and as far forward on the front of the vehicle as possible. 750 Motor Club decals must be affixed prominently near all number backgrounds. Championship Sponsor's decals (where applicable) must be affixed in or near the positions detailed when they are supplied. 750 Motor Club and Championship Sponsor's decals must take preference to any other decals. Failure to comply will render the vehicle and driver ineligible to race.

2. Suppliers: Sponsors and Club decals will be available at the first championship race in which the vehicle is entered.

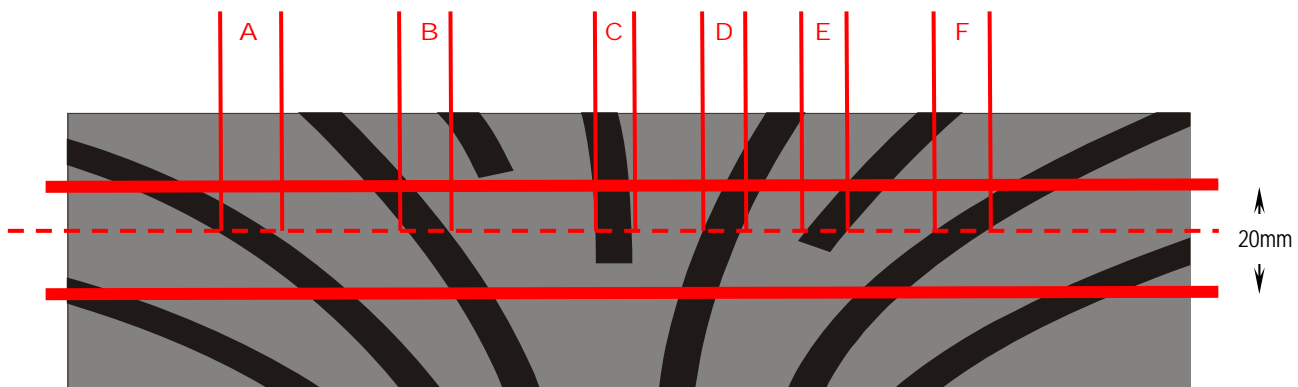
6. APPENDICES:

6.1. Wet tyres. Any wet tyre must have a recognisable tread pattern. This tread pattern is the combination of plain surfaces and grooves extending across the breadth of the tread and round the entire circumference.

The total width of the grooves within the tread pattern when measured across any line within a 20mm circumferential length of the part of the tyre which can contact the road and is parallel to the rotating axis of the tyre and wheel must account for at least 15% of the width of the tread and be at least 1.6mm deep. The orientation of the grooves does not necessarily have to be at 90° to the rotating axis of the wheel/tyre. E.g.

$$\frac{(A+B+C+D+E+F)}{\text{Tread Width}} \times 100 \Rightarrow 15\%$$

Tread Width



All dimensions are in cms.	All cars	FF2000 PINTO
(A) Maximum rear overhang from rear wheel axis.	100	80
(B) Maximum front overhang from front wheel axis.	100	
(C) Maximum aerofoil height measured from the ground.	90	
(E) No part of the front bodywork in front of the front edge of the entire front wheels and more than 25cms from the longitudinal centreline of the car may be above the front wheel rim height.		
(F) Minimum safety roll-over bar length in line with driver's spine.	92	
(G) Minimum allowed helmet clearance.	5	
(H) Maximum width.	185	
(I) Maximum rear aerofoil width.	95	
(J) Maximum body width behind front wheels.	135	95

