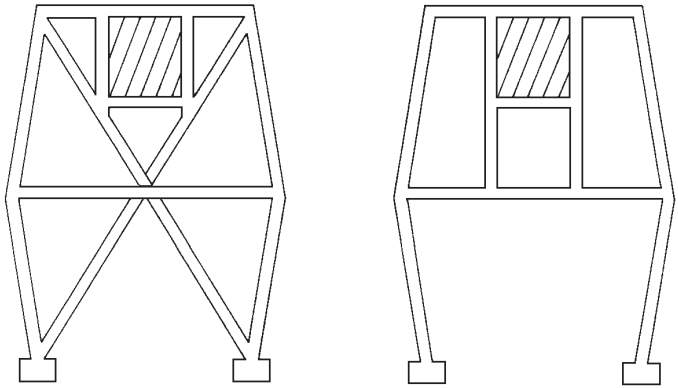
CHAPTER 12

FORMULA TWO STOCK CAR SPECIFICATION

201. Definition:
A Formula Two stock car shall be a front engined, open wheeled, single seat car with a steel space framed chassis. The centreline of the car will be determined as the centre of the two main chassis rails (when viewed from above) and the engine, gearbox, seat and rear axle will be fitted along the centreline of the car within their quoted tolerances (given below). With the chassis placed on a level surface and viewed from the front or rear the chassis floor, main rails, bumpers, nerf rails and roof plate must all be in the same horizontal plane. The engine and seat must then be 90˚ to this in an upright position. The distance between the chassis and undercarriage must be equal on both sides. **When viewed from the side, the chassis rails must be above the centre line of the wheels over the entire length**. It is the driver's responsibility to make sure that his/her car complies with this rule book at all times.

202. Type and Construction:
Chassis and cab. All cars must have a steel chassis of welded construction. No brazing is allowed on the chassis or rollcage. The chassis rails must be constructed of RHS with a minimum wall thickness of 3mm. They may be of a minimum size of 40 mm x 40 mm or a maximum size of 70 mm x 70 mm. The chassis shall have an integral rollcage, welded to the main rails, consisting of a minimum of two rollbars, one over the screen pillars and one over the driver's head, joined together at the top by two longitudinal bars. The main uprights and longitudinal bars together with the rollbar over the screen pillars shall be constructed of 30 x 30mm RHS or 30mm round tube minimum,3mm wall minimum. The remainder of the cage must be constructed of 25 x 25 RHS or 25mm round tube minimum, 2.5mm wall minimum, and must consist of side bars which must be welded to the rollcage pillars at approximately elbow height and running between the front and rear pillars. The cab side bars must be at equal heights from the chassis rails. These bars must measure a minimum of 750mm wide at the driver's seat and must be joined to the main chassis rail by two vertical tubes of 25 x 2.5mm minimum welded at both ends equally spaced between the front and rear rollcage pillars. It is further recommended that the steering wheel is well inside the front rollcage pillars, and that there is 100mm clearance between the driver's legs and the steering support cross-member, when seated in driving position. A sheet steel plate of not less than 3mm thick must be welded to the top of the rollcage to cover the whole roof area and be welded on all four sides of the cage. The rear panel of the car must be plated with 2mm plate, welded on all sides, and it is strongly recommended that the nearside of the car is panelled with 2mm plate, welded on all sides. The roof and rear panel plates may not be drilled or lightened in any way with the exception

DIAGRAM 6



of the fitting of roof fin or superstar lights to the roof plate. At least one hole of 6mm dia. must be drilled in the chassis rail and roof plate to enable the scrutineer to check the gauge of metal used.

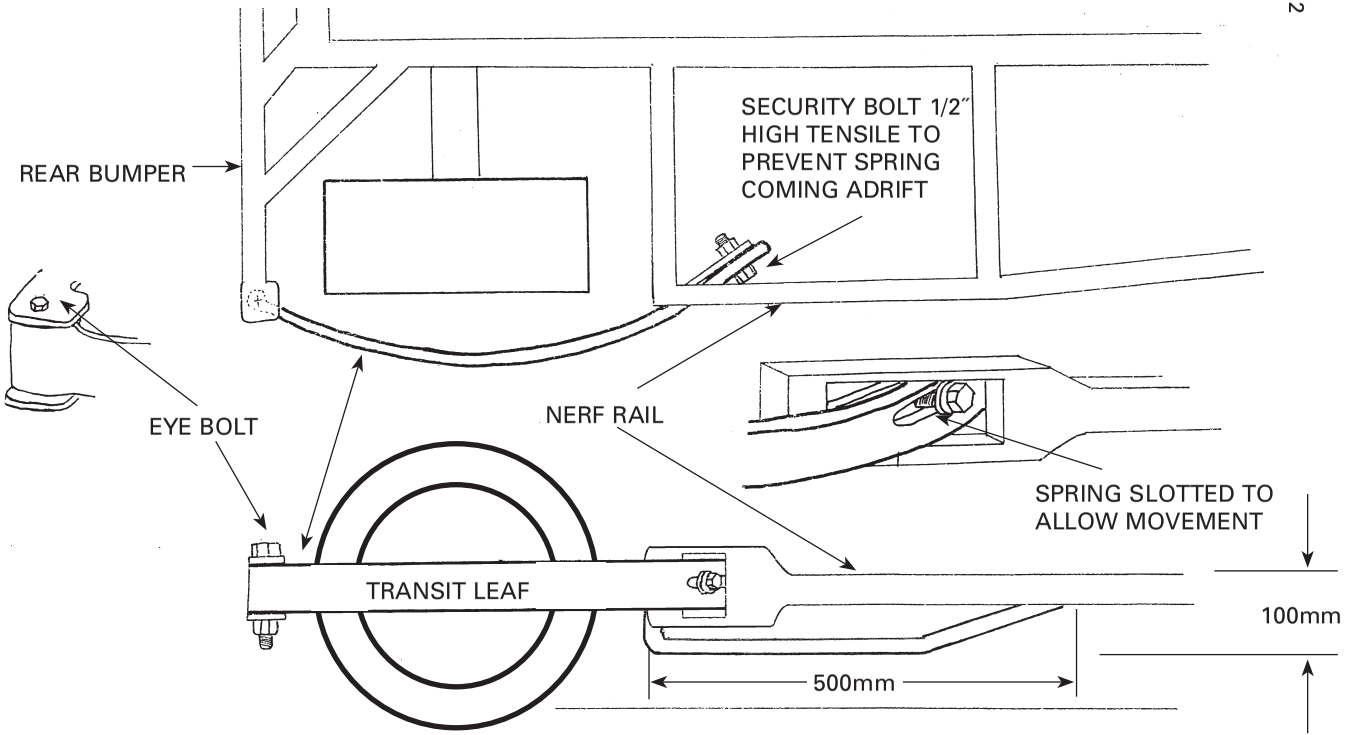
Bodywork. All rollcages must be enclosed with metal panelwork, leaving equal apertures on either side for driver entry/exit, and a rear window to allow scrutineer access. Bonnets must be made principally of metal, fully enclose the engine compartment and be securely fitted.

