

## **F1 Challenge Driving Guide**

Version 1.0

First of all I should point out that this guide will not be quite as useful to the fastest drivers on the sim racing scene (Max Dell'Orco, Dom Duhan, Dominik Binz, Greger Huttu, Dave Nicol, Adam Dodd, Markus Kononen, Brad McGiveron etc). They are all extremely talented and they each know exactly how to set up the game (and car) to suit their own driving styles, I can't see anything in this guide been of great use to them as they are already driving on the limit of human possibility.

Chapters;

1. Opening Comments.
2. Setting Up The Game.
3. Player (PLR) File Editing.
4. Setting Up Your Steering Wheel.
5. Driving Aids.
6. Traction Control.
7. Choosing A Good Car.
8. Car Setup.
9. Driving Techniques.
  - 9.1. Braking.
  - 9.2. Downshifting.
  - 9.3. Turn-In
  - 9.4. Hitting The Apex.
  - 9.5. Corner Exit.
  - 9.6. Throttle Control - Finding The Limit.
  - 9.7. Side Note - The 'Differential Lock'.
  - 9.8. Gear Selection.
  - 9.9. A Note From The Experts.
10. Practice.
11. Driving Online.
12. Replays And Telemetry.
13. Talent.
14. Closing Comments.
15. Useful Links.

### **1. Opening Comments.**

When I drive online against people who aren't quite as quick (or people who are really struggling) they often ask how certain lap times are possible. Normally I simply respond by saying "I practice a lot, and I work on my setups"... which is true but also a bit of a cheap way to end the conversation - I don't have to go into detail about anything and at the same time the advice of "practice" is quite a good piece of advice to give. This sometimes leads to people asking for my setup and (depending on the current FSR league race) I'm normally happy to provide it. It's not always a useful quick fix though - yes there are times where I've given someone a setup and they have suddenly driven a lot faster but there are other times where it hasn't helped at all.

When someone is driving 1.28's at the new Hockenheim circuit (with a steering wheel) and giving them a setup capable of low 1.15's doesn't help them go any faster it's obvious there is another reason for the lack of speed. When I talk to people in this situation I often find that they haven't got a clue about setting up the game, how to make sure their steering wheel is set up correctly or on some occasions even use basic driving lines. That's why I decided to write this guide.

I am not the fastest driver in the world - I can name many drivers who are capable of driving faster than I ever have, but I still believe I drive at a very competitive level. I will offer all the advice I can and give all the information I have learnt; If this guide helps only one person to improve their lap times I will be happy.

## **2. Setting Up The Game.**

For F1 simulations you really need a steering wheel and although not everyone has one I personally have used steering wheels since the release of 'Monaco Grand Prix: Racing Simulation 2' - as a result everything in this guide will be written assuming a steering wheel is the controller as that is my own experience.

I drive without any driving aids... this is something I have always done and whenever I buy a new racing sim the first thing I do is turn off any available driving aids. So I'm writing the guide from this point of view, I don't use Traction Control or Automatic Gears or anything else. I know a lot of people use those two aids specifically (as it matches to real F1 today) - hopefully they will still find some useful information.

One of the things I love about the EA F1 games is that they have plenty of options to adjust in the menus and lots of scope for customising the game to suit many different people. I will go through some of the more important options now;

It is best to leave 'Tyre Wear' and 'Mechanical Failures' turned on as these are often used online and in Hotlap competitions. You can go a bit quicker if they are turned off but I think most people prefer realism and in real life the tyres wear out and the engines blow up (if pushed too hard).

'Fuel Usage' is another setting where it is better to have it turned on for two reasons; Obviously most online sessions have fuel usage turned on (as again it is realistic) but another reason is simply to get used to driving the car with fuel onboard. If you always drive with fuel usage turned off and then you suddenly have to drive a 15 lap race with fuel onboard it can be a huge shock - of course you would expect the lap times to be slower but the extra weight can really make you struggle as suddenly the car doesn't slow down in the same distances and it doesn't respond in turns the way it normally would. Personally I often turn fuel usage off if I am testing a qualifying setup because it allows me to do lap after lap without having to stop for fuel (and when you drive a qualifying lap online you will only have 2 or 3 laps of fuel anyway), but I still do plenty of testing with fuel onboard (online and offline). It is definitely worth having experience of the car with a heavy fuel load and also to learn to adjust your setups so they last a race distance.

Cockpit view or TV-Camera style onboard view..? I use the standard cockpit view myself and most of the fastest drivers seem to use the same (though there are some exceptions). For me it's mainly down to realism (I want to feel as though I'm in the car), but it's also down to turn-in accuracy - although you can see more of the track and upcoming turns with the TV-Cam view I actually find the standard cockpit view much more accurate when it

comes to choosing a turn-in point. So I will always use the cockpit view but I don't see anything wrong with people using the TV-Cam view in leagues etc - some people think the TV-Cam view gives an advantage as it is higher up but I've tested both and I didn't notice much difference in the lap times (I certainly wasn't faster with the TV-Cam view).

One thing this game did make me realise is the number of people using 'kmh' for measuring their top speed. When I drive online and I mention a speed in 'mph' I nearly always get the response of "what's that in kmh?". I live in the UK and I often forget that a lot of other countries use 'kmh' to measure speed - obviously you should use whatever is the standard in your country but it's best to know how to convert from one to another if you end up discussing top speeds online;

To convert from 'mph' to 'kmh' multiply the speed by 1.6093

To convert from 'kmh' to 'mph' divide the speed by 1.6093

Another tip when setting up the game is to lower the Engine volume. By default they are set quite high but I find that lowering the Engine volume to 40% and keeping the Sound Effects at around 95% allows me to hear what the tyres are doing much more easily - I know when I am locking up, spinning the wheels or screeching the tyres. It might not be as realistic to actually hear these sounds so well but at the same time you don't have the benefit of being in a real F1 car and feeling the behaviour of the car and the tyres on the circuit.

### **3. Player (PLR) File Editing.**

There are many well known options you can change simply by using notepad to edit the \*.PLR file (C:\F1\_Challenge\Save\YourName\YourName.PLR). This is a list of the most popular option changes (the option numbers are already edited in this list so if you want the effect described here simply change the number in your \*.PLR file to the same number from this list);

Half Rate="0" - Enables a super-high physics rate which uses more CPU power to calculate extra vehicle physics parameters and gives a more realistic feel to the car. This will normally make your lap times slightly slower as the car is more difficult to drive quickly over the curbs.

No AI Control="1" - The computer will never take control of your car (so you can still drive when the race has finished).

AutoBlip="0" - Removes the brake assistance icon from your telemetry laps (this is a bug in the game). Obviously this is assuming you don't actually use brake assistance.

Tire Sampling="1" - Should make the car's reaction slightly more realistic over sharp curbs.

Other Volume Ration="0.70000" - Lowers the volume of the other vehicle engines so they don't totally drown out your own (this was recommended by one of the game developers).

LCD Display Modes="7" - Allows you to see all pages on the in-car steering wheel display in the cockpit view (Lap Time, Pit Stop/Fuel, Tyre Temp, Driving Aids, Engine and Brake Temp).

Locked Pit Cam="0" - Allows you can stay in the cockpit view during pitstops.

Crash Recovery="0" - The game will not automatically leave your car upright after a crash (you can end up stuck upside down for good). It is more realistic.

#### **4. Setting Up Your Steering Wheel.**

This is one of the most important steps when you are setting up a racing sim and in the EA F1 games it is more important than ever - these settings can easily effect the lap times you are capable of driving.

There are some general settings which seem to suit most steering wheels but these are the three steering wheels I have used with F1 2002 and F1 Challenge;

Microsoft Sidewinder Force Feedback

Logitech Momo Force

Thrustmaster Ferrari F1 Replica;

\*Review link posted for the Thrustmaster F1 steering wheel as not many people seem to know about it;

<http://www.gamefaction.com/hardware/reviews/thrustmasterf1forcefeedbackracingwheel/>

I must be honest and say I never noticed much difference between the three of them in terms of lap times but the Momo has slightly more degrees of travel until you reach full lock (it is also probably the most comfortable to use).

First of all you should setup your steering wheel and pedals correctly using Windows 'Game Controllers' - each steering wheel has it's own unique page here and some have more options than others; some wheels also come with their own software (separate from Game Controllers) which you can use to adjust the axis properties.

It's best to leave most of the axis, steering and sensitivity settings in this Windows based software at the default settings, however with certain wheels (Microsoft) you might want to increase the sensitivity of the actual steering wheel axis slightly as this can improve turn-in. Other than that the main thing you should do in Windows is make sure your pedals are setup to use 'split' (or 'separate') axis - this means each pedal will be assigned it's own separate axis and they will work independantly (meaning you can use both pedals at the same time for more advanced driving techniques). If you don't do this (and instead leave the pedals using a single 'Combined' axis) they will override each other and you will only be able to use one pedal at a time.

For the Microsoft and Logitech wheels this 'split'/'separate' axis setting is normally found in the Windows 'Game Controllers' page but for the Thrustmaster Ferrari F1 wheel this setting can only be changed by using the profiler software that comes with the steering wheel (installed from the CD).