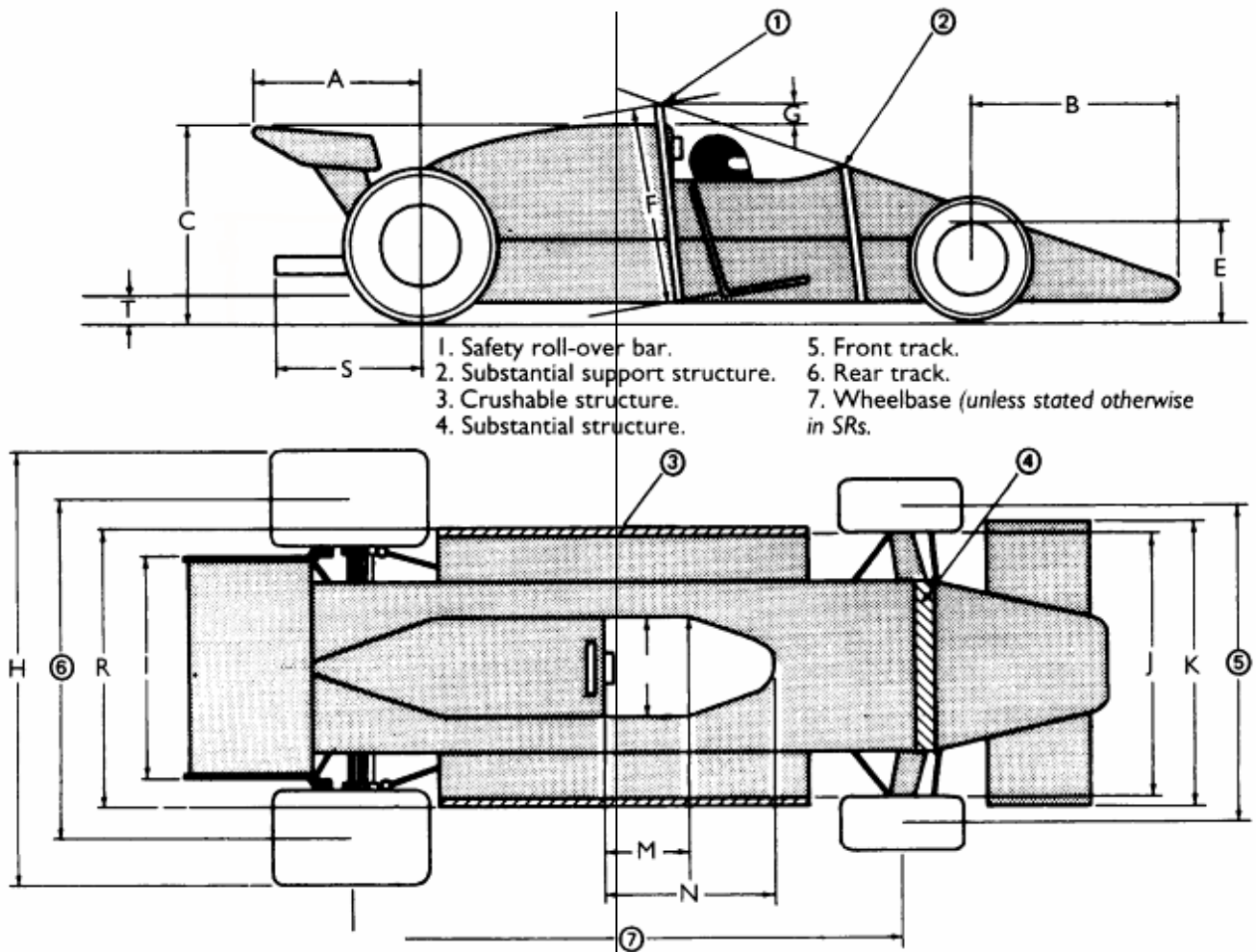


750 Motor Club Formula 4 Championship 2012

Sporting & Technical Regulations

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(K) Maximum nose/aerofoil width.	135	
(L) Minimum cockpit opening width.	45	
(M) Minimum cockpit parallel length.	30	
(N) Minimum cockpit overall length.	60	
(R) Maximum width including crushable structure.	N/A	
(S) Maximum exhaust length from rear wheel axis.	100	80
(T) Minimum ground clearance.	4	
Minimum wheelbase.	200	
Minimum track.	120	
Maximum height of bodywork excluding rear aerofoil. Any F1-style camera pods mounted on the bodywork must have symmetrical profile in side elevation.	115	



1. Safety roll-over bar.
2. Substantial support structure.
3. Crushable structure.
4. Substantial structure.
5. Front track.
6. Rear track.
7. Wheelbase (unless stated otherwise in SRs).

Class C - FORD ZETEC TECHNICAL REGULATIONS

5.2. GENERAL DESCRIPTION: This class is for any age of Formula Ford Zetec car complying with these regulations.

5.3 SAFETY REQUIREMENTS: All cars must comply with the technical regulations listed in the MSA Year Book section J & Q, and with the relevant safety requirements listed in section K.
Rear Warning Light: An 'E' marked LED stop light/rear fog light or an FIA homologated LED rear warning light is mandatory and must be mounted in accordance with K5.

5.4. GENERAL TECHNICAL REQUIREMENTS & EXCEPTIONS: All cars must comply with the requirements of sections E.12 and J.20 of the current MSA Yearbook. All vehicles must be of sound construction and mechanical condition and be well maintained.

5.5: CHASSIS: Cars must conform to the following: The chassis must be of tubular steel construction with no stress bearing panels except bulkhead and undertray, curvature of the undertray must not exceed 2.54cm; 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 or by bolts or screws that have centres closer than 15.25cm. Bodywork must not be used as stress bearing panels. The use of stabilised materials, composite materials using carbon and/or Kevlar reinforcement is prohibited. The cars must incorporate a Lateral Protection structure. The maximum length of weld attaching the panels to the chassis shall be 25.4mm. The gap between the end of each weld shall be a minimum of 15.25cms. Cars built after 1/1/95. The free internal cross section of the cockpit from the soles of the driver's feet to behind his seat shall at no point be less than 700cm². The only thing

that may encroach on this area is the steering column. A free vertical section of minimum 25cm width maintained to a minimum height of 25cm with corners of maximum 5cm radius must be maintained over the whole length of the cockpit with the steering wheel removed. The driver normally seated in his driving position with the seat belts fastened and the steering wheel in place must be able to raise both legs together such that his knees reach the plane of the steering wheel in the rearwards direction; this action must not be obstructed by any part of the car. The soles of the feet of the driver, seated in the normal driving position and with his feet on the pedals in the inoperative position, shall not be situated to the fore of the vertical plane passing through the centre line of the front wheels. No engine oil or water tubes are permitted within the cockpit. Cars built after 1.1.95. 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 be 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 minimum height in any vertical section and 400cm² minimum total cross section. It must be metallic using honeycomb sandwich construction with a panel thickness of 15mm minimum. The impact-absorbing structure shall be fixed to the chassis with a minimum of 4 fasteners, in high quality steel using a core diameter of 6mm minimum.

LATERAL PROTECTION STRUCTURE: Continuous panels whose projection on a vertical plane parallel to the longitudinal axis of the car shall be at least 15cm high, shall extend on either side of the car, at a minimum distance of 55cm from the car's longitudinal centre line between at least the transverse planes passing through the fuel tank rear face and the frontal extremity of the minimum cockpit opening, and at a minimum distance of 35cm from the car's longitudinal centre line between at least the transversal planes passing through the above extremity and the front rollover bar hoop. These panels shall be made from a composite material of 30cm² minimum cross section with a



honeycomb core in metal giving adequate resistance to compression. The external skins shall be of aluminium alloy of a minimum thickness of 0.5mm or made up of another assembly of materials of equivalent efficiency. The panels must be securely attached to the bottom and at the upper extremity to the main structure of the car in such a manner as to ensure absorption of a lateral impact. The radiators may play the role of protective panels or of transversal struts. The periphery of the bodywork covering the Lateral Protection Structure, when viewed from below, must be curved upwards with a minimum radius of 5cm, and a maximum radius of 7cm with the exception of air entry and exit openings into the Lateral Protection Structure. The floor of the side pod must reflect the plan of the upper surface. The floor is to be in the same plane as the undertray in both directions, i.e. transverse and longitudinal, subject to all points being within 2.54cm of any flat plane situated under the car. Crushable Structures: All oil tanks mounted outside the main chassis structure must be surrounded by crushable structure of minimum thickness 10mm.

5.6. BODYWORK: See table of single seater dimensions.

The use of composite materials using carbon and/or Kevlar reinforcement is prohibited. Bodywork is not required behind the vertical plane taken through the front of the top most portion of the roll over structure. If Bodywork is used it must conform with the following regulations: Any device designed to aerodynamically augment the downthrust on the vehicle is prohibited, as are aerofoils, nose fins or spoilers of any type. 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. 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 axis. The incorporation of suspension or other fairings in this bodywork or separately is prohibited. 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. A symmetrical oval tube is not considered an aerofoil. All cars must have at least two mirrors mounted so that the driver has visibility on both sides of the car (minimum surface area of each one: 55cm²). 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, the removable seat, or any side head support) down to 25mm lower than the lowest point of the cockpit opening. For cars built prior to 1/1/1999 this template is defined by dimensions J, K, L in appendix 'B'. (The insertion depth for the template is increased to 250mm for cars built after 1.1.1999.) See also Lateral Protection Structures. Be fitted with Bodywork with a driver's compartment isolated from the engine, wet batteries, gearbox, transmission shafts, brakes, road wheels, their operating linkages and attachments, petrol tanks, oil tanks, water header tanks and catch tanks. Have a Protective Bulkhead of non-inflammable material between the engine and the driver's compartment capable of preventing the passage of fluid or flame. Gaps must be sealed with GRP or Intumescent Putty. Magnesium is prohibited for bulkheads. Where a fuel tank constitutes part of the bulkhead, an additional bulkhead must be fitted. Have a complete Floor of adequate strength rigidly supported within the driver compartment. The maximum time for a driver to get in or out of the vehicle must not exceed 5 seconds. Have any Undertray provided with drainage holes to prevent accumulation of liquids.