Ballast. No solid steel bar or plate may be used over 6mm in thickness in the construction of the chassis, bumpers or nerf rails that may be construed as ballast. The lamination of steel plates in the construction of the nerf rail which can be construed as ballast is prohibited. A single plate only of no more than 6mm in thickness is allowed to be used as protection for the fuel tank and battery. Bolt on ballast may not be used. No tubular bars or box section tube are to be filled with anything that will increase the weight of that tube or box section.

203. Weight:

All cars must weigh between **640kg** and **700kg** at all times. At pre-race weighing, cars must be taken to the scales in racing condition, complete with oil, water, battery and petrol etc. **Maximum inside weight to be 53% at any time. This will be checked on a random basis. A car that registers over 53% up to 54% will lose the driver race place and prize money, over 54% will be loaded for the day**. A car being weighed for the first time in the season will be allowed to race if 5kg over or under the limits, but in all other cases, cars outside the limits will not be permitted to race, and cannot race again until the weight is correct. Cars may be modified and reweighed on the day at the discretion of the weighing officer, and the Scrutineer. At any post race weighing, cars are not permitted to be changed in any way. The only exception to this is at shale tracks where excess shale can be removed, under supervision, and reweighed if the car is found outside the limits at its first weighing. If a car is found to be outside the limits set by these rules the driver will be dealt with harshly.

DIAGRAM 2


REAR BUMPER
SECURITY BOLT 1/2″
HIGH TENSILE TO
PREVENT SPRING
COMING ADRIFT
EYE BOLT
NERF RAIL
SPRING SLOTTED TO
ALLOW MOVEMENT
TRANSIT LEAF
100mm
500mm

204. Bumpers and Armouring:
Front and rear bumpers must be steel and have a flat surface 100 mm deep and be 30mm thick maximum, with both the bumpers permitted to extend out to the outside of the tyre on the offside, and to the centre of the tyre +/- 25mm on the nearside when the vehicle is fitted with its normal dry running wheels. Bumpers must be 400mm from the ground to the centreline, and smooth on all extremities. The front bumper must be less than 250mm from the front tyres, and the rear bumper less than 300mm from the rear tyres. Hoops (as shown in Diagram 1) must be welded to the front bumper, with 2 rear support struts on the lower hoop, to stop the car riding up over other cars. Nerf rails must be fitted on both sides of the car, and should be the same height as the bumpers. **The outer edge of the nerf rails must be made of steel of a minimum thickness of 2.5mm and a minimum size of 25mm od or square. They must be of symmetrical appearance on both sides of the car when viewed from above. Any support struts may be of lighter material.** They must not extend past the wheel when the vehicle is fitted with its normal dry running wheels by more than 2" (50mm) giving a possible maximum car width (excluding wheel guard) of 72" in total. The depth of the nerf rail must be 100mm minimum for a minimum of 500mm length from the rearmost part of the rail forwards. **(see diagram 2)** A steel wheelguard similar in dimension to the Transit or Escort rear spring must be fitted on the offside rear wheel **(see diagram 2)**, and the offside rear bumper may project **a** maximum of 50mm beyond the outer edge of the tyre to allow **for** this. The wheelguard must have bolt fixings at both ends to prevent a broken wheelguard falling off the car. A similar wheelguard is optional on the nearside rear wheel. Bolt on bumpers must have a secondary fixing to prevent the bumper leaving the car should the mounting bolts break. This fixing must comprise of at least two 8mm dia chains, and must wrap around the chassis.