Now I will go through the in-game steering wheel settings from the F1 Challenge Controllers Options pages;

The Calibration page is quite simple - you use it to assign your pedals, steering wheel, clutch button and any keyboard commands you might want. One thing you should do here is remember to calibrate your pedals two or three times in a row (click on accerator, press the pedal, click on brake, press the pedal and repeat a few times) - this should make sure you have full pedal travel. You need full pedal travel - in other words when you press the accelerator down very slightly when stationary in 1st gear the car should react and start creeping forward straight away - if you have to press your throttle pedal halfway down

before the car does anything your pedals are not set up with full travel. On some wheels (Microsoft) the game will only recognise half of the pedal travel the first time you calibrate them but if you calibrate them a second time it often recognises your pedal setup properly (split axis etc) and then gives full axis travel for each pedal. So it's worth doing this to make sure your pedals are setup correctly.

You can also test this by looking at the red real-time axis displays on the Calibration page (in-game) - you will see a red steering axis display which should mimic your steering wheel and you will also see two red pedal axis bars which should accurately follow what you do with your pedals; so if you press a pedal fully down the axis display should be completely red and if you fully lift from a pedal the red axis bar should disappear (you should also press both pedals down fully at the same time and make sure both pedal axis bars are completely red - this means your pedals are setup as 'separate' axis correctly).

You should try to map most of the important keyboard functions to the buttons on your steering wheel (depending on how many buttons your wheel may have). I have a Logitech Momo now so apart from the gear shifters it has 6 buttons spare. It's mainly down to personal preference but these are the functions I have mapped to my steering wheel - Pit Limiter, Clutch, Look Behind, LCD Display Cycle, Request Pit and Neutral. I don't use Traction Control so the TC override button is useless to me and although I would like Launch Control mapped to the wheel I use the other functions a lot more.

The 'Digital Rates' are only for keyboard. Some people think these settings effect steering wheels too but I'm pretty sure they don't (after lots of testing) and I can only look at the game from my own experience. If you have assigned a clutch button to your steering wheel then that is the only button where the Digital Rate setting will have an effect. In a real car the clutch would normally be analogue so it wouldn't engage or dis-engage in an instant - as a result the game allows you to adjust how quickly (in percentage) the F1 clutch will react when you press the button on your wheel. I have mine at 10% (the minimum setting) so when I let go of the clutch button at the start of a race there is more time to get the throttle amount correct before the clutch actually dis-engages (and there is less chance of stalling). It sounds more complicated than it is. My advice for the digital rates would be to set them all to the minimum setting (10%).

'Speed Sensitivity' has been discussed a lot and I often find that people use very different settings for it (even with similar wheels). This setting effects how fast the car reacts at high speed but there seems to be some confusion as to which setting you have to use to lower or increase the sensitivity in the game. You would expect that the higher settings (percentages) would make the car more sensitive at high speed and the lower settings would make the car less sensitive but this is not the case for most steering wheels - for all of the steering wheels I have used I had to set a very low 'Speed Sensitivity' percentage to make the car react quicker at high speed.

A lot of people look at the Speed Sensitivity setting as if you are adjusting 'lag' in the steering axis - so at 0% there is no lag (or delay) when you turn the wheel at high speed and at 100% there is quite a big delay when you turn the wheel... this is also my view of the setting and as a result I normally set it to 0% because I don't want any lag at all. However on certain wheels (Microsoft) I found that the car was actually too sensitive at 0% and I had to increase it to around 20%.

So the 'Speed Sensitivity' setting can be trial and error and if you use a very low setting the car can seem far too responsive (at first) but it's always best to drive a few laps and see if you can get used to it. I often find that most of the very quick drivers have the setting between 0% and 15%.

The Axis Sensitivity page is very important as it effects how your steering wheel and pedals

actually work while driving.

The X axis is your steering axis so if you were to set it to 0% you would have to use lots of steering lock to get around even the very easy turns and if you were to set it to 100% you would hardly have to use any lock to get around tight turns. It is an important setting and can vary from wheel to wheel but it's best to start with 50% and if it feels too sensitive you can lower it and if it isn't sensitive enough you can increase the setting. For the Thrustmaster Ferrari F1 wheel I had to raise this setting to 75% to achieve my best lap times, but for the Microsoft FF and Logitech Momo I found 50-55% to be the best setting.

Assuming you only have two pedals (and no clutch pedal) then two of the remaining axis on this page will be used for throttle and brake and all of the others are irrelevant. In other words if the game recognises your throttle as Y axis and your brake as RZ axis then the remaining axis (RX, RY, Z etc) will not be used at all in your game setup and changing them would have no effect on the game.

When you originally calibrated your pedals from within the game it would have displayed the axis in the function assignment display so you should already know what your throttle and brake pedals have been recognised as (normally Y for throttle and Z or RZ for brake) but it doesn't matter if you don't. This is because both pedals should be set to the same sensitivity as each other so you can simply adjust all the remaining axis sensitivity settings if you want to be sure you are adjusting your pedals - as I mentioned earlier; adjusting the axis settings that your game doesn't use won't make any difference.

Both throttle and brake should definitely be set to 50% Sensitivity as this is 'linear' (like a real car pedal) and as a result should give you more accurate control of your braking and accelerating. Using throttle as an example - if you lower the Sensitivity setting you will have to press the pedal too much to get the required acceleration and if you increase it there will be too much power too early when you press the throttle and there will be a much greater chance of spinning. I have tested this a lot and I am almost certain that both pedals should definitely be set to 50% Sensitivity - I actually used to use 75% Sensitivity for this setting (a few years ago) but when I adjusted to 50% it definitely improved my lap times.

So set your throttle and brake axis Sensitivity to 50%, and if for some reason you aren't sure which axis are been used for throttle and brake simply adjust all of the remaining axis to 50% (except X axis which will be your steering axis, although you might have this set to 50% anyway).

'Axis Deadzones' are areas in the axis travel which won't give any response - so if you have a 5% deadzone on the steering axis (X axis) you will have to turn the wheel for around 5% of it's full lock before the car starts to turn, and if you have a 10% deadzone on your brake axis you will have to press the brake pedal down for the first 10% of it's travel before the brake actually starts to do anything. This is very bad and as a result it is recommended that most people using a steering wheel should set all deadzones to 0% (I think they are set to 5% by default so they need to be adjusted to 0%).

I have all deadzones set to 0% with one exception - the steering axis on my Logitech Momo. The Momo rattles slightly in a straight line - normally this wouldn't be too bad but because I use 0% Speed Sensitivity it means the car is very sensitive and can start going off line at high speed quite easily. As a result I use a very small 1% deadzone on the steering axis (X axis) so there is a tiny section of wheel travel which doesn't do anything. This isn't really noticeable turning from left to right so it doesn't effect the accuracy of my driving. Most people won't even need 1% though and should set all deadzones to 0%.

If your steering wheel has Force Feedback you can also set that up in the game. This is another setting which is mainly down to personal preference.

I use the 'Medium' setting for 'Force Feedback Effects' (because I don't want the wheel to shake too much) and -60% Force Feedback Strength. Some steering wheels require a

positive Strength setting to produce resistance (such as the Microsoft wheel) and others require a negative Strength setting to produce resistance (such as the Logitech Momo). You will know if your steering wheel is set up incorrectly because the Force Feedback will be trying to 'pull' you around the turns rather than resisting your steering inputs - when you have this kind of problem it is easy to spot, and to fix it you should just change your Force Feedback Strength setting to the opposite of what you were originally using (e.g. from a negative value to a positive value, so if you were using 50% you would change it to -50%). Force Feedback does not seem to effect lap times - I have driven many laps with and without Force Feedback and I was not faster either way. Maybe the 'feedback' is not as helpful as it sounds when it comes to keeping the car under control at speed. It is nice to have the option though.

With your steering wheel set up correctly at least you can be confident that you have everything good and ready to start driving laps without worrying about changing things at a later date. There are some steering wheel settings which I think are simply down to what suits each individual person but there are other settings (such as the 50% Sensitivity for pedals) which I am almost certain are correct if you want to drive as well as you can.

## **5. Driving Aids.**

On the subject of the driving aids of course I say turn them all off, every single one of them, but I know some people have reasons for using particular aids;

'Invulnerability' is useful if you want to drive Hotlaps (pushing very hard) without the risk of damaging the car if you push too hard - you never have to stop for damage and if you make a mistake and crash you can simply get back on track and drive round to the start of your next quick lap. It is also useful for basic online races - lag can often make opponents appear as if they have stopped on track (even though they haven't) but if you drive into the back of them the game often assumes you have just hit someone and it causes damage to your car - using 'Invulnerability' prevents this and it also means you won't be out of the race at the first corner (due to the lack of a rear wing).

'Clutch Assistance' is another aid which is more for convenience than anything else - if you spin and stop on the circuit it will keep the engine running without you having to react quickly and press the clutch or neutral buttons. I've gotten used to pressing the clutch button on my steering wheel so I rarely stall now but I can see why some people would rather use it.