5.7. ENGINE: Engines will be mounted upright, and aligned fore and aft in the chassis. The addition of any material be it metal, plastic, or composite etc. by any 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 or chassis is allowed, whilst other casting repairs may be allowed with prior written approval of the Eligibility Scrutineer responsible for the Formula. Balancing of reciprocating and rotating parts is permitted only by removal of metal from locations so provided by the manufacturer as detailed in the Appendix to these rules. Pump, fan and generator drive pulleys and their retention bolts, washers and belts are free. Mechanical tachometer drives may be fitted. 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 dowel. Only one hole or keyway per component is allowed. The use of thread locking compounds is permitted. Gaskets are free except for the cylinder head, intake and exhaust system gaskets which must be standard Ford manufacture for the engine. Any process of cleaning may be used on any component providing the surface finish, which must remain standard, is not affected. Forced induction is prohibited. Ram Air generated by the forward motion of the car is not considered as forced induction. The expression "Standard", "Standard production" or similar expression is deemed to imply that the part has been manufactured by Ford, or a Ford Motor Company Ltd. authorised sub contractor, for specific use on a specific model of the vehicle or engine. Consequently for these rules only parts manufactured specifically for the Ford 1800cc, 16 Valve engine (Zetec) in its 130PS form, may be used. Any machining marks on cast components resulting from manufacturing procedures will not cause disqualification. Only machining and component preparation carried out by Ford Motor Company Ltd., or by a Ford Motor Company Ltd. authorised sub-contractor is allowed unless otherwise specified. Any production deburring or imperfection removal during initial manufacture may not be modified or extended. The scrutineer's decision will be final (based on advice from Ford Manufacturing) if a dispute arises regarding the amount of tool, or other marks that are evident in any particular component.

The exterior surfaces 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 a transparent clear varnish, or similar. No rework may be carried out on any component unless specifically authorised by the regulations. The engine and associated parts must remain exactly as produced by the Ford Motor Company unless expressly detailed in these regulations. If the regulation allows a change, then that authorisation would allow the change to be carried out. However any statement defining minimum weight or dimensions does not grant permission for rework to obtain these minimum values, unless carried out in accordance with these regulations. Only Ford standard parts (parts manufactured by Ford or a Ford Motor Company authorised sub contractor) specifically for the 1800cc, 130PS version of the Zetec engine can be used in this series. No treatment that alters in any way the surface finish, hardness, or other property of the original production component is allowed. The only exception to this is any deposit derived from the lubrication and combustion processes naturally occurring during the running of the engine. Ford reserve the right to prohibit the use of specific components introduced as Production changes, if in the opinion of the Ford Motor Company Limited, they are deemed to have a performance advantage. If in doubt contact Ford Motorsport or the series scrutineer.

PERMITTED ENGINE: The only permitted engine is the Ford 1800cc, 16 Valve (Zetec) engine in its 130PS form (code RQC or RQB) with nominal bore 80.6mm and stroke 88.0mm. Production tolerances are permitted providing the total swept volume does not exceed 1800cc.

INDUCTION: Air Flow Meter: The Air Flow meter shall be mounted at the forward end of the intake pipe (opposite end of the pipe to the restrictor). The air intake pipe shall be such that it permits an airtight seal to the Restrictor and the Air Flow meter. The air flow meter shall also be mounted in such a manner that the sensor is positioned at the top of the airflow unit (see diagram, Appendix "E"). All the air entering the engine must pass through the prescribed filtering device prior to the air flow meter. No pipe extension or air horn is allowed in front of, or inside, the air filter unit. The air filter must be fitted to the air flow meter without any intermediary device. The induction air filter unit may be placed in a cold air chamber. The engine Induction air shall not pass through any form of tube or pipe, however manufactured, prior to the air filter element in the cold air chamber. The whole of the cold air chamber must fit inside the bodywork, with no body panels specifically designed to accommodate an extended cold air chamber. With the exception of the intake pipe, which may be shortened from its production length of 525mm (measured on the pipe centre line) up to a



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minimum length of 465mm in order to allow the freedom to position the Air Flow sensor as indicated in Appendix "E", unmodified Ford procured parts will be mandatory for the air restrictor, intake pipe (except as above) and the air filter.

INLET MANIFOLD: Standard Ford production Aluminium alloy inlet manifold for 130PS, 1800cc Zetec engine built to code RQB or RQC. The entrance to the passage for re-circulation of the blow-by gases in the intake manifold intermediate flange must be sealed with an airtight plug. It is not permissible to reshape the manifold internally, except very limited cleaning up of the individual ports for a maximum length of 30mm (measured along, and perpendicular to, the lower face of the manifold tract) just in front of the fuel injection manifold. The maximum port dimensions are quoted in Appendix "E". The manifold may be machined externally to clear the throttle mechanism.

THROTTLE BODY: The throttle Body housing shall not be modified internally in any way, other than for the fitting of the obligatory restrictor of 30.00mm maximum internal diameter (25mm for 1999 and 2000 cars) and as detailed (see note in Appendix "E"). The external throttle linkage, including the throttle return spring, may not be reworked. The throttle body must be modified to allow sealing of the restrictor to the unit but not at the expense of admitting air. No other modifications are permitted. No polishing or reprofiling is permitted.

RESTRICTOR: Except for the vibration-damping 'O' ring, the unmodified Ford procured restrictor, which is mandatory, (Appendix "E", Drg. No MS92FF 6683 AC indicating its required installation position). All the air for the engine must pass through this restrictor. Any means of reducing intake air temperature is prohibited. Any form of water injection is prohibited.

FUEL INJECTION AND ENGINE MANAGEMENT SYSTEM: All standard production engine sensors that have any influence whatsoever on the engine management system must be retained in the correct position and in working order. It is not permitted to reposition positional sensors. The main engine "Electronic Control Unit" (ECU) shall not be modified in any way. It is not permitted to change the strength or form of any of the sensor signals to, or the outputs from, the ECU or the ignition amplifier unit. The only ECU's allowed shall be 92FB 12A650 BC or BD; MS97FF 1 2A650 AA (or its current production derivative); plus any other ECU specifically defined and notified to competitors by the organisers. The Sporting Regulations for the event has the right to specify which, or all, of the ECU's may be used. For ECU's with Part number commencing 92FB, Pin number 1 on the Engine ECU is to be fed with a permanent 12 Volt feed from the car battery. This power feed shall not pass through the normal battery master switch, and to protect the car the line must be fitted with a 3 Amp rated fuse as close as possible to the battery. This feed must only feed pin1 and must have no other connections into the car-wiring loom. For ECU's with Part number commencing MS97FF, no permanent feed is required to the ECU. The ECU, and the electronics diagnostic connector, must be positioned in an accessible position, allowing scrutineers free access to it at all times. The engine high-pressure fuel pump(s), and any low-pressure pump(s) must be activated through a relay (Minimum 15 Amp capacity) triggered from the 'Fuel pump relay' pin on the main engine ECU. For the 92FB series ECU's this is pin 22, and for the MS97FF series ECU's this is pin 4. It is permissible to fit a crankshaft speed sensor if an engine speed signal is not taken from the engine management system for extra instrumentation. The engine ECU and/or ignition amplifier may be exchanged, or electronically interrogated at any time (including the time allocated for practice) upon the request of a designated official from the organising ASN.