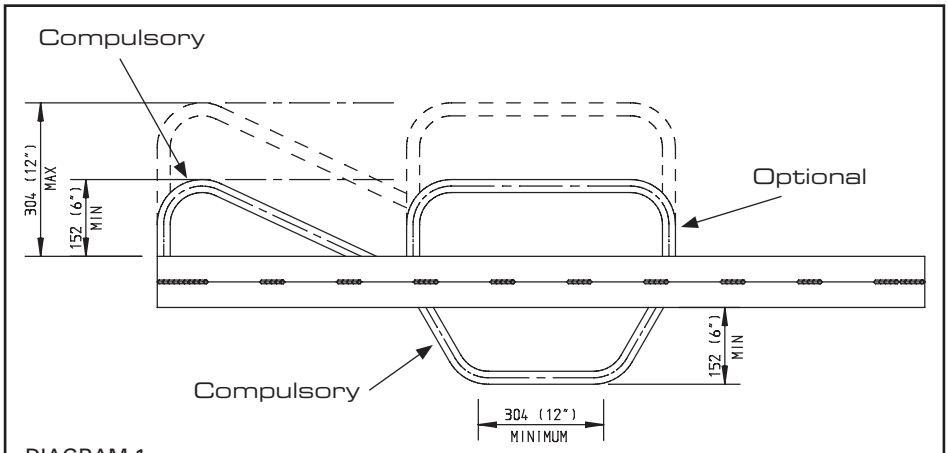
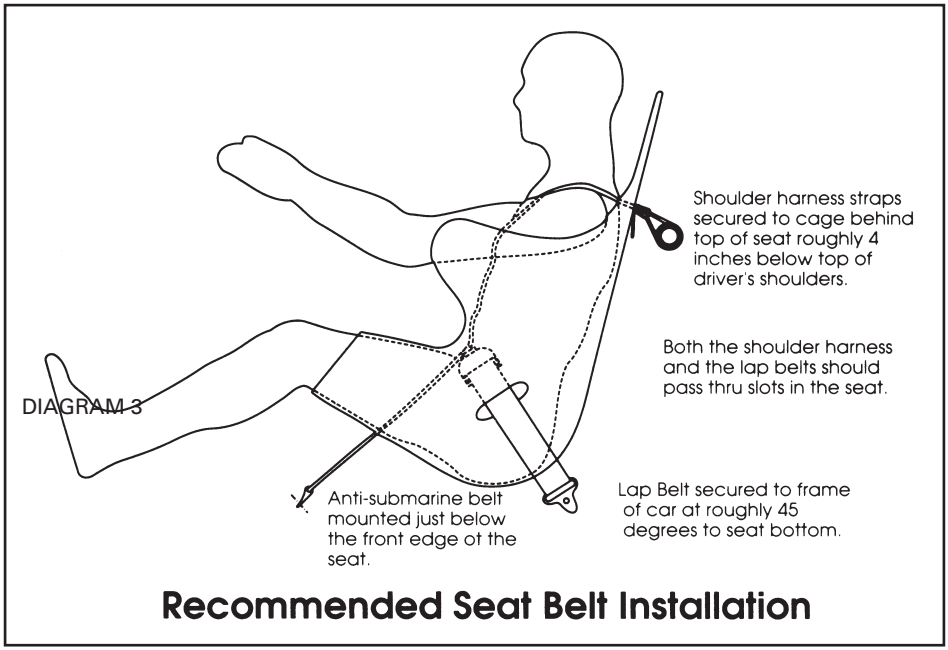


DIAGRAM 1

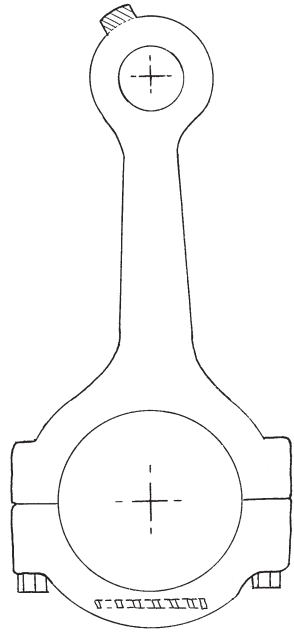
205. Safety Harness:
A nylon quick release harness is compulsory and must have a minimum of two separate shoulder straps, two separate lap straps, and a sub belt, and must be fixed to the chassis by bolts of no less than 8mm high tensile steel, it is also allowed to use weld-on purpose made harness ringed eyelets. It is important to support the shoulder straps at shoulder level (see diagram 3). All anchorage points must be in an accessible place for scrutineering. The harness must be worn at all times when racing or practising.



Recommended Seat Belt Installation

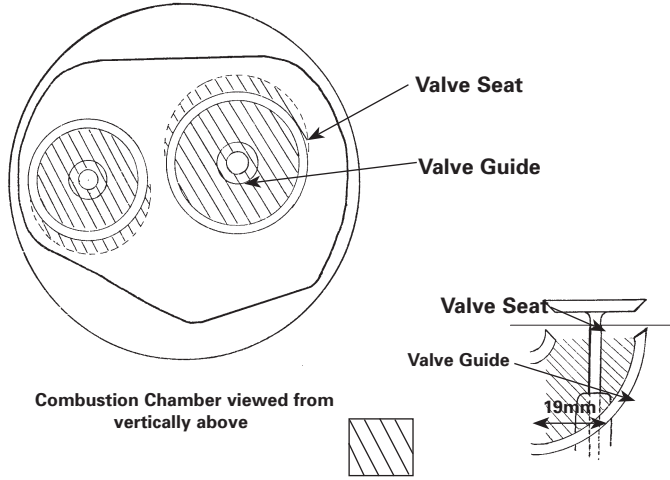
206. Engines:
Telemetry devices that are used to record engine data to enhance performance are not permitted. Any push-rod or side-valve water-cooled engine of English manufacture may be used, up to an original capacity of 1300 c.c. in accordance with the following guide lines:
The Ford 1100 c.c. engine may be bored to 85 mm. plus .030″.
The Ford 1200 c.c. engine may be bored to accept Lotus Twin Cam pistons at standard size (i.e. .0625″ over original size).
The Ford 1300 c.c. engine may be bored to .060″ over the manufacturer's original size.
All pushrod engines are restricted to 34mm chokes in the carburettors.
All other makes of engine may be bored to 1300 c.c. plus .060″.
Turbocharging or supercharging or fuel injection is not permitted.

DIAGRAM 4



Area where fettling is permitted

DIAGRAM 5



The cylinder head and block must be of the same manufacture. The original stroke may not be changed. All engines must be of pre-1975 design or manufacture.
Ford 1500-1600 blocks are NOT permitted.
The centreline of the engine shall be the centreline of the crankshaft measured at the pulley securing bolt, with the engine fitted centrally in the chassis with a tolerance either way of 25mm. All engines must be fitted in an upright position as originally fitted to the vehicle of origin.
Engines must be fitted with a catch tank of 1 litre minimum capacity connected to the engine breather system.
A conventional single coil and distributor must be used with no electronic advance/ retard or flywheel pickup systems allowed.
The following engine specifications may be used as an alternative:

SPECIFICATION OF FORD 2 LITRE ENGINE

1) The Ford 2 litre SOHC NE type engine must be used. This has a nominal bore of 90.84mm and stroke of 76.95mm.