Manual gear changing was one of the hardest things for me to learn when I started playing driving games - it is very difficult when you first try it so a lot of people are probably put off and decide to stick with 'Auto Shifting'. Manual shifting is definitely worth the effort though. It seems to be one of those things where once you have it perfected you never forget it and it can easily be applied to any racing game - for me personally it is much more interesting using manual gears and I really enjoy it, manual downshifting can also help shorten braking distances slightly (due to engine braking) and if I try to go back to automatic gears it feels very strange (as if there is nothing to do while driving). It's certainly one of the most challenging parts to racing simulations when you first start out but once you learn to shift gears manually you will get more enjoyment out of the game and you'll wonder how you ever used to drive with automatic gears.

In some online sessions the host disallows all driving aids completely - this never bothers me but there are often people who join the session and they say they need 'Clutch

Assistance' or 'Auto Shifting' to be able to drive properly... because of this I think it would be better if those aids were allowed as standard because they don't offer any advantage (if the host is trying to keep a level playing field). None of the three driving aids mentioned above really improve your lap times in any way so I don't see what the problem is when someone wants to use one of them. All of the other driving aids available were actually made to help the car's behaviour on track and improve performance. I could never use any of them myself but there is one driving aid which is either praised and criticized on a regular basis...

## **6. Traction Control.**

It's difficult to argue (when the real life Formula One drivers are using it) that this driving aid should be disallowed in online sessions, or that people shouldn't use it at all. A lot of people do use it now; partly because of real life F1 rules and partly because they find driving without traction control frustrating. I do understand this and yet I still find myself wanting to convince everyone to turn it off.

Using 'Low' traction control would definitely make me slightly quicker (and more consistent) but at the same time it would take away a lot of the challenge and it would almost remove one of the main driving techniques in throttle control.

Before traction control was introduced into Formula One Olivier Panis was able to compare some of his telemetry to that of Michael Schumacher to study why Michael was quicker - he found that Michael "did everything possible to maintain constant speed in the corners...using a smoother and more consistent application of the throttle". Without traction control techniques such as this are very difficult and you often end up spinning the car, but the drivers who did perfect the technique obviously got the benefits from it. Now that traction control has been introduced into Formula One this advantage will almost have disappeared as it is a lot easier to keep some throttle pressed down constantly during a corner; and it might also explain why some of the gaps between team mates are closing.

Driving without traction control can be very frustrating to begin with as it often means spinning the car after almost every corner, but it does get easier. Along with manual gears I would say it is the most difficult thing to learn but it is also the most rewarding when you can exit a corner on the limit of the car's grip (maybe even hearing some wheel spin) without actually going over the limit and spinning the car. It is possible to drive without traction control and still do consistent laps - there is more on this later in the guide.

## **7. Choosing A Good Car.**

It really depends on what you want to achieve and also which Formula One cars you would actually like to drive. Some people might not want to drive a Ferrari but at the same time it is clearly (in my opinion) the best car in the game for overall speed and grip, so if you want to be driving the best lap times possible you really should use it. I am of course talking about the 2002 car.

In 'F1 2002' the Williams was the best car - it was slightly more difficult to drive (due to the engine power) but it nearly always resulted in the best lap times and all the hotlap websites reflected this. As a result I think a lot of people who upgraded to F1 Challenge instantly assumed the Williams was still the best - I see a lot of Williams drivers online and usually it's not because they are huge fans of the team; they simply think the Williams is the fastest car.



In F1 Challenge the 2002 Williams is very heavy - yes it still has a slight top speed advantage due to the engine power but unlike 'F1 2002' the extra weight actually has a large effect on lap times, so it is no longer the best car. Part of the confusion concerning how good (or bad) the Williams car is might be down to the fact that a lot of people are using the Ralph Hummerich 2003 season update now and they see the current 2003 F1 races and assume the Williams is a very good car in the game too, however this 2003 season addon uses the exact performance data of the original F1 Challenge 2002 season so the Williams is still very heavy and difficult to drive.

It's still personal preference if you want to drive as quick as possible - some people might be massive Williams fans and they simply don't want to drive anything else, that is up to them - I have still seen some very good lap times driven with the Williams but only by the extremely quick drivers.

If you don't want to drive a Ferrari then the McLaren is another very good car - I find it to be faster than the Williams and not far behind the Ferrari.

For me personally I am a fan of the super red team so I'm quite happy to drive the 2002 Ferrari - it was easily the best car in the 2002 Formula One season and F1 Challenge replicates this.

Obviously lap times aren't everything (?) so there are plenty of other cars to choose from. The Renault is a good car to drive and it is still competitive, the Jordan is a lot of fun too (like a slower version of the Ferrari) and even the Minardi is enjoyable if you don't mind been in the slowest car - it might not be fast in a straight line but it is a very predictable and forgiving car, I would actually recommend it to anyone new to F1 games. Also by driving one of these "lesser" cars you do appreciate the faster cars even more.

## **8. Car Setup.**

I am not going to go into great detail about the various car setup options because there is a very popular (and very good) guide by RacerAlex available which already does this. It was written mainly for F1 2002 but it works just as well with F1 Challenge (taking into account one or two small differences). The guide is available to read here;

<http://w3.enternet.hu/iroland/html/af1.htm>

One thing I will say about setting up the car is simply don't rule anything out. I have been guilty of this in the past; assuming that depending on the circuit there were some settings you simply shouldn't try as they would never work. For example don't assume Monaco is 50 front - 50 rear wings and nothing else, it's always worth trying something new. I remember a few months ago I was discussing setups with someone online and they told me they were using 32-40 wings (32 front and 40 rear) - I couldn't believe it and I actually told them they wouldn't be able to do decent lap times unless they were using a setup where the front wing was greater than (or at least equal to) the rear wing. That's what I believed at the time, however since then I have tried adjusting setups to use greater rear wings (while using other settings to balance the car) and it has worked with very good results. So now I know that it is possible to make a very useful setup with wing settings I used to think were "back to front".

Until you have actually tested something for a good few laps you can't be sure it is wrong to take your setup in that direction.

Another thing I always found quite hard to understand was the theory of making a setup "to

suit your driving style". I never thought it made much difference; surely everyone had pretty much the same driving style and if you had a good setup you'd be able to drive fast, but once again I have since realised this is untrue - making a setup for yourself is important. I think my driving style is pretty average - I like lots of turn-in and corner grip (who doesn't?) and I prefer a bit of oversteer much more than understeer. Because of this my setups are pretty average too and I think that's why a lot of other people have found them useful, but there are some drivers out there who have very different driving styles - some are capable of exploiting all the grip and benefits of a high downforce setup (pushing the limits more than the rest of us) while others have the ability to cope with much less grip and enjoy the nice straight line speed and acceleration of a low downforce setup while still being able to get the car through the corners quite well.

I didn't really start learning the car setup options until I bought F1 2001 a few years ago but since then (and following on with F1 2002 and F1 Challenge) I have learnt a huge amount about Formula One cars and what all the different setup parameters are for. It's taken me a very long time (almost 3 years) but I'm now confident I can make a setup from scratch for any racing circuit and start driving competitive lap times. There is a lot of trial and error involved in learning how to set the car up but despite this (and despite all the hard work and reading involved) I definitely recommend it if you have the time to spare - you are much better prepared for driving quick lap times if you know what to change on the setup to improve the car in all situations.

I've been lucky with my progress in making setups as I am a test driver for Delta Racing (Formula SimRacing World Championship team) - this has allowed me to drive online with some of the best drivers in the world and also discuss setup changes with them. In the past I have made a setup for a circuit from scratch (working hard on my lap times to make sure the setup is quick) and then I have given it to the team and our race drivers have gone out on track and instantly gone 1 second faster than me (using the exact same setup). This might seem a bit demoralising but at the same time it proves the setup was always capable of a lot more than I was getting out of it - I use that as inspiration and I work harder on my driving techniques because I know there is nothing wrong with my setup.

So if you make a setup yourself and you can't do really quick lap times with it don't assume your setup is bad or that you aren't good at making setup adjustments - there might be nothing at all wrong with your setup; you just need to work on getting the most out of it. It also means that getting a setup from one of the best drivers will not always be the "easy answer" you might think it is - those drivers are capable of getting the most out of a setup and they can also adjust them to suit their own style. So if you try a setup which someone else has done super fast times with you can often find that you aren't any faster using it than you were with your own - and if this happens it means you need to concentrate more on your technique and less on the setup.

Some of my favourite settings for the F1 cars are usually the simple ones - wings, weight distribution, anti-roll bars, springs, ride height etc. With these settings alone you can normally 'rough in' a decent setup for any circuit and then make smaller adjustments from there.

Using a combination of wing and weight distribution settings I find it quite easy to get the car set up aerodynamically for almost any circuit. For example; if you have understeer using 44 front - 38 rear wings with a front weight distribution of 44 you can simply move the weight slightly more to the rear (so you have a front weight distribution of 43 or 42.5) and this single change can have a huge impact on the effectiveness of the setup. If this results in too much oversteer in the high speed turns you can simply remove two or three clicks from the front wing because the extra rear weight bias will mean the car still has good turn-in ability.

I normally find a very soft rear anti-roll bar (between 30 and 50) can really help with rear wheel traction, and very soft rear springs (between 95 and 110) are useful for the same reason - I apply this to nearly all of my setups as it is very useful for driving without traction control.

The front anti-roll bar and front springs are much more difficult to set up as it really depends on the circuit and how fast you want the car to respond (and how stable you want the front of the car to be). As an average I would say my front springs are normally around 175 and the front anti-roll bar is usually around 200 but I can't recommend simply changing your setup to these values and forgetting about them - the circuit and your driving style will have a large effect on what settings you should actually use.