EXHAUST SYSTEM: The exhaust manifold may not be modified, other than for fitting airtight plugs into the 4 bosses used for pulse air on the production car. The tubular exhaust pipes from the exhaust manifold to the catalyst may be reworked or replaced, except for the cast exhaust pipe flange which can only be modified as indicated in Appendix "E". Their lengths and internal diameters shall remain unaltered, as must the position of the exhaust gas sensor (Hego Sensor). The dimensions of the exhaust pipes are given in Appendix "E". The production catalyst must be retained and in working order at all times. After the catalyst, the exhaust system is free as regards length, but its diameter is controlled as per Appendix "E". Immediately prior to and after the catalyst, bosses must be fitted as detailed in Appendix "E", for the scrutineering of the catalyst. No rear catalyst testing boss is required if

the Exhaust tail pipe length is less than 300mm. Not have Exhaust Pipes extending more than 60cm beyond the rear wheel axis. At all times the car must conform with the noise requirements of the circuit, the series regulations, and any ASN specific vehicle regulations as regards the position of the exhaust outlet. The exhaust must exit to the rear of the car. The complete exhaust system up to the end of the final pipe shall remain airtight at all times. The end of the exhaust pipe must be cut square to the pipe centre line.

CYLINDER BLOCK: It is permitted, as means of repair, to replace cylinder bores with cast iron cylinder liners, in standard material and to standard dimensions. The liners must remain dry liners. The centre line of the cylinder bores must remain within Ford production tolerance. No offsetting of the cylinder bores is allowed. Localised machining of the cylinder block is permitted to allow fitting of the dry sump system. The crankcase breather may be modified, including removal, as long as no air and/or oil escape from this area other than through pipework to a catch tank. May be machined to maintain deck height.

CYLINDER HEAD INCLUDING VALVES AND VALVE GEAR: It is permitted, as means of repair, to replace damaged valve guides and valve seats by replacement valve guides and valve seat inserts all to standard dimensions. No work that removes, adds, replaces, or transfers material is allowed on the cylinder head with the following exceptions:- a) Simple cleaning which does not alter in any way the shape of the component. b) Minimal material removal from the head face to correct combustion chamber volume and/or reclaim head flatness. No internal rework of any combustion chamber is permitted. c) Fitting of replacement valve seat insert to a position that replicates the standard closed valve position. The cam cover assembly cannot be modified or replaced, except a removable bracket can be added to facilitate the mounting of the Air Flow Sensor unit. The oil filler cap shall be permanently sealed by lock wire or similar. All valve train components, other than simple shims under valve springs, may not be modified or replaced. The hydraulic tappets cannot be modified in any way. It is not permitted to "lock up" the hydraulics within the tappets. Valves must remain standard, no reprofiling or polishing is permitted. The original 45°(90° included) seat angle must be maintained. Distance apart at centres (inlet) 35.20+ 0.5mm. Distance apart at centres (exhaust) 35.20+ 0.5mm. Maximum face diameter (inlet) 32.13mm. Maximum face diameter (exhaust) 28.13mm. Overall length (inlet) 97.10 + 0.5mm. Overall length (exhaust) 96.70 + 0.5mm. Standard valve stem seals must be retained. Valve seat dimensions are shown in Appendix "E".

COMPRESSION RATIO: The maximum compression ratio will be controlled as follows: i) Minimum combustion volume in the cylinder head (with the race spark plug fitted) = 42.4cc. ii) Standard Ford cylinder head gasket with a minimum compressed thickness of 1.54mm, and a minimum diameter of cylinder aperture of 82.00 mm. iii) The piston will protrude a maximum of 0.65mm out of the cylinder block when the piston is at TDC. The cylinder block head face surface may be machined.

CAMSHAFT: The only permitted camshaft is the standard production camshaft (Part No's:- Inlet 928M6A266 K, or 958M6A266CA; & Exhaust 928M 6A269 GD, or 938M6A269 CB - or subsequent production camshafts conforming to the lift tables indicated below). The camshaft must remain entirely unmodified. It must be fully manufactured and ground by the Ford Motor Company. It is prohibited to grind from blanks, regrind or reprofile. Only the production surface finish is permitted. Shot peening, shot blasting or polishing are prohibited. The cam drive pulley may be keyed to the camshaft by woodruff key or dowel. The cam profile is defined by determination of lift (L minus I) against a flat-footed follower at various angles. Standard Ford tolerances apply to camshaft drawing below. The angular setting of the camshafts is free.

PISTONS: Pistons must be standard production pistons (Part No. 928M 6I IO EK or 958M 6I IO EL for reference only), unmodified in any way except for balancing and as detailed. All three piston rings must be fitted; piston rings must be standard production. The combustion chamber face of the piston cannot be modified, other than a machining cut at 90 degrees to the stroke in order to obtain correct piston to top of block dimensions. The minimum piston weight shall still be observed. The minimum weight of the connecting-rod and piston assembly shall be 1004gm. (Complete piston with rings and pin, and connecting-rod



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with bolts but excluding crankshaft bearings). Area for balancing defined in Appendix "E". The piston cooling oil squirt jets, and the oil feed lines to them, must be retained. It is permitted to strengthen the fixing of the nozzle to the body of the piston cooling jet provided the original function is maintained and unaltered.

CONNECTING RODS: Connecting rods must be standard (Ford Part No. 928M 6200 AIJ for reference). Machining is permitted to remove metal from the big-end cap to achieve balance only. (Area for balancing defined in Appendix "E"). Polishing is prohibited. The minimum weight of the connecting-rod and piston assembly shall be 1004gm. (Complete piston with rings and pin, and connecting-rod with bolts but excluding crankshaft bearings).

CRANKSHAFT: A standard crankshaft must be used. Spot machining (by radial drilling or milling) to achieve balance is permitted. (Area for balancing defined in Appendix "E"). Polishing is prohibited. Crankshaft minimum weight is 13.6Kg (including gearbox spigot bearing). Crankshaft journals must remain within Ford positional tolerances if a repair regrind is carried out. Crankshaft pulley and damper must be retained. Additional drives to oil pump, alternator etc. may use this pulley, or extra pulleys mounted in front of the crankshaft damper. It is not permitted to alter the number of bearings or fit bearings of less than standard production width. The crank journals may be reground for reclaim, as long as the minimum crank weight is respected.