2) UNLESS OTHERWISE STATED, all parts appertaining to the engine must be standard Ford 2ltr sohc items fitted as fitted to the original engine type and production tolerances are allowed. The removal or addition of any material to the combustion chamber or ports is not allowed unless specified below. The engine may be painted inside and outside except in the aforementioned areas and internal painting does not change the surface from matt to smooth.

3) **Block: Blocks may be overbored to 1.5mm or 60 thou for 2010)** or sleeved back to 90.84mm and rebored to 1mm oversize. Main bearing housings may be line bored. Blocks may be skimmed, but pistons must not protrude above the face of the block at TDC. Oil seals and core plugs may be secured using grub screws or similar.

4) Cranks: A standard crankshaft must be used. Spot machining to achieve balance is permitted. Tuftriding, shot peening and shot blasting is permitted but polishing is NOT permitted. Crankshaft minimum weight is 28lbs (12.7kg). It is not permitted to alter the number of bearings or fit bearing of less than minimum width. Oversize and undersize bearings of standard or heavy duty material are permitted. Cross Drilled Crankshafts are not permitted.

5) Con Rods: Spot machining is permitted to achieve balance using the pad on the big end cap only, but the bobweight on the small end may be removed, and high tensile bolts fitted (**see diagram 4**). Tuftriding, shotblasting and shot peening is permitted but polishing is NOT permitted.

6) Pistons: Pistons must be of any Ford production type (not Powermax or forged) and unmodified except for balancing as detailed. All three rings must be fitted and be of standard type. To achieve balance, material may be removed from the inner surfaces at any location. To allow the resurfacing of cylinder blocks, piston crowns may be machined and at least one piston must retain its original manufacturer's markings.

7) Cylinder Head: The Head face may be skimmed. Ports and chambers must be as originally cast by Ford. No fettling is permitted except in the area between the

valve seat and valve guide (**see diagram 5**). It is permitted to use three angle valve seats and valve seat inserts may be used to repair damaged heads, but these must occupy the exact position of the original seat. No addition of metal or material to ports or chambers is permitted. Valves must be of a standard type with head diameters IN 42 mm +- 0.2 mm EX 36 mm +- 0.2 mm, and no lightening is permitted. Valve guides may be replaced but must occupy their normal positions. Only eight valve springs per engine are permitted, spring seats may be machined and shims may be used to achieve correct fitted length. **Steel valve spring caps my be used.** Camshaft centre main bearing caps may be strapped.

8) Camshaft: Camshaft profile is free provided no other parts of the engine have to be machined to allow fitting. Ford pattern cam followers of any manufacturer of the slipper type, made of steel or iron are permitted, including those produced with hardened inserts. No roller or alloy followers are permitted. Standard camshafts bearings must be used, but centre drilling is allowed to improve lubrication. Replacement ball studs must remain as standard construction and made of ferrous material but 3 per engine may be longer than the standard 1.81"., Standard 2 litre cam belts must be used. Camshaft cover is free, but may not incorporate any water passages. A vernier timing wheel is permitted.

9) Gaskets: Any standard non competition head gasket may be used. Carburettor and inlet manifold gaskets must be original type but all other gaskets are free.

10) Carburettor: Only the standard Weber 32/36 DGV or DGAV carburettor may be used. No polishing or reprofiling is allowed. No modifications to the carburettor body or original design. Main jets, primary and secondary jets, auxiliary venturi and emulsion tubes may be changed. Accelerator pump jets may be changed but must face downwards towards the butterflies. Chokes may be modified to open together, and replacement spindles may be fitted with standard screws. Cold starting devices may be removed with retaining lugs and subsequent holes blanked off. Air and fuel galleries may not be enlarged or modified, and fuel may enter on either side. Floats may not be modified or weighted, and must control the fuel flow. Needle valves may not be larger than 250, and not enlarged or modified. The power valve must be fitted in the base of the fuel bowl, but may be sealed off, and the diaphragm may be removed. No trumpets are allowed. It is permitted to use a grub screw or similar device to fix the auxiliary venturi to the carburettor body. Top end enrichment devices may not be blanked off or modified. It is permitted to fit a strap to support the inlet manifold, and it is permitted to make welding repairs to cracked manifolds, but no machining to the manifold is permitted. A secondary fixing must be used on the fuel pipe connection to the carburettor.

11) Exhaust: Exhaust manifold and system are free but silencers are compulsory (see Rule 220).

12) Lubrication: The original steel sump must be used, and may be baffled and/or enlarged, or the RS2000 alloy sump may be used in standard form. Dry sumps are not allowed. Oil pickup pipes may be modified but must terminate in the sump. Compact oil filters may be used and a sandwich plate to fit an oil cooler, but remote filters are not permitted. All oil galleries must be unmodified.

13) Flywheel and clutch: Must be standard 2 litre components, but flywheel may be machined down to the total minimum weight of 12.31kg including cover, driven plate and all mounting bolts. Drivers are reminded that 1600cc clutch components are not permitted. The ORCi approved steel flywheel may be used as an alternative.
14) Distributor: Standard Motorcraft or Bosch distributors must be used but modifications may be made to remove vacuum advance parts, fit competition parts or electronic ignition, but no electronic advance/retard or flywheel/crankshaft pickup systems are allowed.
15) Fuel Pump: Any fuel pump may be used.
16) Water Pump: The only modification permitted to the water pump is blocking off the heater hose outlet and replacing the drive belt and pulley with a competition type. Electric water pumps are not permitted.
17) Engine Sealing: To assist scrutineering procedures your racing engine may require sealing at a race meeting. Engines therefore must be pre-drilled to accept the wire seals in the following places: Above spark plug No 1 drill 3mm hole through the camshaft cover and the head, and one on the other side so that the camshaft cover may be fixed to the head. The sump will be sealed by removing one bolt on each side, the gearbox to the engine by removing two bellhousing bolts, and the carburettor will be sealed to the inlet manifold and cylinder head.