If you were to increase (stiffen) the front springs you would get much better turn-in and much faster change of direction but the car would be more difficult over the curbs and you might not have very good traction from the front end on the exit of turns.

If you want stability and balance in high speed turns you can increase (stiffen) the front anti-roll bar but it will again be more difficult over the curbs and will probably create a 'push' effect (understeer) when turning the wheel at higher speeds. If the front anti-roll bar is too soft it can create a lot more oversteer in every situation but this can be useful for holding a tight line around low or medium speed corners as the car doesn't try to run wide quite so much.

Another setting worth remembering is tyre camber - F1 Challenge models this more accurately than F1 2002 and as a result you don't need anywhere near as much. Front camber should normally be more than the rear setting and you can decide on what adjustments to make to tyre camber by watching your tyre temperatures on the cockpit LCD display while driving. If the inside edges of the tyres are heating up much more than the middle or outside edges it probably means you have too much negative camber on the tyres. For F1 Challenge I've found that a front tyre camber of around -2.8 is useful for most circuits but the rear tyres are much more difficult to set up - If I was driving a circuit such as Spa with lots of fast turns I would probably have the rear camber at a similar setting (-2.9) but if I was driving a very low downforce circuit such as Monza (where traction out of slow corners is very important) I would probably want a much lower setting of around -1.8

Setting the car up does involve a lot of trial and error though - even for real F1 teams; you often hear how they made changes for a certain session (such as single lap qualifying) and the changes didn't work at all. So even the experts make mistakes when setting up their cars.

It's certainly worth learning however as it can give great confidence when you just 'know' what changes to make to improve the car on a circuit (making it faster). I recommend it to anyone who has never tried making their own setups in the past.

Fiddle with the settings, read the guides (RacerAlex Advanced Guide in particular) and learn what works and what doesn't - it's the best way to go if you want to make setups to suit your own style of driving.

## **9. Driving Techniques.**

It's easy isn't it? You brake, turn, accelerate, brake, turn, accelerate... do this a few thousand times and you become World Champion? And how I wish it was as easy as that...

I'll start with a simple piece of advice - think about every corner before you get to it. Think

about the braking point, the turn-in point, the downshifts, and exactly what you want to do with the pedals during the turn. And once you are on the exit of one corner start thinking about the next.

You need to be focused for any racing lap but even more so if you are going for new lap records. Sometimes your first sector will be great and sometimes you will drive the perfect line through a very difficult chicane... Don't admire your own driving or you will almost always lose focus and make an error at the next turn.

Finish the lap and if it does turn out to be a great one you can always watch the replay.

### 9.1. Braking;

You need to learn to be smooth with the brake pedal as soon as possible. Yes you can hammer it when you are doing 200mph if you need to be ready for a 1st gear chicane but you still need to be able to release the brake pedal smoothly.

Lets assume you are going to press the brake pedal fully to the floor when you reach your next braking point - If you brake from 200mph down to 50mph without gradually releasing the pedal towards the end of the braking zone you will lock the brakes badly. This will cause you to either run far too deep into the corner (if you lock the front brakes) or even worse spin the car (if you lock the rear brakes). Which brakes lock up first depends on your 'brake bias' in the setup - if you use 60 front:40 rear you will most probably lock the front brakes under braking and if you use 55 front:45 rear you will almost certainly lock the rear brakes and spin. But you don't want to lock up at all so for the moment don't even think about it - just concentrate on releasing the brake pedal smoothly (and gradually) as you reach the end of your braking zone (and the start of your turn-in point) and there shouldn't be too many problems.

Another popular technique while braking is to use some throttle at the same time to steady the car (and to stop the rear of the car coming around) - this is mainly used by drivers who prefer the 'brake bias' to be towards the rear. As I mentioned earlier; when the brake bias is towards the rear there is a much greater chance of the rear brakes locking and the car having oversteer under braking - using a very small amount of throttle while braking can prevent this.

You might think "why would anyone want their brake bias towards the rear if it simply causes problems such as this?", well that's because a rear brake bias can really help corner turn-in as the car is automatically trying to oversteer, and in the early stages of this 'oversteer under braking' it will normally point the nose of the car in the direction you want to turn. So it can be a useful bonus if you can perfect the technique - you haven't even turned the wheel and the car is already starting to turn into the corner.

Of course this is a very difficult technique, a lot of it is down to timing and a huge amount is down to pedal control (so that you can cause just the right amount of oversteer at just the right time). I've practiced this technique for a long time and I still can't do it perfectly lap after lap but I can definitely see the benefits, and by using some throttle while braking it means you will already have the engine revs up as you start to turn into the corner - this can save you some extra tenths which would normally be spent getting the revs up from a much lower amount if you hadn't been pressing the throttle slightly towards the end of your braking zone. The higher revs during turn-in can also be of benefit at the apex and on the exit of the corner depending on the type of turn you are driving.

If you have your brake bias more to the front then you shouldn't get much oversteer while braking but there is a much greater chance of running too deep into the corner, even if the front brakes don't lock up. Formula One brakes are so powerful that you only have to be pressing them slightly (at low speed) for them to have an effect on the car, and with a front brake bias this effect will be to keep the car running straight and will make it much harder to turn into the corner when you turn the steering wheel. The simple solution to this is to

remember to release the brake pedal completely just before turn-in - as long as you have reduced your speed enough for the corner there shouldn't be any problems as you get back on throttle ready to drive through the upcoming corner. This technique of releasing the brake pedal is definitely worth remembering - I've often turned into a corner and ended up running too deep in the turn (understeer) and at first I've thought it was simply because I was carrying too much speed, but quite often this wasn't the case and it was simply because I still had a small amount of the brake pedal pressed down. So release the brake pedal gradually and try to make sure you have fully lifted from the pedal just before you turn-in.

These braking techniques are very hard to learn and unfortunately I've found that some pedals are better than others for using the more complex techniques (such as throttle under braking). I prefer the Logitech Momo pedals as they are more comfortable for me - the Microsoft pedals were okay too but I didn't like the pedals that came with the Thrustmaster Ferrari F1 wheel... the various techniques just weren't as easy with those pedals and I was much less consistent. I think a lot of people ignore the pedals when they are buying a new steering wheel but you should always give them some serious thought - they are more important than you might think.

One final braking technique which I used a lot in F1 2002 was a technique especially for fast turns and chicanes. If you are reaching a fast chicane in only 5th or 6th (due to the previous straight been quite short) and you know you could take the chicane in that same gear if you weren't using full throttle then rather than lifting the throttle at all you can simply tap the brakes very slightly before you turn-in. This will normally knock just enough speed off so that you can make it through the chicane with full throttle constantly applied - it will lower the revs a little bit and because you tapped the brakes before you entered the chicane you have the benefit of accelerating all the way through it, so when you exit the chicane your speed will be almost as fast as it was just before you tapped the brakes on entry. This braking technique is normally a lot more stable than lifting the throttle before a corner or chicane (especially at high speeds) so it is worth trying.

Unfortunately that technique was a lot easier in F1 2002 than it is in F1 Challenge; In F1 2002 you had a huge amount of high speed grip (more than real life F1) so you could drive through a lot of the fast chicanes and corners in very high gears. The developers changed this for F1 Challenge (removing some of the high speed grip) so now this technique is much more difficult. I used to use this style of braking at 'Waite' in Albert Park, 'Pouhon' in Spa and the first fast chicane in Magny-Cours (among others) and although it can still be used at certain corners in F1 Challenge (if you have a very good setup) it is nowhere near as easy as it was.

## 9.2. Downshifting;

You might not think downshifting is particularly important but you should give it some thought - it's not just a case of pressing the gear shifter as many times as you need to as fast as you can physically do it.

If you are at high speed in 7th gear and you want to brake and downshift for a 1st gear corner or chicane the first 4 downshifts should be as quick as possible - this will create some 'engine braking' as the lower speed gears (5th, 4th, 3rd) will be forcing the engine to slow down at the same time as you are pressing the brake pedal. By now you will be in 3rd gear and you should shift to 2nd just before turn-in (when most speed is knocked off) and then 1st as you start to enter the corner. This technique prevents the "snap oversteer" that occurs when you shift down to a very low speed gear while you are still going too fast (as you haven't been braking long enough at that point), so you have to be careful and smooth

with your downshifts towards the end of the braking zone - releasing the brake pedal gradually (very smoothly) and only making the final few downshifts when you know you have knocked off enough speed for those gears.

If you were just to shift from 7th to 1st as fast as you could press the gear shifter there is a very good chance you would spin instantly when you reached 2nd or 1st gear because you would still be going too fast for those gears (and their maximum revs) - the brakes on an F1 car are very good but they still need a bit of a chance to slow the car down when you are using them from over 200mph.

So it is important to think about your downshifting (and when you should do it) as this can really help cut out some of the mistakes caused by choosing the wrong gear or choosing the 'right' gear too early. It sometimes happens in real life too - I remember Mika Hakkinen selecting the wrong gear once when he was leading a grand prix (I think he selected 2nd when he wanted 3rd); he spun instantly and it was end of his race.