Standard oversize and undersize bearings are permitted. A marker must be fitted which accurately aligns the crankshaft to the cylinder block at No.1 piston TDC. This marker must be visible and fully accessible to the scrutineers without removing any component other than external body panels, and without removing the engine from the car.

FLYWHEEL AND CLUTCH: The flywheel assembly must be a standard component. The unit may be reduced in weight according to Drawing MS92FF 6K390 AB (Appendix "E"). No other machining is allowed. To achieve minimum weight and balance, material may be removed from the area indicated on the drawing. For rectification the clutch mating face may be resurfaced provided the minimum weight is respected. It is permitted to use a similar pattern replacement clutch (i.e. conventional single diaphragm spring) and driven plate with shock absorber springs (four or more spring assemblies). Organic friction material only is permitted. It is permitted to alter the clutch spline to suit the gearbox. Racing clutches are prohibited. The position of the ignition timing mark on the flywheel relative to the crankshaft must remain within Ford design limits at all times. No part of these regulations allows this to be altered. Also the electronics regulations specifically ban any change that could in any way alter the ignition timing as defined by the standard calibration within the engine electronics. Flywheel bolts must remain standard production components and locating dowels are permitted. It is permitted to secure the starter ring to the flywheel. It is permitted to fit an inertia or pre-engaged starter motor ring gear to drawing No. MS92FF 6K390AB.) Flywheel minimum permitted weight = 7.25kg (excluding all flywheel and crankshaft mounting bolts). Flywheel and Clutch Cover minimum permitted weight = 11.4kg (clutch cover bolts not included).

LUBRICATION SYSTEM: The lubrication system, external to the engine, is free. Existing standard production oilways, linings or oil grooves may be enlarged, but no additional ones are permitted. Addition of material to facilitate an increase in oilway size is not permitted, with the exception that the oil lines to the standard oil pump may be modified by the addition of material to allow its use with the free concept dry sump system. Standard bearings (production or production reclaim sizes) must be retained and cannot be modified. Chamfering of the entry/exit holes of oilways is permitted. Dry sump is permitted, oil coolers are free. No part of the free concept dry sump equipment may protrude inside the engine cylinder block. The standard production baffle (windage tray) may be modified, removed, or replaced by another. Any replaced baffle shall have no other function and be no larger than the replaced production part. The internal engine pressure oil pump may be modified or removed. The oil pump is defined as the rotors and the immediate housing for these rotors. The front cover assembly, within which the pump is housed, is not free. No line containing lubricating oil may pass through the cockpit. All lubricating oil lines, which carry oil at a nominal pressure of 1 bar or above, must have a minimum burst pressure of 70 bar (1000psi) and a minimum operating temperature of 135°C (250°F). When flexible,

these lines must have threaded connectors and an outer braid resistant to abrasion and flame (will not sustain combustion). All other oil containing lines must be made from hose material and fittings that meet the minimum operating temperatures stated above, and have adequate burst strength.

COOLING SYSTEM: A liquid cooling system is mandatory. The standard production water pump must be retained, although through freedom on the drive to the pump, its rotational speed may be changed. The radiator and associated pipes are free. The water thermostat housing must be retained and unmodified, except unused car heater connections must be blanked off. It may however be repositioned by the fitment of an extension pipe from the original cylinder head location to the revised location, subject to it remaining the highest part of the water system. The thermostat is free. If the thermostat is removed then the water recirculation pipe should also be blanked off. However if one is fitted it must conform to the following:- The standard production thermostat, or another twin seat thermostat unit working in the same manner as the standard part, but which controls the hot engine water coolant temperature above 70°C only are permitted. The car water circulation concept must be retained, and NO water bypass pipes or air bleed pipes are allowed which interfere with the design principle of the production thermostat. See basic car race system in Appendix E. It is strongly recommended that the thermostat is retained when racing in cool conditions. The radiator, if housed in or incorporating a cool air scoop or deflector, must comply with bodywork regulations.

FUEL SYSTEM: A high-pressure fuel pump and fuel filter assembly (maximum volume 0.5 litre) must be mounted within the area defined by the chassis rails and not directly in the cockpit area. The maximum capacity of the fuel pump shall be 120 litres/hr. at a pressure of 3.1 bar. The fuel pressure in the engine fuel injector rail must remain in conformity with the Ford Motor Company workshop manual for 130PS version of engine at all times. Fuel Pressure: With an engine at correct operating temperature, and the engine idling, the pressure in the fuel rail shall be:

i) With manifold vacuum applied to pressure regulator, fuel pressure = 2.1 bar ± 0.2 bar.

ii) ii) With the manifold vacuum pipe NOT connected to the pressure regulator, fuel pressure = 2.7 bar ± 0.2 bar. It is permitted to fit a low-pressure fuel pump and fuel collector (maximum volume 1 litre) prior to the high-pressure fuel pump. This must be mounted within the area defined by the chassis rails and not directly in the cockpit area. All lines containing petroleum spirit must be fitted in such a way that any leakage cannot result in the accumulation of fluid in the cockpit. When flexible, all lines must have threaded connectors and an outer braid that is resistant to abrasion and flame. All fuel lines must have a minimum burst pressure of 41 bar at the maximum operating temperature of 135 degrees centigrade. To facilitate the repeated fitting of screwed connectors for the aluminium fuel rail it will be permitted to have short adaptor hoses (to the same specification) between the engine and chassis system. The production fuel pressure-measuring valve must be retained. Fuel cooling radiators are permitted, within safety regulations, but must be mounted within the main chassis frame. Fuel cooling may only employ air at ambient temperature as the cooling medium, and fan assistance is not allowed.

ELECTRICAL: Sparking plugs are free, provided they fit the engine without any modification to the cylinder head or the sparking plug and that the sparking plugs place the spark gap in the same position as the production sparking plug within the combustion chamber. The coil unit may be repositioned, but the existing HT leads to the sparking plugs must be retained without modification. It is prohibited to use any other method or component to trigger, distribute or time the ignition or injection. It is permitted to mount a simple indicating pointer to the engine to facilitate engine timing and camshaft position. A standard engine management-wiring loom is mandatory. However it may be reworked by recognised companies, and only by these companies, to make it a better fit for the race chassis. 100% new looms are not permitted. Any change must not alter the electrical characteristics of the loom or sensors in any way. To be classed as recognised for the rework of engine looms, the company must undertake electrical automotive wiring as a normal part of its business, and have all the relevant tools for dealing with the connectors. A Ford Motorsport loom



made specifically for this formula would be defined as a standard engine management loom, but in this case no rework is permitted, with the exception of replacing faulty connectors. A 12 Volt (nominal) alternator must be fitted. The alternator may be driven from either the engine or transmission. The minimum output of the alternator shall be 240 Watts, and the installation shall ensure that this output is available at all times whilst the car is circulating on the racetrack. Only high volume automotive alternators may be used.