1.8 MI4 DURATEC ENGINE REGULATIONS

The Ford Duratec 1.8 Litre Duratec engine may be used (Engine Type 1.8L (MI4)
This engine has a nominal bore of 83mm and stroke of 83.10mm
Unless otherwise stated all parts appertaining must be standard Ford Duratec as used in the 110PS and 125PS 1.8 Litre engines.

1) Blocks: Blocks may be re-bored to accept production type (not forged) pistons, up to 1mm oversize. Blocks may be re sleeved to repair damaged bores but must remain within the 84.10mm maximum bore diameter. Main bearing housings may be align bored to reclaim damaged housings. Block decks may be surfaced but pistons must not protrude above the block deck at TDC. Cap screws or similar may be used as a secondary fixing for oil seals.
2) Crankshaft: Only the standard 1.8 litre Duratec crankshafts may be used, this has a nominal weight of 13.6 KG. Spot machining, drilling or localised grinding is allowed to achieve balance only. It is not permitted to remove material to achieve anything other than balance or journal refurbishment. Tuftriding, shot peening or shot blasting is permitted but polishing is not. It is not permitted to alter the number of bearings or bearing width. Oversize and undersize bearings of standard or heavy duty material are permitted but these must be within the standard range available for engine reconditioning. Modified oil ways or cross drilling is not permitted. It is permitted to key the timing gear and front pulley to the crankshaft and position for phasing is free.
3) Connecting Rods: Spot machining of the big end cap only is permitted to achieve balance, no other part of the connecting rod may be altered. Shot peening

or shot blasting is permitted but polishing is not. Heavy duty rod bolts may be fitted but the original thread size must remain unchanged.

4) Pistons: Pistons must be the standard production type (not forged / racing type) and be of a type freely available for engine remanufacture. The piston must achieve a maximum nominal compression ratio of 10.8 : 1 in an otherwise standard engine. All three piston rings must be fitted and be of the standard type. To achieve balance material may be removed from the inner surfaces at any location. To equalise piston heights the piston crown squish band may be machined but at least one piston must retain its original manufacturer's markings. No other machining is allowed including machining to increase valve to piston clearance.

5) Cylinder Head: The head face may be surfaced. The front engine timing cover may be machined to achieve a level gasket surface for the cam cover. Ports and chambers must be left as originally finished by the manufacturer with no addition or removal of material permitted. It is permitted to use 3 angle valve seats and valve seat inserts may be replaced to repair damaged heads but these must occupy the same position with the same internal diameter as the original. Valves must be of the standard type with head diameters of: Inlet 32.5mm Exhaust 28.0mm. Valve stem lengths may be shortened by up to 0.5mm but the collet grove location must remain unchanged . No lightening or reprofiling of the valves is permitted. Valve guides may be replaced but must occupy their original position. Thin wall bronze repair sleeves may be used to reclaim worn guides but no "full" bronze guides are allowed. Single valve springs only (not duplex) of any manufacture may be used but the original valve spring cap and collets must be retained. No machining of the cylinder head is allowed in the valve spring platform area to increase the spring installed height but shims may be added to reduce the installed height. The original Duratec valve stem seal / spring platform type must be retained. Injector apertures may be plugged using threaded or interference fit plugs.

6) Camshaft & Followers: Camshaft profile is free provided no other part of the engine has to be machined to allow fitting. The original mechanical bucket type follower must be retained but shims may be added to the valve stem tip as an alternative method of tappet adjustment. Standard cam bearing diameters must be retained. Vernier timing wheels may be fitted and cams with special flanges to achieve vernier adjustment are permitted.

The standard hydraulic timing chain tensioner may be modified to provide a fixed means of timing chain adjustment

7) Gaskets And Seals: Any standard non competition head gasket may be used. Inlet manifold to head seal may be by a gasket of maximum thickness 1mm or by use of RTV sealer or similar.

8) Carburettor: Only a standard Weber 32/36 DGV or DGAV carburettor may be used. Venturis must be standard 26/27mm diameters with no polishing or reprofiling allowed. No modifications to the original carburettor body or design are allowed. Idle/progression jets, Main jets, Air correction jets, emulsion tubes and pump jets may be changed. Auxiliary venturis may be changed but no reprofiling is allowed. Throttle plates may be modified to open together, and replacement unmodified

spindles may be used from the DGAS carburettor. Standard type butterfly retaining screws must be used. Cold start devices may be removed with subsequent holes blanked off. Air and fuel galleries may not be enlarged or modified, and fuel may enter the carburettor on either side. Floats may not be modified or weighted and must control the fuel flow. Needle valves may not be larger than 250 and not enlarged or modified. The power valve fitted to the base of the fuel bowl may be sealed off and its actuating diaphragm / mechanism removed. No trumpets are allowed. It is permitted to use a grub screw or similar device to secure the auxiliary venturis within the carburettor body but the venturis subsequently must be easily removable for scrutineering. The top end enrichment bleed from the fuel bowl may not be sealed off or modified. A secondary fixing must be used on the fuel pipe connection to the carburettor.

9) Inlet manifold: Only the BRISCA F2 control manifold may be used. It is not permitted to alter the inlet manifold in any way other than as stipulated below.

It is permitted to fit a steel support to stabilise the inlet manifold but any fastening must not penetrate the manifold runner or plenum. Cracked manifolds may be repaired by welding but subsequent internal finishing must be consistent with the original and not be deemed to have affected manifold performance.