One final downshift technique I should mention can be used when you are downshifting for a fast corner that you don't really need to slow down for very much (e.g. if you were in 7th at full speed and you were coming up to a fast turn which you can normally take in 5th) - in this situation it might be better (quicker) if you don't actually brake at all. Just shift down from 7th to 6th before turn-in (without lifting off the throttle) and finally shift down to 5th as you enter the corner (maybe with a slight lift of the accelerator to prevent the negative effect on car balance that downshifts can have when lots of throttle is applied). The 'engine braking' will slow you down and that should be more than enough if you have a stable setup with a decent level of downforce - you also save the tenths you would normally lose by using the brake pedal in a similar situation.

A good example of this is the Maggots/Becketts/Chapel complex at Silverstone - I never actually touch the brake once when I negotiate that section of the lap and it saves me a huge amount of time compared to a lot of other drivers (I always have a very good first sector). I approach the complex in 7th gear, drive through Maggots and the entry to Becketts (still in 7th) without lifting the throttle at all, shift down to 6th on the exit of Becketts (with a slight lift to prevent imbalance) and then I shift down to 5th for Chapel and play with the accelerator pedal so I use enough revs to carry as much speed through the corner as possible without using too much and spinning at the apex or running wide on the exit. This technique might not be the best for a race distance (as in theory it should cause the engine to overheat earlier) but I've actually used it in some shorter races without any problems (and it is certainly a good technique for qualifying).

### 9.3. Turn-In;

You should always know exactly when you want to turn-in. Most drivers know the best line through a corner naturally and just in case they don't there are plenty of guides for this (including the manual), but I always find it is worth experimenting with - you might think you know the best line but this doesn't mean it is definitely the fastest. I often try turning in earlier and then I move the weight distribution slightly to the rear and I try turning in later. This is to see which line lets me carry the most speed into the corner, and I can check the speeds accurately using telemetry. Replays of the fastest drivers can also be useful when trying out the best driving lines because if there is a quick way of doing something they normally have it worked out.

You should concentrate on re-applying the throttle very early just before turn-in (if you weren't using 'throttle under braking') and then focus on holding a constant (if very small) amount of throttle throughout the whole turn - this keeps the revs up and the car will start accelerating on the exit earlier. If you don't use this constant throttle technique then you will have to wait for the revs to get back up when you press the accelerator on the exit of a

turn. It's also good to have the ability to 'play' with the throttle pedal so if you feel yourself starting to run wide you can very slightly ease off and if you seem to be turning too much into the corner (due to not carrying enough speed) you can slowly apply a little more throttle as you are reaching the apex. I find playing with the throttle pedal during a turn to be one of the hardest techniques to master but if you have the correct speed to begin with (on corner entry) you shouldn't have to make too many adjustments with the accelerator until you reach the exit.

I have spoken to some people who say they never fully lift the throttle pedal during a qualifying lap - in other words they are applying throttle for the whole lap! It might sound crazy but when you think about it it isn't... You have the braking technique where you apply some throttle under braking to stabilize the car, you need a decent amount of throttle on turn-in (depending on how tight the corner actually is), you hold a constant throttle during the entry (and all the way through to the apex) and then you start accelerating on the exit - if you applied those techniques to every turn on the circuit you would never fully lift off the throttle. Obviously during some of those turns (such as hairpins or very tight chicanes) you will only be applying the slightest amount of throttle (the very minimum) but you are still keeping the revs up throughout the whole lap and that's probably why the drivers who use this approach are so fast.

#### 9.4. Hitting The Apex;

An important bit of advice to begin with - try not to make sudden or aggressive movements of the steering wheel or throttle pedal while driving through the apex as this can really unsettle the car's overall balance; when you take into account the fact that you are often driving over a curb at this point in the corner an imbalanced car is the last thing you need. You shouldn't really have to adjust your driving line through the apex if you choose a good turn-in point and remember that any mid-corner adjustments you do need to make can hurt your acceleration.

Carrying as much speed as you can through the apex you should then focus on accelerating as soon as possible - you will already be using quite a bit of throttle at the apex and this RPM will help the car increase its speed more quickly, but you don't want to use so much throttle that you cause the car to run wide or spin (depending on the setup).

I've talked a lot about how you have to be smooth with the throttle throughout the corner and even if you think you are carrying too much speed into the apex it's normally better if you don't lift off the accelerator completely as this will cause the weight to shift forward (similar to braking but less extreme) and it can create an understeer effect because of the extra weight the front wheels are trying to hold along your racing line. As a result it's often better to stay on the throttle even when you think you are carrying too much speed and instead try to use a slight lift (smooth and gradual) as you approach the apex rather than fully lifting off.

You should try to return your steering wheel to the centre position as soon as possible when you hit the apex and start to exit the corner - this will make oversteer and spins less likely as there is less chance of the car becoming unstable under acceleration if the front wheels are pointing straight. It's difficult to get used to this technique but it's definitely worth keeping in mind on the exit; and if you took a good line through the corner you should be able to centre the steering wheel very early.

Try to be very smooth with the accelerator as you apply more and more power on the exit as this will help stability - if you just straighten the wheels up and apply full throttle instantly as you exit a slow turn you will nearly always cause the car to spin - the rear

wheels simply don't have the grip to cope with the power applied to them. It's difficult as you want to reach full throttle as soon as possible but you don't want to be too aggressive as this will greatly increase the chances of spinning or at least having a bit of oversteer which will cost you time.

#### 9.5. Corner Exit;

The aim is obvious - to have full throttle applied as early as possible when you pass the apex and start exiting the corner, but this is rarely as simple as it sounds. Of course if you follow the advice from earlier in the guide you will already be carrying speed through the corner from turn-in and up to the apex by holding a small amount of throttle constantly; so you will already have a good speed and rpm level ready to start accelerating on the exit. If you are learning to drive without Traction Control it's quite common to spin on the exit of a corner regularly - you use too much of the accelerator too soon and the rear tyres don't have the grip level to deal with it - the wheels start to spin and the car follows shortly after. This can be very frustrating and is often the reason why people start using Traction Control in the first place.

It does take a lot of practice to be able to drive quickly and effectively without Traction Control but it is certainly possible and I believe anyone can do it, even those who claim to be "heavy footed".

So how does it work? As you exit the corner how do you know when the car is about to spin or when you are using an amount of throttle that you shouldn't go beyond if you want to keep the car facing in the right direction? Well, it's very hard to explain. Driving a computer racing simulation you simply don't have the benefits of feeling a real car around you, you can't physically 'feel' the tyres losing grip and don't have the same feedback from the car and it's behaviour on the circuit; so somehow you have to judge the grip level of the car through audio and visual references. I'm not 100% sure how it works but at the same time I nearly always know if the car is close to spinning or if I have pushed too hard on the exit and it is about to lose traction. Maybe it's the sound of the tyres (which I have turned up quite loud in the 'Sound Effects' options) or maybe there are visual references in the game that were programmed to give people time to react - perhaps you see the oversteer effect starting for a split second and you know whether or not to lift slightly from the throttle (or at least not to push the pedal any further down).

It's a strange sensation to explain and a difficult one to teach but I think as a driver in real life you instinctively know what the car is doing and when you have pushed it too far. I think a very good setup is a useful addition when driving without Traction Control in a computer simulation because you want plenty of rear traction - maybe a setup with plenty of this available can almost give you a warning (and time to react) if the car is close to it's limit.

A good car always helps of course; unfortunately in the case of rear wheel traction I think the 2002 Ferrari is not the best. It has very good entry and mid corner grip, great acceleration and top speed, and plenty of general high speed grip, but I think when it comes to corner exit the Ferrari seems to have a lot of "snap oversteer" unless you drive it very carefully. Some of the other cars such as the Jordan and Minardi are a lot easier and maybe they are better for people who are new to the game or people who have recently decided to turn Traction Control off for good. Come to think of it the Ferrari's haven't been great at getting off the grid from a standstill for quite a few seasons now (even with traction control) so maybe they really haven't got very good traction from the rear wheels and the game is simply reflecting this.

Another useful technique on the exit of a corner is to short shift; in other words if you exit a tight turn in 2nd gear you can shift up to 3rd before the orange or red RPM lights actually



appear. This doesn't seem to have a great effect on acceleration and it also means there is less chance of spinning because you never reach maximum revs on the exit of a turn - the car is much more likely to spin if you use maximum revs in an extreme situation (such as the corner exit with high g-force), so shifting up early will drop the revs back down and you should then be able to use a bit more throttle as you finish exiting the turn. I use this technique quite a lot towards the end of a race when the tyres have decided they'd rather not stick to the road anymore - it can be very helpful.

Once you have mastered the concept of perfect turn-in, apex and exit speed you should feel as though you have a flow and rhythm through the corners (and throughout each lap as a whole). I know slowing down, changing direction and speeding up is a standard part of every corner but even this should feel fast and fluid. If you are often hesitant with the pedals or steering motions (or the corners have a very 'stop-start' feel) you are probably losing time; you might even find there are places during a lap when you aren't pressing either pedal at all - this is not a good thing.

#### 9.6. Throttle Control - Finding The Limit;

Following on from the corner exit techniques I think it is important to have a closer look at how Formula One cars react when you are close to the limit; under acceleration from low speeds.