ENGINE COVERS: The cam belt cover cannot be modified or deleted, except to allow the passage of a support, in which case the gap between the cover and the support shall not exceed 5mm.

ENGINE SEALING: A hole must be available in the bell housing to allow the clutch to be sealed to the flywheel without removal of the engine from the car. Tamper proof paint seals will be used for all cases when sealing of any component is required. The exhaust manifold and exhaust pipe containing the catalyst must be capable of sealing with wire seals. Scrutineers are empowered to undertake any form of verification procedure necessary and may order the removal of parts from the car, incurred costs to be borne by the competitor. The right is reserved for a competitor's vehicle to be sealed for later inspection and to be removed for examination. The competitor, or his agent, will be invited to witness this inspection and will be required to provide all the labour required to perform the vehicle or component strip. The scrutineer's job is to observe and report; it is the entrant's responsibility to present any component requested by the scrutineer for inspection.

5.8 SUSPENSION : Be fitted with Sprung Suspension between the wheels and the chassis. Suspension must be controlled to avoid fouling of wheels on chassis or bodywork. The following parts must be of Alloy Steel or other Ferrous material; wishbones, rockers, push and/or pull rods. All other stress bearing components must be metallic with no composite materials allowed. It is permitted to incorporate suspension-mounting points on the engine and transmission assembly. Active suspensions are prohibited, as is any system that allows control of the flexibility of the suspension springs, shock absorption and trim height when the car is moving. Anti-roll bars for front and/or rear suspension may be capable of manual, mechanical adjustment by the driver when seated in the car.

SHOCK ABSORBERS : The shock absorber casing is free. They can be ferrous or light alloy units and separate reservoirs for fluid and/or gas are permitted. The shock absorber casing is defined as the item that contains the piston, fluid/gas, and moving parts that control the damping action. Any form of active damping is prohibited. Any method of altering the damper performance by the driver whilst seated in the car is prohibited.

5.9 TRANSMISSIONS: The gearbox must contain not more than four forward gears and include an operable reverse gear, capable of being engaged by the driver whilst normally seated. The ratios are free. Rear wheel drive only is permitted. Final drive ratio is free. Torque biasing, limited slip and locked differentials are prohibited. Non-ferrous differential components prohibited. Gear change must be manual in operation, and no signal transmitted to, or connection may be made in any form between the gearbox, or any part of the gear change system, and any part of the engine or engine control systems (mechanical, electrical, or electronic). i) 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 are not permitted. ii) A gearbox change mechanism that only allows sequential selection of the gears is not permitted.

5.10 ELECTRICS:

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. A supplementary external source of energy temporarily connected to the car may be used to start the engine whilst in the pit area, but cannot be used whilst checking. Art. 1 3.2. Have any wet batteries in driver's compartment enclosed in a securely located leak-proof container. Have Batteries duly protected to exclude leakage of acid and to protect terminals from short-circuiting and producing sparks. Have the Battery Earth Lead, if not readily distinguishable, identified by a yellow marking. The battery must be capable of

demonstrating at least 5 engine starts without external recharge at any time during practice, the race, or in parc ferme.

5.11 BRAKES: Be fitted with brakes that are operative and capable of stopping the vehicle as required. Only brake discs made predominantly from Ferrous material are permitted. Calipers may be ferrous or aluminium alloy castings with a maximum of two working cylinders per calliper. Brake pad materials, including carbon metallic, are free. Be equipped with two independent brake circuits, so that, in event of failure of one system, braking is maintained on at least two wheels. Vehicles must have brakes on all wheels. Not to be fitted with an Anti-Lock braking system.

5.12 WHEELS/STEERING : The steering must consist of a mechanical link between the driver and the wheels. Rear wheel steering prohibited, otherwise free. Have a Steering Wheel with a continuous rim. No reflex curves are permitted in the basic shape of the outer rim of the steering wheel. Have Steering Movement controlled to avoid fouling of wheels on chassis or bodywork. 13-inch diameter wheels with a maximum rim width of 6 inch for the front and 7 inch for the rear are the only wheels permitted. The material of the complete wheel assembly (rim and mounting flange) shall be ferrous material or aluminium alloy. Magnesium alloy is not permitted. All road wheels, steel or aluminium (one or three piece) must be of substantial construction, and the decision of the event scrutineer as to their suitability will be final. All wheels must be retained onto the hub by a minimum of four equally spaced stud and nut (or bolt) fixing. The only tyres permitted are those listed in these regulations and are the ONLY tyres that are permitted on these wheels. Not be fitted with any Wheel Spacer exceeding 2.5cm in thickness or of less than hub diameter. Multiple or laminated spacers prohibited. Have all Hub Nave Plates and Wheel Embellishers removed. Have all Nuts securing Road Wheels of steel and in thread contact over a minimum length of 1.5 x bolt/stud diameters. Extended or composite wheel bolts/studs are prohibited.

5.13 TYRES:

Choice for slicks and wets are free, subject to appendix 6.1.

5.14 VEHICLE WEIGHT: Minimum weight of car, at any time during the competition = 450Kg. Minimum weight of car plus driver, at any time during the competition = **535Kg**. The 750 Motor Club reserves the right to amend the minimum weight of any vehicle.

5.15 FUEL SYSTEM: Tanks outside the chassis frame must comply with FIA - FT3 as a minimum specification. Inboard tanks, covered externally with a fireproof coating, are acceptable for events of less than 70km.

Protection must at all times comply with Art 4. A metal tank coated with GRP does not comply. Maximum capacity 41 litres unless carried in FIA - FT3 as a minimum specification. No fuel can be used which exceeds BS En 228: (Unleaded) or equivalent National specification when the event is held in that specific country. Event regulations are allowed to specify a single source fuel that meets the minimum standard of BS En 228, but does not exceed it. N.B. This is 95 Octane Unleaded and not Super Unleaded. At the end of practice and the race at least 3 litres of fuel from the tank of the competing car must be available to the scrutineers for analysis. Compliance with minimum weight for the car will be taken before the fuel is removed. Use Pump Fuel only, or as expressly defined in Sporting regulations (see definition). Be equipped with an effective method of stopping Fuel Supply operable by the driver when normally seated. Safety Fuel Cells The FIA approved standard for Safety Fuel Cells is FIA Spec. FT3. These fuel cells are only manufactured by authorised companies and bear the name of the company, specification, code and date of manufacture stencilled on each cell. No other cells are approved.