A BRISCA F2 Control restrictor plate must be fitted between the carburettor gasket plate and inlet manifold. The restrictor plate size has an influence on engine performance; as such it may be a necessary for the board to change its size requirement in the future. The Duratec engine is intended to compete equally with the current 2.0L OHC engine with no significant advantage to either engine.

10) Exhaust System: The exhaust manifold and system are free but silencers are compulsory (see rule 220)

11) Lubrication: The original aluminium sump may be modified, baffled or replaced with a bespoke steel sump. Oil pumps must remain as standard but relief valve pressure may be altered. Oil pickup pipes may be modified but must terminate in the sump. No additional scavenge pumps etc are allowed. An adaptor plate / sandwich plate may be used to fit a remote oil cooler and / or remote oil filter. All oil galleries must be unmodified.

12) Flywheel & Clutch: The standard dual mass flywheel may be replaced with a one piece item made of iron or steel. Integral ring gears are allowed but all ring gears must be of the standard 1.8 Duratec diameter. Excluding the ring gear, the flywheel may not be thicker than 15mm or thinner than 8.5mm at any point. Heavy duty flywheel mounting bolts are allowed. Only the standard 2.0L OHC Pinto clutch type may be used. Minimum total weight for the Flywheel, clutch cover, driven plate and all mounting bolts is 10.14 Kg.

13) Ignition System: Only the BRISCA F2 control ECU may be used, this has a fixed advance curve with RPM limit set at 7500RPM. The ECU will only have a single engine sensor which will sense crankshaft speed.

Note: the rev limit may be reviewed after further evaluation.

No device capable of altering any input, output or intended ECU control is permitted. The standard 1.8 Duratec front pulley must be retained with 36 – 1 trigger pattern.

No lightening of the front pulley is permitted but the pulley timing position relative to crankshaft is free. The standard speed sensor must be retained.
To aid policing the board of control on occasions reserve the right to swap ECU's between competing cars at the same meeting, the pre marked units being returned to the original owner after evaluation. Alternatively the competitors ECU may be swapped for a control ECU the original being returned after evaluation.
14) Cooling System: The standard type water pump must be used, belt driven by the crankshaft. An Idler wheel may be fitted to accommodate belt tension and drive of the pump in the correct direction.

The inlet manifold will sell for £175.00 plus vat, it is designed to be compatible with the std type Ford pinto throttle linkage so will accept HCD and Randall alternatives. They have a fully fabricated sump with separate windage tray, powder coated, as used on the Brisca F2 test engine and comes with oil pickup tube available for £225.00 plus vat. SRD also have available on a water rail which will be a rigid tube similar to ones available for the Zetec to bring the top hose connection from the rear of the cylinder head to the front.

SRD are assembling a kit of parts which will be available to convert a Duratec with everything you need apart from the ECU. The kit will include; Manifold, carb, air filter, water rail, water pump drive belt & tensioner, sump, flywheel, clutch, fixings & cams. The cams will have correct sizing so that no re-shimming will be required when they are installed and will work really well with the standard 10.8 compression ratio. The kit should be available for around £1500.00 plus vat.

The Brisca F2 laser cut restrictor plate will be available From SRD as part of the kit or IG Racing at £4.10p plus VAT.

The ORCi approved steel flywheel, which will suit Pinto or Duratec is available from Turbosport at £125 plus VAT complete with integral ring gear.

The ECU will be available from Brisca F2 office, and is priced at £258 plus VAT, plus £98 for the wiring harness. All ECU records will be kept by Brisca F2, and this unit will not be available from any other source. Donor engines are available from Powertorque.

Contacts:-

SRD	Mark.shilaber@btconnect.com
Turbosport	01480 406886
Powertorque	www.powertorque.co.uk
IG Racing	01933 675166
Brisca F2	qraham@mendipsraceway.com
Darren Bingley	Darren@binqley4.oranqehome.co.uk

General Notes on the Specifications:
When referring to the technical regulations the principle will always be:
Read the regulations, and unless permission is specifically granted to make variations, modifications, or to carry out any extra work, NOTHING MAY BE DONE

TO CHANGE OR ALTER THE STANDARD PARTS. Unless it states that you can do it YOU CANNOT! Scrutineering on these engines will be very strict, and on a totally random basis. Any driver using this engine type must be aware that the engine must be made available at any track for scrutineering, and compensation for gaskets and oil will be made providing the engine is legal (excepting checks for first three in World Final). Any driver whose engine is sealed or protested must arrange with the Secretary to have it dismantled and checked within 21 days of the sealing. In attendance must be:-

1) BriSCA F2 appointed Engine Scrutineer.

2) The driver's Engineer.

3) Two witnesses (preferably registered drivers).

It is the responsibility of the driver to produce his engine for inspection at a convenient place for all concerned.

Engines that are required to be stripped for Championship events will be stripped on the day, at the track, and a maximum of three people may attend the scrutineering.

207. Axles, Wheels and Transmissions:

Wheels.

The car shall have four wheels. Steel or alloy wheels may be used, though if alloy wheels are used, only genuine Ford or competition replacement type wheels may be used, as road type alloy wheels are liable to sudden failure and loss of wheel. Maximum width of front wheels is 5½ J. Rear wheels may be of different widths. Wheel back depths must be equal on both sides of each axle but may vary between axles. Wheels may be modified with permanent wheel spacers welded or bonded on to enable them to match existing wheel back depths. Wheel spacers that are not part of the wheel are not permitted. Wheel nuts must be correct fitment for the wheel/stud configuration used, and thread must be visible on open nuts.

Suspension

Shock absorbers are only permitted to have a maximum of one adjustment. Any devices which allow adjustment to spring platforms, shock absorbers or anti-roll bars "from within the cab" are not permitted. **A maximum of four shock absorbers my be used on each car-one per wheel' at the beginning.**

Front Axle - Suspension

Top wishbones (including any spherical bearing/rose joint) and wishbone mounting brackets must be equal length on both sides of the car and front uprights, discs and hubs may not be offset in any way but the king pin inclinations may be different on each side as long as there is no offset advantage.