You might have noticed that some of the best real life F1 drivers often make little mistakes or spin in a practice session but they rarely do it in a race - this is because they are finding the limit of the car and it's grip levels during a session where perfect driving isn't so important. So it's a very useful way of learning what your car is capable of on each circuit and a similar approach should be tried when driving simulations.

I sometimes try pushing the car too far on purpose; knowing it will almost certainly result in a mistake but at the same time I am gaining useful knowledge of the grip and aerodynamic limits - in a race I will rarely make the same errors. The car regularly spins when you don't want it to so why not get your own back? Drive the car to its limits and force it to spin the wheels for a change - if you never try exploring the limits you'll never know how fast the car can actually go.

A few years ago I downloaded an onboard lap of Ayrton Senna at Monaco; I think it was a pole position lap from the early 90's. It was a very impressive lap (as you would expect) but the biggest standout for me was the opposite lock he used on the exit of the very tight Grand Hotel hairpin - he obviously tried to accelerate too fast too early but when the car started to oversteer he kept the throttle down and just turned the wheel in the opposite direction to keep the car going in a straight line (almost like a rally car).

This was surprising to me because I had never seen that technique used in Formula One before - I know it happens all the time in other motorsports (such as Karting and Rallying) but not Formula One. These days that type of oversteer on the exit of a slow 1st gear turn would rarely happen (due to the traction control) and even if it did happen the drivers couldn't do much to correct it because the grooved tyres simply don't have the grip required.

So I don't believe opposite lock is a viable way of correcting oversteer in real F1 today but does it work in the game? Well, I gave it a good try but I have to admit there was only mixed success;

Making sure traction control was turned off I loaded up a Monza Test Day and headed onto the track - Monza is a useful circuit for testing this sort of thing because it has a very wide (and very long) main straight, and there is plenty of room for error. I exited the pits in 1st gear and instantly set about trying to cause the rear wheels to spin.

My first few attempts at correcting the oversteer were useless as I simply wasn't reacting

fast enough to the cars behaviour and I wasn't playing with the throttle correctly, but it didn't take long before I started to have some success. I stopped the car on the main straight, pressed the clutch, put it into 1st gear, applied a healthy amount of revs with the throttle pedal and then let go of the clutch button - it didn't take long for the rear wheels to start spinning (almost instantly) but by holding the steering wheel at the centre position the car would often go forward for quite a distance before the oversteer actually started to kick in. At this point it became very difficult but there was still time to use opposite lock if I reacted fast enough the sometimes I was able to keep the car going in the direction I wanted it to.

I mentioned 'mixed success' earlier though because that's exactly what it was - on more than half of the occasions I tried this technique I was too slow to react (or I used too much throttle) and the rear end came around. I did learn that by shifting up to 2nd or 3rd while the wheels were spinning often made it possible to keep the car going forwards for longer but it still wasn't perfect - not something you would want to purposely try on the exit of a tight turn. When you take into that this test was done on a flat stretch of tarmac (without curbs, bumps or elevation changes) it makes you realise just how difficult it would be to use opposite lock to correct oversteer while driving an actual lap of the circuit.

It might all sound a bit crazy to some people because in the theory I was out there literally trying to do 'bad starts' (or starts that would be considered very bad if you did them at the start of a race), but at the same time I did learn some new information about how the car behaves in extreme conditions and how far it can be pushed before the limit is reached. I certainly recommend other people try a similar test if only to realise how important it is to have good throttle control - to have enough ability with the accelerator to know when you have reached the limit and not to go beyond it. If you have this technique perfected you should never need to think about opposite lock because you will never cause the oversteer that would require it.

\*(There is a short replay of my oversteer/opposite lock Monza test attached to the High Gear forum - [OppositeLock-NoTC.zip](#)).

### 9.7. Side Note - 'The Differential Lock';

You will find the 'Differential Lock' setting in the car setup pages and you really should have an idea of what it can be used for (it is adjustable between 0% and 100%).

During most of these driving techniques I have talked a lot about throttle control; lifting the throttle slightly and applying it early on corner exit - the Differential Lock setting changes how the throttle is applied to the wheels when in the process of application (acceleration) or lifting (deceleration). It effects whether you get oversteer when you lift the throttle and also how much oversteer you get when you apply the throttle.

To put it simply;

At 0% you will get a huge amount of oversteer if you suddenly lift the throttle (under braking, mid corner etc) but the car will have very good traction from the wheels when you are accelerating.

At 100% the car will be extremely stable if you were to fully lift the throttle under braking but it won't give you as much traction when accelerating on corner exit.

So it really comes down to what you prefer and what you can cope with. You will often find that most of the fastest drivers have the Differential set between 15% and 25% because they can easily handle the oversteer they might get under braking (applying some throttle under braking to counter it) and they want as much traction as possible under acceleration (I normally use 20% Differential myself).

However if you are really struggling when you brake and the car seems to spin all the time (before or during turn-in) it might be better if you to use 50% Differential Lock or above (unfortunately this will compromise your traction out of corners).

Of course it is better to simply learn the advanced techniques (such as throttle under braking) and then you can use a very low Differential setting and gain the benefits of extra traction when you accelerate - this is almost always the best way to go for improving lap times.

In the past some people might have downloaded a setup with a 10% Differential (without even looking at it) and then wondered why they were spinning all the time when braking; hopefully this will give some insight into the situation and also encourage people to actually look at what values a particular downloaded car setup is using.

I have explained the 'Differential Lock' setting here as I think it is a very important setting to understand (even for complete beginners) but it is explained in much greater detail in the RacerAlex Advanced Setup Guide (along with all the other car setup options). You can find a website link at the bottom of this guide - I highly recommend you use it.

### 9.8. Gear Selection;

One thing I've noticed a lot since I started driving F1 sims is the huge difference between gear choices. You would assume every corner has a standard gear which is perfect and everyone else will be using that same gear but this just isn't the case - lots of people have their own preferences which are different from the norm.

Obviously some of this can come down to the gear ratios in the setup and the amount of wing one driver is running compared to another (you would expect differences in gear choice in this situation) but I have often found differences even when two drivers are using exactly the same setup.

I used to use the 1st gear quite a lot in the slower corners and chicanes but looking at the 17 tracks available in F1 Challenge now I can only see 7 turns where I would even consider using 1st gear. Only 7 turns out of 17 complete circuits.. this is not very many at all.

The reason my gear selection has changed is simply due to discussion with other drivers - finding out what gears they are using and realising that it is normally possible to carry more speed through a corner than I ever thought. In the past I used to find that the faster drivers were sometimes using 3rd gear for the same corner where I was using 1st! This is a huge difference and obviously now that I am more experienced in this area (and I'm willing to try a number of gears for each corner) I have improved my lap times a lot.

Another benefit of using a higher gear for certain corners is that you use a lower RPM through the apex while still maintaining a similar (or better) speed than you would have with a lower gear. This is especially useful when riding curbs or negotiating particularly difficult corners because there is much less chance of spinning when you have a lower RPM (less wheel spin) and because you are using a higher gear than normal you can often carry more speed through the apex. This technique can slightly hurt acceleration on the exit of a turn (due to the extra time it takes for the revs to get up in a higher gear) but the benefits of extra stability and extra speed carried into the corner are usually far greater; And if you really feel it is hurting your exit speed you can simply downshift as you pass the apex (without lifting the throttle) and you will hear the lovely sound of high revs again. There are differing opinions on this 'exit downshift' technique - some people believe that the slight cut in speed you cause when you shift gear means it isn't worth downshifting on the exit and it is better to simply stay in the higher gear and give the RPM time to increase. It really depends on how well you can carry speed through the apex - if you are capable of carrying more speed all the way through the corner because of the higher gear (from turn-in, to apex, to exit) then it isn't really worth downshifting, but if you mainly use the higher gear

for stability reasons and you aren't as good at carrying the extra speed through the corner it is probably better if you downshift on the exit to boost your acceleration.

So don't assume you are already using the correct gears for each turn and don't assume the Formula One circuit maps have the optimum gears displayed on them - it's always worth experimenting. If you are using 1st gear regularly in F1 Challenge then you are probably losing a huge amount of time - with a good setup you should be able to at least use 2nd gear for most of those corners. You can take a similar view of the faster turns - if you use 4th gear for some of the very fast turns at Silverstone try using 5th or 6th and if you use 3rd gear for either of the fast chicanes at Magny-Cours try using 4th or 5th. Of course it is also important to have a good stable setup when attempting higher gears (and extra speed) but there are plenty of good setups available.

### 9.9. A Note From The Experts;

Michael Schumacher; "In my opinion, the secret of speed consists of taking corners on the limit while balancing the car with the accelerator to keep it stable. The majority of drivers try to do it but some are too jerky which costs them time. I really do my best to be gentle with the accelerator to the very edge and above all to stay that way all through the corner. Other drivers find their limit on the exit but they're not there on the entry or in the middle; it's all very well to be on the limit on the exit of a corner but it's impossible to make up for the time lost on entry."

Michael is of course talking about real life F1 but the same situation seems to be true in the F1 simulations. Recently I was lucky enough to be able to compare some of my Monza telemetry to that of Dominik Binz, and all I can say is the difference between us (1 second per lap) was nearly all down to the speed Dominik carried from the turn-in point of corner entry right through to the apex. My best lap time is 1.21.8 and I was comparing it to Dominik's lap time of 1.20.8.