TANK FILLERS, VENTS, AND CAPS: Tank fillers and caps must not protrude beyond the bodywork or be situated within the driver/passenger compartment. The caps must have an efficient locking action to reduce the risk of opening during an accident and ensure closing after refuelling. Air vents must be at least 25cm to the rear of the cockpit.

15.16 SILENCING: A maximum noise level of 108 dB(A), measured at 0.5m from the tail pipe exit, and at 45° to the pipe centre line. The



engine speed for measurement purposes will be 5100 rpm. The point at which the sound measurement is taken shall be at a distance of 50cm from the exhaust pipe exit, at an angle of 45° to the centre -line of the pipe. The microphone shall be placed at a height of 0.5 ± 0.1 m above the ground.

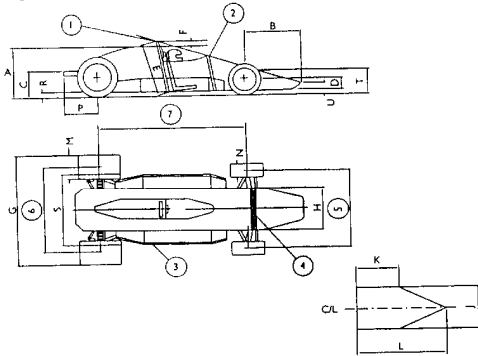
15.17 NUMBERS & DECALS: Race numbers must be displayed on each side of the vehicle alongside the cockpit/driver and as far forward on the front of the vehicle as possible. 750 Motor Club decals must be affixed prominently near all number backgrounds. Championship Sponsor's decals (where applicable) must be affixed in or near the positions detailed on the diagram supplied with those decals. Failure to comply will render the vehicle and driver ineligible to race. Suppliers: Club and sponsors stickers may be collected at the first race meeting in which the vehicle is entered.

MISCELLANEOUS: Use of titanium, high strength composites, and similar materials is prohibited. Electronic dashboards and data logging equipment are allowed subject to them having no influence whatsoever on the behaviour of the car during competition. All information obtained from any data logging or storage equipment shall be made freely available to the Scrutineer on request. 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 cases of dispute on engines, reference will be made to Ford Motor Company Limited drawings. All cars must:- Be of Sound Construction and Mechanical Condition and be well maintained. Have positive Fastenings for all hinged or detachable parts of the bodywork. Have no Temporary Parts incorporated in their construction. Be prohibited from carrying Cameras unless authorised by the Chief Scrutineer and Event Organiser. Not have Skirts, bridging devices or any form of aerodynamic device between the chassis and the ground/track. Any specific part of the car influencing its aerodynamic performance must: i) comply with rules relating to coachwork. ii) be rigidly secured to the entirely sprung part of the vehicle. iii) remain immobile in relation to the vehicle. Not carry or pass any liquids in or through any tubes comprising part of the chassis structure, or safety roll-over bar. Be presented at Scrutineering with all Steering Mechanism, Suspension Linkages and Flexible Brake Lines in clean condition.

Appendices: The attached drawings and diagrams are those referred to within the body of these regulations.

APPENDIX B

Table of Single Seater dimensions



- 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 – 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	7 inch
(N) Maximum front wheel width	6 inch
(P) Maximum exhaust length from rear wheel axis	60
(R) Minimum ground clearance	4
(S) Maximum width including lateral protection structure	130
(T) The maximum height of any part wider than 110cm ahead of the front wheels is not to exceed the front rim height	
(U) Maximum height of nose (see Art. 4.13 for implementation date)	200
Minimum wheelbase	200
Minimum track	120
Wheel diameters	13 inch

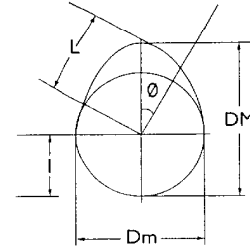
ALL dimensions in cm unless specifically stated

INTAKE CAM

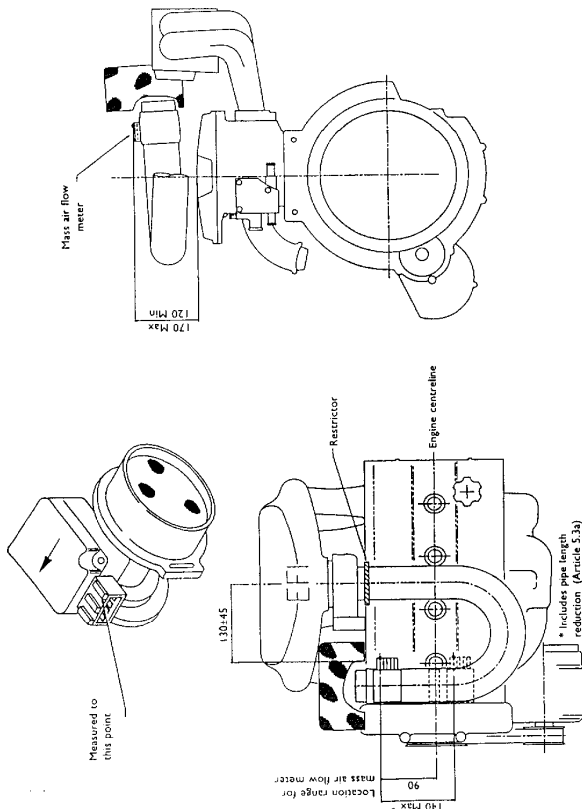
DM (max)	45.31 mm		45.41 mm	
Dm	36.00mm		36.00mm	
	Primary	Close	Secondary	Close
	Open		Open	
Lift at 0°	9.31 mm	9.31 mm	9.41 mm	9.41 mm
Lift at 5°	9.22mm	9.22mm	9.32mm	9.32mm
Lift at 10°	8.94mm	8.94mm	9.05mm	9.05mm
Lift at 15°	8.48mm	8.48mm	8.61mm	8.61mm
Lift at 20°	7.85mm	7.85mm	7.99mm	7.99mm
Lift at 25°	7.05mm	7.06mm	7.22mm	7.23mm
Lift at 30°	6.11 mm	6.12mm	6.30mm	6.31 mm
Lift at 35°	5.06mm	5.07mm	5.26mm	5.27mm
Lift at 40°	3.95mm	3.98mm	4.16mm	4.18mm
Lift at 45°	2.85mm	2.88mm	3.06mm	3.08mm
Lift at 50°	1.75mm	1.79mm	1.95mm	1.99mm
Lift at 60°	0.17mm	0.22mm	0.24mm	0.29mm
Lift at 70°	0.00mm	0.04mm	0.01 mm	0.05mm

