



FEDERATION INTERNATIONALE DE L' AUTOMOBILE

## **PROPOSED CHANGES TO THE RULES FOR THE 2008 FIA FORMULA ONE WORLD CHAMPIONSHIP**

### **Introduction**

Traditionally, Formula One rules have been written by the engineers. Save in very exceptional circumstances, the Concorde Agreement (Clause 7.1) prevents anyone except the team technical directors making technical rules. This may no longer be the best approach. A better method might be to specify what we want the rules to achieve and only then allow the engineers to make proposals. The purpose of this note, therefore, is to suggest objectives together with some new rules to achieve them.

Safety, fairness, keeping the current six major car manufacturers involved, preserving the independent teams and ensuring that the public continue to enjoy Formula One are the five principal challenges for the Formula One World Championship in 2008. Everyone is agreed on the need for the first two; the last three are more controversial.

### ***The need to cut costs***

On the face of it, costs need to be cut. We have lost two independent teams and one major manufacturer in the last three years with no replacement in sight. However, some manufacturers are opposed to any economy measure which might curtail technical exploration. Five of the six competing car manufacturers are very large companies. Each assumes it has the money and technical expertise to win the Formula One World Championship alone or in partnership with an independent team. Each is apparently prepared to spend large sums to do so.

### ***The manufacturers' dilemma***

The problem is that however much money the six manufacturers collectively spend, only one can win, while each season one at least is going to finish with cars in 11<sup>th</sup> and 12<sup>th</sup> places or worse. Dr Helmut Panke, Chief Executive of BMW, said recently "We are not satisfied with the sixth and seventh places and we are in intensive discussions on how to do better". But if all six manufacturers and their twelve cars stay in Formula One, one of them will have to be content with sixth or seventh place each year and two or three of the remainder will be even less successful.

The simple truth is that whether the six manufacturers collectively spend €1.5 billion or (at the extreme) €150 million, the result will be the same. The one with the cleverest engineers, the best-managed team and the best drivers will win, the others will fail. At the end of the season and after each race, manufacturers' cars will be

placed all the way down to 11<sup>th</sup> and 12<sup>th</sup> and possibly worse if there are one or two good, fully independent teams. But the Championship will look and feel the same whether €1.5 billion or (again, at the extreme) €150 million is being spent. Indeed it might be better with €150 million, because the gap between first and last would probably be less. So, arguably, some €1.35 billion is being completely wasted in Formula One each year by the six manufacturers.

### ***Are costs the FIA's business?***

Some say this is no concern of the governing body; how the manufacturers spend their money is their business. But surely it is the duty of the governing body to do what it can to keep all the manufacturers involved, indeed to try to attract new ones. Manufacturers whose cars finish in 7<sup>th</sup>, 8<sup>th</sup> and so on, down to 12<sup>th</sup> place or below (which means at least half our current six manufacturers) are more likely to stay if their average annual expenditure is, say, €25 million rather than €250 million.

A 90% reduction in manufacturers' costs without diminishing the spectacle of Formula One would probably be possible, given close and rational collaboration with the manufacturers and teams concerned. But even without such collaboration, the FIA must at least reduce costs to levels which independent teams can afford. If we fail, we will lose the independent teams. Should costs continue at present levels or, worse, escalate in the next ten years at the same rate as the last ten, we risk simultaneously driving out the independent teams and some of the less successful manufacturers. The result would be non-Formula One cars on the grid or, possibly, the collapse of the Championship.

To be clear, in suggesting a reduction from €250 million to €25 million, we are speaking of just the costs to a manufacturer of supplying engines to a single team. The cost of running the team must be added to this to arrive at the total cost of putting the cars on the grid. It is extraordinary, but true, that some manufacturers are spending upwards of €250 million just to supply engines. That this could be reduced by 90% or more is evidenced by the fact that Cosworth will be able to supply a fully competitive 2006 engine for less than €20 million and are even able to supply (to Red Bull) an engine to race and qualify in the top ten under this year's relatively free-spending rules, for less than one tenth of the expenditure of some major manufacturers. It does not follow that expenditure is necessary merely because it is allowed.