He doesn't use the brake as much as I do so he wasn't slowing down quite as much but he has the ability to hold the throttle pedal at the perfect amount (from the moment of turn-in) to carry as much speed as physically possible into the corners (and all the way to the apex) without pressing the pedal down too far and causing the car to run wide. As long as he hits the apex with this technique it doesn't effect his exit speed at all (in a negative way) and because he is so good at using the maximum amount of throttle possible as he reaches the apex he normally has more RPM than a less experienced driver would have at the same stage. This allows him to accelerate earlier as he exits the corner and allows him to achieve an above average exit speed, which is quite stunning considering his focus seems to be more towards corner entry.

Analysing his telemetry really opened my eyes but more than anything it was simply very impressive - it shows why Dominik is considered one of the fastest racing sim drivers in the world. And if you have a driving technique similar to that of Michael Schumacher you can't be going far wrong.

All of the techniques mentioned in this section have to be done smoothly without exception. The whole process of braking, downshifting, turning, throttle control and corner exit should feel like a single fluid motion at every turn - it is here where you will find consistency. Yes it can take months and months to reach perfection but when you know what technique you want to use and you have the ability to execute it whenever required the whole process of driving the car will become second nature. Then you can give full focus to your lap times, your setup changes and your many files of telemetry.

Once you feel more confident and you believe you have mastered some of the more advanced driving techniques you can start to be a bit more aggressive. Nothing extreme - you will often hear drivers use the term "smooth yet aggressive" and when you have improved the accuracy of your pedal and steering control you can put this driving style to the test. Have some real fun for a change - forget about lap times and try throwing the car into the corners; really pushing the limits on entry and exit. You will often find you are more able to live with the car's behaviour because your techniques are now better and you are much more capable of catching an error before it turns into a crash or spin.

I know some people will go away to try some of these techniques and they will struggle - they will get frustrated and think "what a load of rubbish! none of this is possible!". Unfortunately I can't really help this except to say that these are the techniques a lot of the fastest drivers are using - they are very difficult to learn but they are possible. Practice them and try to focus on exactly what you are practicing. If you drive lap after lap and you manage to get a particular technique right only once in a single lap don't look at this as a negative - at least you know you can do it - it will just take many laps of practice to learn it to perfection.

If I was really struggling with a particular driving technique I always found it good to talk to people - there are many drivers out there who are willing to help and if you post a question on a forum or join an online session you will normally find there is someone who can offer advice.

I know some people assume the fastest drivers will want to keep everything to themselves or that they will be 'too big' to offer advice to people who are still learning but that is rarely the case. I have talked to many of the top level sim drivers over the years and I can honestly say they were all extremely helpful and generous with their time - they aren't just great drivers; they are great people as well.

## **10. Practice.**

Quote (RacerAlex Advanced Setup Guide); "There is no substitute for logging the laps that make your reactions to the car become second nature. There is no quick way to learn a new circuit so you can concentrate totally on what the car is doing at any given point in time. The only way to be faster is to practice, read, learn, and practice some more."

It is very important to practice if you want to improve and normally the more laps you drive the better you will get. However I know that sometimes it really doesn't feel this way - when you see the fastest lap times by the top sim drivers it often feels like you are a million miles away.

You will get faster naturally to a point but to reach the highest levels you really need to find out what driving techniques are being used by the faster drivers and then try to work on similar techniques yourself. It's worth remembering that there isn't one technique which is perfect for everyone and not all the best drivers use the same techniques. This is something I have learnt from talking to a lot of the top drivers (from FSR and other leagues) - some seem to have very good braking techniques, others carry lots of speed into the corners and some concentrate more on exit speeds. Of course all of the really fast drivers do everything very well when it comes to braking, corner speeds etc, but they each have their own strengths where they are particularly special.

It is very difficult - don't expect to get close to the best lap times in a few weeks (it can take years to perfect the various driving techniques), but it's better to focus on specific things when you are driving all those practice laps so you have a goal and something to concentrate on. If you were to drive lap after lap without ever thinking about improving in certain areas you would probably still get faster over time but you would reach a point where you couldn't get much better without working on specific areas of your driving.

You can get quite tired if you practice a lot - I've noticed if I run a hotlap session with fuel turned off (so I can drive lap after lap) it does actually take quite a lot of physical and mental energy. It's the same with the longer races - you try not to make any mistakes at all but towards the end of very long race (50% or more) it normally starts getting quite difficult, the tyres wear out and you start losing concentration due to tiredness. So as strange as it sounds it is actually better to be quite fit for the longer races especially if you don't use automatic gears or traction control - it requires much more physical effort to drive with those two aids turned off and I normally see lots of little mistakes creeping in towards the end of a race which I would never normally make.

I remember a few years ago when Mika Hakkinen was putting in one of his stunning race performances - he was in the lead setting fastest lap after fastest lap and the commentator described him as a "machine". It sounded a bit silly but I knew what he meant and I completely agreed with him - it was as if there were a computer driving the car in a simulation rather than a person capable of human error. But Mika didn't drive those kind of races while thinking about what he was going to have to eat after the race - he drove them by concentrating on perfection lap after lap, focusing on each braking zone, each turn-in point, and giving 100% to every corner of every lap. It really was spectacular to watch.

So you shouldn't under-estimate the mental energy required to drive really quick lap times, and it is energy that the top drivers are willing to put into the game to get the most out of their ability. You have to work hard when trying to improve your speed and you must concentrate on refining your pedal control. Whether it's hotlapping, a short race or just a simple practice session you have to be 'on it', focused on each braking zone, turn-in point, corner line and throttle control at the exit.

To make it clear - if you are driving around locking the brakes before every turn, missing the apex, running wide or spinning on the exit of nearly all the corners you simply aren't concentrating enough; and you aren't putting the required effort into your driving.

## **11. Driving Online.**

I drive online a lot, despite the fact that I only have a 56k modem and the EA F1 games have never been the smoothest for online racing (lag, connection problems, invisible cars, file mismatches and often cars that appear stationary on track). So why do I bother..? It's simply because I love driving with real people! I get to talk to people between practice laps and discuss setups, I get some real life competition and as long as I stick to sessions with a smaller number of drivers (4 or 5 max) the lag issue isn't really a problem (especially in the practice sessions... races are another matter).

I used to use the standard in-game multiplayer search function to find online games but recently I have started using F1RST - a 'race search tool' which allows you to find online sessions which are normally much better suited to drivers who don't use the driving aids. You can chat before you join a session and you can even use the hosting function to drive hotlaps and compete with other drivers for the fastest laps.

You might think it is good if you can join an online session and drive faster than everyone else who is taking part but that's not what I play online for. Yes it sometimes happens where you find a session and you are quite a bit quicker than the other drivers (usually because they are new to the game) but I actually prefer driving with the really fast drivers - competing (or at least trying to compete) with the best sim drivers in the world.

You can learn a lot from driving online and if you have a good online connection you can also watch other drivers on the circuit without lag. You use the + and - keys on the numpad to cycle through all the drivers in the session and then you can use the 'Insert' key to choose a TV-Cam style onboard view and watch them drive. Another good thing about this system is that you actually see the gears and speed readouts on the steering wheel display and if you press number 2 on your keyboard (to bring up the 'HUD') you will also get lap time information about their current lap. I've used this method in the past to watch some of the very quick drivers and they are always very impressive in action (rarely making mistakes).

It's worth remembering that each driver has their own opinion of what is considered 'cheating' or cutting the track online; I've seen many arguments between drivers who completely disagree about the various driving lines you should be allowed to take. Just recently I was in a Monza session online (no aids allowed) and somebody in the session said his best time was 1.22.8. The host instantly replied that 1.22.8 was not possible to achieve legally (his best was 1.23.6) and after some discussion he told us he didn't consider it legal to run wide at Ascari. Taking his narrow exit from Ascari into account I knew it was still more than possible to do 1.22.8 'legally' (to suit his requirements) so I went on track and did a lap time of 1.22.4 without running wide. I think the host was watching me on track during the lap and when I crossed the start/finish line he kicked me out of the session. I'm not sure why he kicked me; maybe it was because he couldn't do similar lap times with his own setup, maybe he thought I was cheating (with edited grip levels or something), or maybe he just didn't like the thought of someone been faster than himself. It doesn't matter - the simple fact is there are drivers out there who could smash his 'illegal' 1.22.8 and break into low 1.21's without running wide at all so he was totally wrong to state lap times which weren't possible just by judging them against his own lap times.

It's best to keep an open mind if you really want to improve. My best lap time at Monza is 1.21.8 and yet there are other drivers who can go faster than 1.20.8... I know they are not cheating and at the same time I know it could take me years to find that extra 1 second... but I'm willing to try; I know it is possible.

There are some very bad online sessions of course and also some crazy people who drive around the track in the wrong direction but this is very rare and almost none existent if you use F1RST to find online games. If you drive very quickly you can get accused of cheating by other drivers and sometimes it is annoying when people join the session and then leave straight away (normally if they see it is a no aids session and they wanted to use some). However the good points far outweigh the bad in my opinion so if you are unsure about driving online I simply say give it a try - join an online session and more than likely you'll be hooked.