Camber may only be achieved by altering the bottom wishbone on independent front suspension.

Beam axles must be fitted centrally in the chassis, using the centre of the axle as a datum point, and camber can be altered.

The axle will be measured from the centre of the king pin to the outside of the chassis rails when looking at the car from the front view with a tolerance either way of 10mm.

Rear Axle

Rear wheel drive only is permitted, with limited slip or locked differential may be used. The rear axle must be of rigid normal production type (similar pattern to the Ford Escort Mk 1/2 axle) with half shafts and axle tubes of equal length. It is advisable to tack weld the bearing retaining collar to the half shaft to prevent it pulling out on the nearside.
Rear wheels may not be cambered in any way, and no axle may be used that is wider than the Ford Cortina Mk 3./4/5 type from wheel flange to wheel flange. It is permitted to 'steer' the axle by lengthening or shortening the wheelbase. Birdcage type axle fitments are not permitted on either axle.
The rear axle alignment will be measured from the inner edge of the rear wheel rim to the edge of the chassis rail which must be equal on each side with a tolerance either way of 10mm.
It is the driver's responsibility to make sure that the rear axle alignment is within the above tolerances before every race.
Track
The width of the track (measured at the extremes of wheel/tyre assembly) of the car shall not exceed 68" (1728mm) either front or rear, such that the car will pass in a straight line between two fixed points placed 68" (1728mm) apart, exclusive of wheel guard.
Any car failing this track width measurement will not be able to race until it has been adjusted to within 68" (1728mm).
Transmission
The bellhousings on all 2 litre powered cars must have a single hole of 25mm diameter drilled to allow the scrutineer to inspect the flywheel and clutch. No other lightening of the bellhousing is allowed.
Quick ratio change gearboxes are not permitted.
Gearbox casings, differential housings and front hubs must be a ferrous material with the exception of Aluminium alloy bellhousings, tailhousings and the Morris 1000 rear axle which is permitted.

208. Tyres:
For 2009 the following tyres are permitted:
The Avon Wide Safety GT 7.3x13 treaded or slick. Slicks may be used at any meeting, but on the front axle only. The Avon Tyre softness will be checked by a durometer. The tyre will be cleaned by hand across the tread and then 3 readings will be taken by the scrutineer to obtain an average reading. Any tyre found below a reading of 40 will render the drivers liable to penalty. First offence is load up and loss of points, second offence one month ban. Tyre infringements will not be transferred from season to season, but a driver found in contravention of this rule may not race again in a twenty four hour period following (ie Saturday night till Sunday afternoon). Drivers must proceed directly round the track to where a tyre check is requested without delay, or their tyres will be considered illegal.
The Yokohama 185/70-13 A021-R K12131 may be used but must not be treated with any tyre softener/**treatment** product. Penalty if detected is automatic 12 month ban from racing.

Tyres may not be recut or **have their tread pattern altered by siping of the tread blocks. The tyres identification marks must not be removed. The use of mechanical tyre buffing or surforming is allowed to clean up the feathered edges of the tread blocks.** Tyres can be mixed on cars, but the same tyres must be used on each axle.

209. Brakes:
Any braking system may be used, but it must be in working order. All brake calipers must be made of ferrous material.

210. Windscreens:
A screen may be fitted, but it must be of a material that will not shatter. All windscreen apertures must be covered with a steel mesh of 40mm matrix (Maximum) by 2.4mm minimum thickness.

211. Driver's Seat & Pedals:
The driver shall be seated along the centreline of the car, with no part of his body further forward than the rear of the cylinder block, but in front of the rear axle. The seat must be of a bucket type with adequate side support. It must be securely fitted to the chassis, along the centreline +/- 10mm and upright when viewed from the front or rear of the car. A 3mm steel plate must be fitted to the bottom of the seat covering the full width, and 125mm depth which when fitted protects the seat from the rear axle. A simple steel hoop of 25mm x 3mm flat must be fitted to the seat or chassis rails to catch the propshaft in the event of breakage. A head rest of between 150mm and 200mm square and of 3mm thick steel plate must be welded to two vertical bars. These bars must be welded top and bottom to horizontal or cross members (see Diagram 6). It is recommended that the head rest is padded with dense fire resistant foam. The head rest in profile may not protrude from the roll cage. It is NOT permitted to left foot brake so the car shall have one pedal each to operate the clutch (fitted on the left of the bellhousing), brake and accelerator (fitted on the right of the bellhousing). If the car is designed with a floor that covers the bellhousing and gearbox, the clutch pedal must be on the left of the car centreline and the brake and accelerator pedals must be on the right of the car centreline, BUT there must be a panel of some description that prevents the driver from using his left foot on the brake pedal.

212. Floor and Firewall:
The floor must be complete around the pedals and feet area, and extend rearwards to a point where it is overlapped by the seat in a vertical plane. The firewall must be complete between the engine and the driver's compartment to insulate the driver from possibility of burns. **A vertical steel plate of 3mm thickness must be welded to the top and lower chassis rails to cover the area of the driver footwell. The plate must be fitted on both sides of the car, and must extend from the bulkhead (firewall) back to be level with the front edge of the driver's seat. The plate may not be drilled or lightened in any way.** Floor and firewalls must be made of metal.

213. Fuel and Fuel System:
All cars must use fuel that is freely available from at least 200 roadside service stations in the UK. Any Promotion or Brisca F2 Technical Officer has the right to supply a car or cars prior to a race with fuel which complies with the conditions below and will supply recommended additive if required. These fuels will conform to either to a British Standard, either BSEN228 (premium unleaded) or BS7800 (super unleaded). The only additive permitted is Millers CVL (lead replacement). The maximum treatment rate is 1 bottle (250ml) to 20 litres of fuel. Millers CVL Turbo (octane booster) is not permitted. Regular fuel testing will be carried out with the test for manganese having an upper limit of 100mgms per litre (100ppm).
Fuel Testing
Basing the regulations on a pump fuel (which conforms with a British Standard) will facilitate testing for conformity. Random fuel testing will take place at a number of events during the season. Samples will be taken directly from the car at the end of a race. 3 samples (approximately 100ml each) will be taken and stored in tamperproof and glass containers, sealed and the seal numbered.