### ***A money-spending competition?***

Formula One must not be allowed to become a money-spending competition. We need more emphasis on rules which allow a clever but under-funded team to defeat a less competent but richer rival. It must not be possible simply to buy success. This is essential for the survival of fully independent teams which rely on sponsorship and income from the commercial rights holder. An independent team will never have the same resources as a team backed by a major car manufacturer, but they are nevertheless an essential element of Formula One. In addition to being part of the tradition, they provide an entry point for young drivers and team personnel and bring colour and interest to the paddock.

It is probable that rules aimed at keeping all six manufacturers in the Championship will also make it possible for the independent teams to survive. Conversely, failure

to introduce these rules risks the simultaneous loss of the independent teams and some of the manufacturers. The case for getting costs under control appears strong.

### ***Resistance to cost-cutting***

There has been a tendency for well-funded teams to resist cost-cutting, because the higher the costs, the smaller the number of teams which are their potential competitors. But rules which allow too steep a slope on the curve of performance versus expenditure must eventually result in the richest team dominating and the remainder unable to compete. This has happened in the distant past. If it were allowed to happen today, Formula One would quickly lose its international television audience. Collapse would soon follow. Even the best funded teams should support drastic cost-cutting in order to preserve Formula One in the medium and longer term.

Formula One has become divorced from reality. If you ask a man in the street how many people devote their entire working lives to putting two Formula One cars on the grid 17 times a year, he will probably reply 20 or 30, plus maybe some part-timers. The reality is about 300 for a small team and up to 1000 for a top team, all full-time employees. Most of these highly skilled and expensive people add nothing to the spectacle or to the sporting contest. They are working on things which the public never see and even enthusiasts are unaware of. Hundreds of talented people, all duplicating each other's efforts in the different teams, all to no purpose. It is difficult to justify this on any rational basis.

### ***Dumbing down?***

It is sometimes suggested that reducing the scope for expenditure in Formula One reduces its technical interest or "dumbs it down". The immediate question is: reduces its technical interest to whom? It may fascinate the relevant engineers that by spending millions of Euros they can build a new gearbox with ratios that are 0.25mm thinner, but no-one else knows or cares. There is no additional value for the watching public who, ultimately, pay for the whole thing. If we eliminate pointless (but very expensive) engineering exercises, there will still remain huge areas of technical interest, some of which can be directly relevant to automobile engineering. For example, a breakthrough in chassis dynamics (more probable with very low downforce) or the reduction of engine internal losses would give a big advantage to the team which made it. It would also be more generally relevant than generating huge levels of downforce or making an ultra-small gearbox.

### ***Keeping the public interested***

If we manage to control costs and retain a reasonable number of competing cars, we must also think about the public appeal of Formula One. Everyone considers themselves an expert on this, but until very recently there has been no serious attempt to find out what the public think. This is extraordinary when one remembers that the commercial success of Formula One would disappear overnight if the public were to lose interest. We hope that the survey which the FIA is conducting in conjunction with AMD will provide an insight. In the meantime we have taken a conventional approach and aimed at (i) closer racing through a drastic reduction in downforce combined with significantly increased "mechanical" grip; (ii) a more competitive field by reducing costs and hence the competitive disadvantage of the smaller teams; (iii) eliminating electronic driver aids to give greater importance to

classic driver skills. If these objectives are achieved, Formula One should at least be able to maintain its current level of popularity.

### ***Keeping speeds under control***

In addition to containing costs, we hope to contain speeds. Excessive speeds in Formula One not only endanger the drivers, they also cause problems for the race organisers. This is because increased speeds necessitate upgrading circuit safety measures. Safety work increases the organisers' costs without producing any additional income. Indeed moving the public further away from the action on track, which is increasingly necessary for safety reasons, makes spectating less attractive and risks further reducing the organisers' income. This is an additional reason for rules which restrict the rate of increase in performance.

### ***A tight schedule***

Once matters of principle have been decided, it becomes easier to write rules. However, not all the manufacturers and teams have joined the discussions during the first four months of the year. The FIA cannot continue to wait for proposals, because it is obliged to publish the 2008 Formula One Technical Regulations before the end of 2005. In practice this means the new rules must be finalised by the fourth week of September for submission to the World Motor Sport Council and the FIA General Assembly at the end of October. This, in turn, means we can allow the whole of July for comments from stakeholders, but final preparation of the rules must begin internally on 1 August.