## **12. Replays And Telemetry.**

Going back to the days of F1 2001 (when my lap times were quite bad) I used to watch replays of the more experienced drivers who were usually around 4 seconds per lap faster than me and unfortunately the replays weren't as helpful as they could have been. The EA F1 games have a pretty basic replay system which has continued through F1 2002 and now

F1 Challenge - the saved replays don't show any driver inputs such as throttle or brake (unlike the replays in papyrus' Nascar sims) and they don't even show speed or gearing. As a result they aren't as useful - if you are driving at a decent level of speed to begin with then quite often a replay of a faster driver will look almost identical to your own except it will have a better lap time attached to it.

That's not to say they are pointless - if you don't know the perfect racing line, or if a faster driver has particularly unique lines and turn-in points you can pick those things up from the replay. You can also get an idea of the braking points but because there are no driver inputs or speed displayed in the replay you have to do it by the sound of the engine and the downshifts (as well as looking at the trackside scenery) instead of visually seeing the 'mph' start to decrease when the brake is pressed.

You shouldn't write off replays completely - they have some uses (and sometimes it's nice just to watch a super fast lap time been driven) but I wouldn't rely on them too much - you can learn a lot more from telemetry.

### Telemetry;

I don't know a lot about the 'Telemetry' in real Formula One but the telemetry program that ships with F1 Challenge seems to be very advanced - there are many options to choose from and many ways to view different sections of a lap. When you load it up for the first time and see the complex interface and the many graphs and figures it can be quite daunting and I'm sure a lot of people just decide to exit the program and forget about it, but it is worth spending some time with - it's certainly worth learning the basics.

Clicking on a lap time at the top of the screen will display that laps telemetry on the circuit map - it is then ready to analyse. If you load up more than one lap you can display them both at the same as different coloured telemetry - you can choose the colour of a particular lap by right-clicking on the lap time at the top of the screen and selecting a different colour. You can also set a 'Reference Lap' for each circuit which will then always be displayed (in grey) when you load any other laps for that particular circuit.

Unfortunately you can only compare telemetry laps which are from the same season so you couldn't for example compare a 2001 lap with a 2002 lap. Also the telemetry program displays speeds in 'kmh' by default but you can change this to 'mph' by using notepad to edit the F1\_Telemetry.cfg (C:\F1 Challenge\Telemetry\F1\_Telemetry.cfg). You simply change this line "display\_in\_mph=0" so that it reads "display\_in\_mph=1".

You can ignore the more advanced displays in the telemetry program to begin with and simply use it to view speed ('mph'/'kmh') at the various turns and straights - you highlight a turn by drawing a box around it (like you would in a paint program) and then the telemetry program will tell you what your minimum, maximum and average speeds were during that turn. If you compare it to a faster lap by someone else you can see exactly how much more speed they carry through each turn than you do - at some turns there might be nothing in it while at others you might lose lots of time. You can also check straight line speed by highlighting a section towards the end of the main straights and see exactly what speed you are reaching compared to a quicker driver.

Those are very basic ways of viewing the telemetry information - once you've learnt all of that you can try highlighting much smaller sections of the circuit; for example concentrate only on the entry or exit of a turn to get a more detailed insight into where you lose the time and it won't be long before you are comparing ride heights, suspension travel, tyre temperatures, braking inputs, gearing... it's all in there if you are prepared to spend a bit of



time to learn it. If you are unsure about what certain things mean or you don't think you are reading something correctly you can always ask on the forums and I'm sure someone will be able to help.

Telemetry is an extremely accurate way of looking at your laps, comparing your laps with those of faster drivers or even just comparing setups and minor setup changes - I recommend it 100%.

### **13. Talent.**

Does it really exist? Or can we all reach the level of 'best in the world'..?

Well talent certainly exists and I believe everybody has some - you should never underestimate what you personally can achieve. I think one of the main areas where talent is clear is when you are learning you techniques - how long does it take to learn them? And how long does it take to learn them so well that they become second nature?

A few months ago (when F1 2002 was the main F1 sim) I was speaking to someone online about the game - he was quite quick and clearly had ability (driving with no aids) but because I was around 1 second per lap quicker he asked me how my lap times were possible, asking me if I knew some kind of "cheat" or something which made me faster. Of course I didn't have any cheat but rather than be insulted by the question I simply told him about the steering wheel settings and some of my driving techniques. A few days later he jumped ahead of me at the FindTheLimit hotlap site; he was on my pace almost instantly.

I'm not sure how he improved so quickly but he obviously learnt fast and he beat some of my best times. That to me was a good display of talent. I was a bit shocked of course but not actually 'bothered' by it - I am always looking to improve just as everyone else is, so whether someone jumps ahead of me in the process isn't important. I have improved since that time and I continue to work hard on my driving technique. Maybe I should email him again and ask him for some advice about going faster...

I don't consider myself particularly talented and yet I aim for the times set by the most talented drivers I have ever seen. Yes I do think they are more talented than me but they are also more experienced, they practice very hard and they know a lot about car setup and telemetry. I still believe that if I keep looking to improve I will one day reach the same level as the best, it might just take me a bit longer to get there.

### **14. Closing Comments.**

Hopefully this guide will be useful for beginners as well as the more advanced drivers - some of the setup information might seem totally obvious to someone who has had the game for months but it might be useful to someone who is completely new to the game. Of course the information here is only based on my opinions and experiences - other people may have different ways of improving speed and use different techniques.

At least I can close this text knowing I have given everything; I have included all the information I have about driving F1 sims and I haven't held anything back. I have also done my best to make it as clear as I possibly can.

I used to be very slow; when I first started driving F1 sims my lap times were around 5 seconds per lap slower than they are now. The information provided here is what I used to improve my performance and hopefully it will help others to do the same.

Please don't expect too much too soon. If you have read this guide and you think you have found a few useful tips you still shouldn't go into your next practice session expecting to see new lap records - if you are changing steering wheel settings it will still take a good few laps to get used to them and if you are trying out new driving techniques it can take many laps of practice to get them right.

Practice is surely the most important process when you are trying to improve and I know it can sometimes be very hard - if improvements in speed aren't appearing maybe it is best to take a break but please don't give up. I've been guilty many times of thinking I can't go any faster but other drivers have always told me that I will continue to improve and in time I always have.

So I end the guide using the same advice with which I started - "practice"; And don't ever believe you have reached the limit of your abilities because there's a 99.9% chance that you haven't.

Don't doubt yourself. 😊

Craig Cookson.

(ForthRight).

[CrimsonSuicide@Hotmail.com](mailto:CrimsonSuicide@Hotmail.com)

---

---

A huge thank you to these people for their contributions to the guide;  
Dominik Binz, Eric Alexander, Markus Kononen.

And a very special thank you to all the people who have helped me with my own driving over the years;

Joze Rozman, Dom Duhan, Adam Dodd, Eric Alexander, Chris Phillips, Max Dell'Orco, Jonne Vink, Ivan Polendo, Stanislav Zabelin, Andy von Gerard, Dave Nicol, Brad McGiveron, Markus Kononen, Greger Huttu, Alx Danielsson, Dominik Binz, Dennis Johansen, Keiji Maeda, and Dave Collins (for making me see the benefits of creating my own setups).

Without these people I would never have improved as much as I have over the past 3 years and this guide would never have been written.. Thank you.

## **15. Useful Links.**

The High Gear Forums;

<http://dynamic2.gamespy.com/~hg/forum/index.php>

F1 Challenge 2003 Season Addons;

[www.emacf1.com](http://www.emacf1.com)

Formula SimRacing League;

<http://www.formula-simracing.org/worldchampionship/index.asp>

The F1RST Main, Hotlap and Chapionship Sites;

[www.f1rst2.com](http://www.f1rst2.com)

<http://hotlaps.f1rst2.com>

<http://rh2003.f1rst2.com>

Tantra 2003 Track Downloads;  
<http://spider.m4driving.sm/download.html>

Racesim Central Sim News;  
<http://www.racesimcentral.com>

Team Redline Online Sim Racing Team;  
[www.teamredline.co.uk](http://www.teamredline.co.uk)

01Ferrari-Fan's Speed Zone (lots of tweaks and utilities);  
<http://lvbf1sims.net>

RacerAlex Car Setup Guide;  
<http://w3.enternet.hu/iroland/html/af1.htm>  
[http://watcher.m4driving.sm/modules.php?name=Downloads&d\\_op=viewdownload&cid=6](http://watcher.m4driving.sm/modules.php?name=Downloads&d_op=viewdownload&cid=6)

---

### **My Best Lap Times;**

Spain - 1.18.9 - (2002 Ferrari)  
Austria - 1.07.3 - (2002 Ferrari)  
Great Britain - 1.17.7 - (2002 Ferrari)  
Germany - 1.15.5 - (2002 Ferrari)  
Hungary - 1.15.4 - (2002 Ferrari)  
Belgium - 1.45.5 - (2002 Ferrari)  
Italy - 1.21.8 - (2003 Ferrari)  
United States - 1.11.6 - (2002 Ferrari)  
Japan - 1.34.2 - (2002 Ferrari)

The setups I used for all the above lap times and also one replay - 1.21.8 at Monza (2003RH Ferrari) for download.