EXHAUST CAM

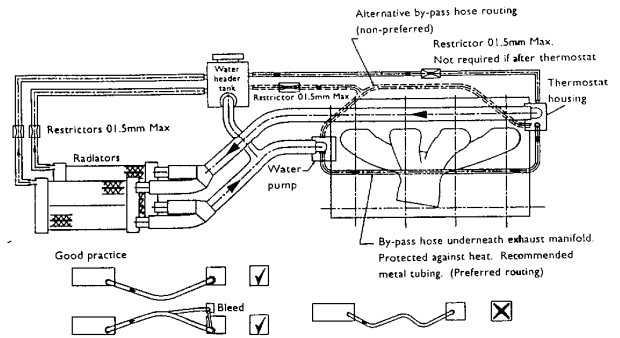
DM (max)	44.61 mm		44.71 mm	
Dm	36.00mm		36.00mm	
	Primary	Close	Secondary	Close
	Open		Open	
Lift at 0°	8.61 mm	8.61 mm	8.70mm	8.70mm
Lift at 5°	8.52mm	8.52mm	8.62mm	8.62mm
Lift at 10°	8.26mm	8.26mm	8.36mm	8.36mm
Lift at 15°	7.83mm	7.83mm	7.95mm	7.95mm
Lift at 20°	7.23mm	7.25mm	7.37mm	7.37mm
Lift at 25°	6.51 mm	6.51 mm	6.65mm	6.66mm
Lift at 30°	5.65mm	5.65mm	5.81 mm	5.82mm
Lift at 35°	4.67mm	4.68mm	4.85mm	4.86mm
Lift at 40°	3.62mm	3.64mm	3.81 mm	3.83mm
Lift at 45°	2.52mm	2.55mm	2.72mm	2.75mm
Lift at 50°	1.46mm	1.50mm	1.65mm	1.69mm
Lift at 60°	0.16mm	0.21mm	0.22mm	0.27mm
Lift at 70°	0.11 mm	0.06mm	0.02mm	0.07mm



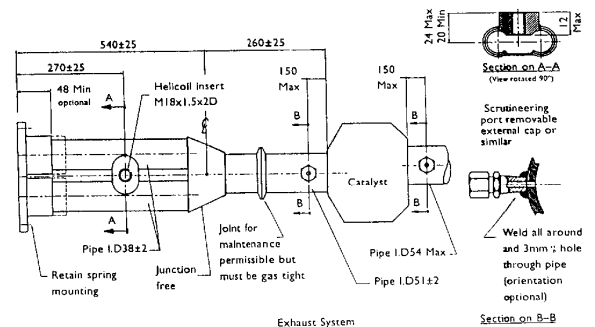
6. Air restrictor position



7. Water cooling system layout



8. Exhaust system basic dimensions

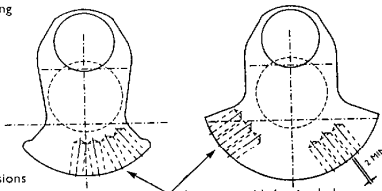


Appendix E

1. Crank balance

Revised drawings on the following pages for:

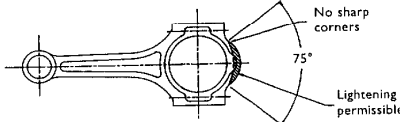
1. Crank balance
2. Rod balance
3. Piston balance
4. Flywheel weight reduction and balance
5. Valve seat rework
6. Air restrictor position
7. Water cooling system layout
8. Exhaust system basic dimensions



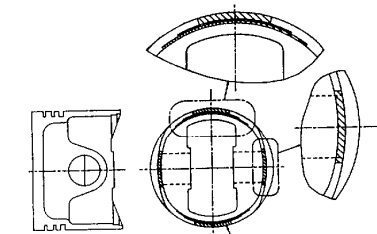
Lighting and balancing holes permissible in all webs 30 max depth. Radially machined. Must not break through.

Minimum weight of crankshaft must be respected. Excessive drilling will be deemed to be lightening.

CRANKSHAFT



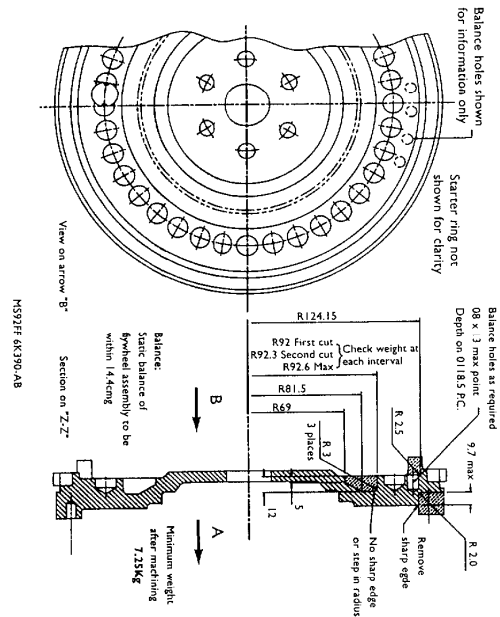
2. Rod balance



3. Piston balance

Balance piston by removing material from shaded areas only

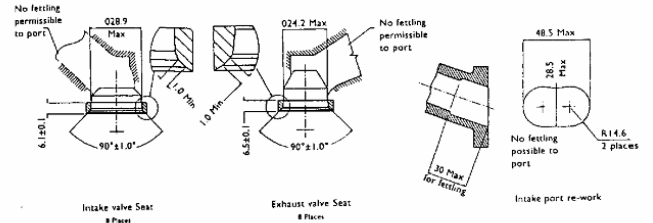
4. Flywheel weight reduction and balance



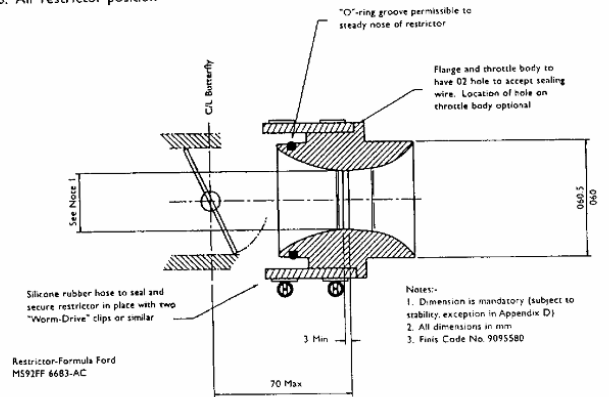
Flywheel wight reduction and balance

5. Valve seat and intake port rework

All valve seat dimensions to be as production



6. Air restrictor position



- Notes:-
1. Dimension is mandatory (subject to stability, exception in Appendix D)
 2. All dimensions in mm
 3. Fais Code No. 9095580

View on arrow "A"
MS92FF 6K390-AB

Restrictor-Formula Ford
MS92FF 6683-AC