### ***Some suggested objectives***

We have prepared a first draft of the 2008 rules with the following objectives:

- the rate of increase in performance of the cars should not exceed the rate of improvement in measures to protect the public, marshals and competitors;
- the rules and the means of enforcing them should be clear so that everyone competes on the same basis;
- the rules and methods of enforcement must be sufficiently flexible to deal with unforeseen technical innovation;
- costs should be contained in order to (i) decrease the likelihood of a manufacturer leaving after poor results (ii) enable a private team to be competitive without the support of a major manufacturer and (iii) reduce the performance deficit of the less well-funded teams;
- expensive technology which is invisible to the public and known only to a tiny band of specialist engineers should be eliminated where possible;
- expensive materials or designs should not be used as a substitute for good engineering;
- driver aids should be eliminated as far as possible. In particular the use of electronic devices should not be allowed to replace driver skills;

- downforce should be drastically reduced and “mechanical” grip increased substantially for closer racing.

This, then, has been our approach to 2008. Criticism, constructive or otherwise, is welcome. All comments received during the July consultation period will be carefully considered when the FIA technical department finalises its proposals, which it will do in consultation with those teams and race organisers which have indicated their intention to participate in the Formula One World Championship from 2008 onwards. We will also take full account of the results of the FIA/AMD survey of public opinion. Once finalised and approved by the World Motor Sport Council and FIA General Assembly, the rules must be published before the end of 2005 as required by the Concorde Agreement. Thereafter the 2008 technical regulations cannot be changed without the agreement of everyone concerned.

Changes for 2009 will still require two years’ notice (ie publication before 31.12.2006). Thereafter notice of changes which affect the design of the car (sporting or technical) will be announced no later than 30 June to come into force for the next-but-one season (ie a change for 2010 will be announced before 30.6.2008).

## **Summary of the main changes proposed for 2008**

### **ENGINES**

- All components of the engine will be controlled by an Electronic Control Unit (ECU) which has been manufactured by an FIA designated supplier to an agreed specification
- The ECU may only be used with FIA approved software and may only be connected to the control system wiring loom, sensors and actuators as specified by the FIA
- All control sensors, actuators and FIA monitoring sensors will be specified and homologated by the FIA
- The control system wiring loom connectivity will be specified by the FIA
- A 3 litre V10 engine will remain an option for teams unable to obtain a 2.4 litre V8, but subject to similar strict performance limitations as in 2006 and 2007

### **Reasons**

- *to eliminate the use of driver aids such as traction control*
- *as teams will not be able to develop their own ECUs, expenditure on electronics will be considerably reduced*
- *to allow the FIA to check testing mileage and other elements*
- *to keep engine costs low for the smaller independent teams*

### **GEARBOXES**

- All cars will be fitted with gear ratios, final drive ratios and differentials which have been manufactured by an FIA designated supplier to an agreed specification

- Gear changing will only be permitted by the use of a manually operated mechanical linkage to the gearbox
- Clutches will only be operated via a foot pedal connected mechanically to a release mechanism

### Reasons

- *to restore control over the clutch and gear changing to the driver*
- *the use of standard gearbox internals will result in a very significant reduction in expenditure*

### BODYWORK

- Downforce will be reduced to approximately 10% of current levels
- Drag will be maintained at current levels
- Overall car width will be increased
- By stipulating maximum and minimum dimensions cars will be “cleaned up” with devices such as barge boards, flip ups, winglets and other small add on parts removed
- Total advertising area on the car to remain unchanged

### Reasons

- *to reduce the reliance upon downforce as a means of improving performance*
- *by increasing mechanical grip the likelihood of one car being able to follow another closely in corners, and hence be in an attacking position at the end of the following straight, will be increased*
- *eliminating winglets, bargeboards, etc, will reduce costs as well as the danger of debris on the circuits*
- *drag should remain unchanged in order to ensure straight line speeds do not increase significantly*

### WHEELS AND TYRES

- Tyres will be supplied by one manufacturer appointed by the FIA after an invitation to tender. Such an appointment will be conditional upon :
  - a suitable supplier being available ;
  - a suitable system to ensure tyre testing is carried out in an equitable manner ;
  - no team being disadvantaged by the appointment of a single supplier (detailed regulations will be written to ensure this would not be the case) ;
  - there being no legal impediments during the process of appointing a supplier
- Slick tyres will be introduced for use in dry weather
- Lower profile tyres will be introduced
- Significantly larger wheels with minimum and maximum sizes stipulated for front and rear will be permitted