- 1 sample is left with the driver
- 1 sample is left with the organizers (as a control sample)
- 1 sample will be sent to Millers for testing

Drivers and scrutineer will sign the fuel testing form which details the serial number. Millers will make the results available to Brisca F2 within 2 weeks of receiving the sample. The testing will confirm that the base fuel complies with one of the British Standard and that the level of manganese introduced by the addition of CVL does not exceed 100ppm.
Fuel tanks must be of **steel of 2mm thick minimum** construction and no more than 3 gallons capacity. Tanks must be securely fitted, preferably within a steel cage and strapped down, rather than mounted on lugs, and protected by steel plate minimum 2mm or steel tubes. **Fuel tanks must be fitted next to the chassis-with no gaps between the outside edge of the chassis and the inside edge of the tank. The outer edge of the fuel tank must be a maximum distance of 9" from the chassis rail and a minimum distance of 10" from the outside edge of the nerf rail to the outside edge of the fuel tank must be achieved. Where a fuel tank is fitted behind the seat it must have a full firewall.** The cap must be of a metal threaded screw type, and the tank must have a breather pipe that prevents spillage in the case of inversion. **A one way valve to prevent fuel spillage must be fitted to the breather pipe.** Pressurised systems are not permitted and a shut off tap must be fitted in the line within reach of the driver when strapped in his seat. The fuel line must be of metal pipe and enter the fuel tank at or near the top. Clipped link pipes of not more than 6" in length are permitted.

214. Radiators & Cooling System:
Radiators must be fitted forward of the firewall, between the chassis main rails, and all overflow pipes must point directly at the ground. Cooling systems must utilise original outlets from the engine, but the heater hose outlets on the water pump and

the inlet manifold may be blocked off, or used with a secondary radiator. Electric fans are permitted.

215. Batteries:
Any conventional type may be used, but it must be bolted to the car **next to the chassis, with no gap between the battery and the chassis** and adequately covered in rubber or a similar anti-corrosive material. Maximum of 2 batteries may be used with a maximum size 038, or if one battery is used 063 maximum. The battery must not be positioned where it might spill acid or fume on to the safety harness. It is not permitted to fit the battery between the driver's legs. A battery isolator switch must be fitted to the dashboard, in the earth circuit, and clearly marked.

216: Numbering:
Board of Control Racing Numbers must appear on both sides and rear of the car and on both sides of the roof fin. Numbers must be black on a white background in one inch strokes to a height of nine inches on the fin board, the sides or bonnet and rear of the car. You will have no cause for complaint against the lap-scorers if your numbers fail to comply with these regulations. The driver's name must appear on the off-side of the car aerofoil in letters at least three inches high, where it can be seen by the spectators. Sponsor's names may also appear on the car, but they must not interfere with the numbering.

217. Grading Colours:
The whole aerofoil must be painted in grading colour, and the roof from the waistline up in either grading or a neutral colour. **Cars using cab mounted wing type aerofoils must paint the cab roof in grading colour.**
Super Star and Star Grades-Mail Box Red.
'A' grade-Light Blue.
'B' grade-Yellow.
'C' grade-White.
Novice grade-White with a 3 in. wide Black Cross.
World Champion-Gold.
National Points Champion-Silver.
British Champion-Black/White Chequered.
European Champion-Red/Yellow Chequered.
World of Shale Champion-Two gold stripes 100mm wide.
World Cup winner-One goldstripe 100mm wide.

Super Star Grade drivers must fit at least one flashing amber roof light in working order. No other flashing lights are permitted. Any driver appearing with the wrong roof colour will start at the rear of the grid in all races until the roof colour is rectified. Novice drivers may start at the back of the grid for their first three meetings and these outings must be recorded in the driver's log book.

218. Fire Extinguishers:
All cars **are advised to** carry a fire extinguisher of 1kg (2.2lbs) with a gauge and have contents of either dry powder or CO_2 gas or have an approved plumbed in system. It must be within reach of the driver when strapped in his seat, and below shoulder height. It is advised to carry a 1kg extinguisher within a vertical steel tube, with a spring retainer catch to hold it in. Please refer to Safety Eqipment Specification Sheet (page 18) for tow vehicle fire extinguisher requirements.

219. Aerofoils:
Aerofoils if fitted must measure 44″ x 44″ body maximum, with side plates of 48″ x 24″ maximum. The whole of the aerofoil must be painted in grading colour, except the numbers which are black on white. **Aerofoils must be mounted in a central position on the car viewed from front or rear, and bottom of the aerofoil sideplates may not be lower than the level of the top of the side window/driver access.**

220. Silencers:
All cars must be fitted with the Brisca F2 silencer that is available from all stockists and no other exhaust attachments **or tailpipes**. No welding may be carried out on the silencer within 25mm of the silencer box, and silencers may not be modified in any way. The scrutineer has the right to fail any silencer if he considers that it has been modified due to its significant difference in volume and engine note.

221. Transponders:
All cars must be fitted with a transponder for electronic lapscoring. **These are available from AMBit (www.amb-it.com) or HS Sports (www.hssports.co.uk or 01260 275708).** The transponder must be fitted to the car at all times in a position 1.8m minimum back from the front bumper and approximately 450 mm from the ground. You may sell your transponder at any time, but you must inform the Licencing Officer and fill in a Transfer Form. If a transponder fails to operate from the beginning of the meeting, no results will be credited to the driver concerned.