- Tyre blankets and other heating devices will be prohibited
- All tyre regulations will reside in the Technical Regulations

### Reasons

- *a single supplier would allow a bigger safety margin*
- *the absence of competitive tyre testing would reduce costs*
- *as relatively small differences in tyre compound and construction can have a significant effect on lap times, a single tyre supplier would simply ensure that no team would be adversely affected by being contracted to the “wrong” supplier*
- *slick tyres would be re-introduced as a part of the low-downforce and high-mechanical-grip package*
- *lower profile tyres would be introduced in order to give the wheels and tyres a more modern look and also permit more freedom on brakes and suspension*
- *a ban on tyre heating devices would eliminate this significant but unnecessary expenditure*

### CHASSIS

- The minimum height of the centre of gravity of the chassis will be specified
- The minimum weight for a chassis will be specified
- Energy of all impact tests will be increased
- Loads for all static tests will be increased
- Side intrusion test requirements will be increased
- Ballast will be reduced to minimal levels

### Reasons

- *to ensure that weight is distributed throughout the chassis*
- *the centre of gravity requirement should result in less pure ballast being used, the minimum weight will have to be achieved by the construction of a stronger chassis*
- *by raising the impact test speeds, the static load criteria on structures such as roll hoops and increasing the penetration resistance, drivers will be even better protected than they are at present*

### BRAKES

- All cars will be fitted with brake discs, pads and callipers which have been manufactured by an FIA designated supplier to an agreed specification

### Reason

- *to reduce the cost of continual development of new materials and designs, the FIA specified products will be designed to work on all types of track and last an entire Grand Prix weekend*

## **DATA ACQUISITION AND TELEMETRY**

- With specific exceptions, any data acquisition system, telemetry system or associated sensors additional to those associated with the ECU will be physically separate and completely isolated from the control electronics
- Pit to car telemetry will be prohibited

### **Reasons**

- *to ensure that any data acquisition system used by a team cannot interfere with the FIA specified ECU and sensors*
- *to ensure teams are unable to send messages to a car and potentially affect its performance*

## **MATERIALS**

- Limitations, similar to those within the 2006 engine regulations, will be imposed on all parts of the car

### **Reason**

- *costs will be reduced as research into exotic materials will be unnecessary*

## **STARTER**

- All cars will be equipped with a driver operated starter which is capable of starting the car without outside assistance a minimum number of times

### **Reasons**

- *to simplify the operation of starting a car, at present it is massively complex*
- *to give the driver a chance of starting a car unaided in the event of it stopping on the track*
- *to reduce the number of personnel needed at an Event and hence reduce costs*

## **NOTICE OF CHANGE**

- Notice periods for changing the rules will be related to the effect (if any) of a change on the design of a car rather than an artificial distinction between “sporting” and “technical” regulations. There will no longer be a distinction between changes to the engine, transmission or chassis.

### **Reason**

- *to ensure that changes may be made to the regulations in a timely and more realistic way*

## **SPARE CARS \*\***

- Spare cars will be prohibited, i.e. no team may have more than two built-up cars available at an Event at any one time. Spare chassis will be permitted but precisely what constitutes a car in this context will be clearly defined

### **Reason**

- *by taking one car less to races teams will be able to save considerable sums of money as, apart from the cost of the car itself, fewer personnel will be needed*

### **TESTING \*\***

- Testing will be limited to 30000km per team between 1st January and 31st December, subject to a single tyre supplier being appointed

#### **Reason**

- *To reduce the enormous amounts of money currently being spent on testing*

### **CAR ACQUISITION \*\***

- Teams will be free to buy a complete car or any part of a car from another constructor
- How constructor's points are to be allocated will be clearly defined after further discussion

#### **Reason**

- *to enable a team to buy a complete car, or any part of a car, from another constructor. As a result teams will be able to save considerable sums of money on the design and development of their cars*

---

\*\* For the purposes of the submission to the World Council these Sporting Regulations will be included as an addendum to the draft Technical Regulations