

PC CD-ROM

AN OFFICIAL PRODUCT OF THE FIA
FORMULA ONE WORLD CHAMPIONSHIP

GEOFF GRAMMOND'S

GRAND PRIX 4



<http://www.replacementdocs.com>



Geoff Crammond



GRAND PRIX 4

SYSTEM REQUIREMENTS

MINIMUM :

Operating System: Windows® 95/98/Me/XP
 Processor: Intel Pentium® II 400 MHz or equivalent
 Memory: 64 MB RAM/ Video: 16MB
 Hard disk space: 500 MB free
 CD-ROM drive: 4X Speed
 Video: DirectX 8.0 compatible Video Card
 Sound: DirectX 8.0 compatible Sound Card
 DirectX: DirectX 8.0

RECOMMENDED :

Operating System: Windows® 95/98/Me/XP
 Processor: Intel Pentium® III 750MHz or equivalent
 Memory: 128 MB RAM or more/ Video : 32MB
 Hard disk space: 720 MB free
 CD-ROM drive: 4X Speed
 Video: DirectX 8.0 compatible 3D Card
 Sound: 100% DirectX 8.0 Hardware Accelerated Sound Card with EAX Support
 DirectX: DirectX 8.0

INSTALLATION

- Insert the Grand Prix 4 CD into your CD-ROM drive. If autorun is enabled, Grand Prix 4 will take you to the Installation screen.
- Simply click on the 'Install' button and follow all on-screen directions.
- If autorun has not been enabled, you'll have to double-click on the 'My Computer' icon on the Windows® Desktop, then on the CD-ROM icon, and then click on 'Setup.exe'. The simulation will now install.
- Follow all on-screen instructions.
- Once Grand Prix 4 is installed it will appear in the Program Group on the START Menu.

Loading

- Select Start > Programs > Infogrames > Grand Prix 4. The game will now load.

THIS MANUAL

This manual is structured in such a way as to introduce the game to rookie players and to encourage them to delve deeper to get the most out of the real simulation. If you're a Grand Prix 3 veteran you'll be familiar with the basic controls and could probably get racing quite quickly, but be aware that there are differences between Grand Prix 3 and Grand Prix 4 so you'll find it very worthwhile reading the manual to understand all the simulation controls.

THE README FILE

Note that this manual will guide you through most of the Grand Prix 4 simulation but due to printing constraints may not contain the most up to date information. For all last minute information you are advised to consult the Readme file found on the CD (selected by clicking on View Readme in the Program group).

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DESIGN CRAWFORD'S

CONTROLS

Throughout this manual, you'll see references to the Accelerator, the Brake, Changing Gear and Steering. How these controls operate depends on your preference of Keyboard, Joystick, Wheel, or Joypad. The default Keyboard and Joystick driving controls are:

KEYBOARD DRIVING CONTROLS

Accelerate	A
Brake	Z
Steer Left	<.
Steer Right	>.
Change Up a gear	Accelerate A key + Space
Change Down a gear	Space

(If you are using separate buttons for changing up or down a gear there is no need to accelerate when changing up.)

JOYSTICK DRIVING CONTROLS

Accelerate	Forward
Brake	Back
Steer Left	Joystick Left
Steer Right	Joystick Right
Change Up a gear	Accelerate + Press Fire Button
Change Down a gear	Press Fire Button

(If you are using separate buttons for changing up or down a gear do not accelerate.)

Note: All the above driving controls can be reassigned (see page X).

OTHER KEYS

Driving Aid Keys:	
F1	Auto Brakes
F2	Auto Gears
F3	Auto-right the Car
F4	Indestructible
F5	Show Best Line
F6	Suggested Gear
F7	Traction Control
F8	Steering Help
F9	Launch control

Action Keys:	
Intending to Pit	Enter/Return
Return to Pits (Qualifying/Practice)	SHIFT + Q
Leave Race	Esc
Pause	P
Pause (when using Joystick)	Space
Replay	R (when the game is in the PAUSED state)

Miscellaneous Keys

See Driver Name	N
See Processor Occupancy	O
Decrease Cockpit View Angle	Minus -
Increase Cockpit View Angle	Plus +
PC Spec Information	CTRL + I
Joystick On/Off	CTRL + J
Background Sound On/Off	CTRL + S

View Keys

Your Car Cockpit View	Right Arrow
T-Cam View	Right arrow key a second time
Trackside Camera View	Left Arrow
All On-car Camera Views	Page Up (Cycle through)
Chase View	Page Down
Reverse Chase View	Delete
Car Ahead	Up Arrow
Car Behind	Down Arrow
Return to Your Cockpit	Home
TV Director Mode	Insert

Network Keys

All Escape to Menu Screen	SHIFT + U
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Two Player Link Keys

Send Message	CTRL + M
Host Release Control in Menus to other player	CTRL + R
Hang Up	CTRL + H

GETTING STARTED

ONE LAP OF MONZA FOR ROOKIE DRIVERS

- Install and load Grand Prix 4 as explained previously. After the opening animations, you will be given the choice of Main Menu, Quickrace, Quicklaps or Gpaedia. Use Quickrace if you want a quick blast of Grand Prix 4. But for the purposes of this tutorial guide...

- Click on Main Menu.

For the duration of this Quickstart tutorial, you will be

SCREEN 1 / MAIN MENU

- **Click on the Driver panel to go to the Driver Select screen.**

- In the **Teams** panel, one of the drivers is already selected (the number is highlighted). Click on the driver's name to deselect.
- Highlight your preferred driver name and click on **Edit Names**.
- Type in your name (or the name you want to race under) and click on **OK**.

**SCREEN 2 / DRIVER
SELECT**

You are now Driver 4, racing for the **Ferrari** team. Your team's badge now appears in the background of the screen. From this screen you can also access your individual **Car Setup** options and save the driver names. But for this tutorial, simply click **OK** and you'll return to the **Main Menu** screen. The name you typed in will be shown as the **Driver**. Monza has been chosen as the track where you'll have your shakedown test.

- Click on the **Track** panel and you'll be taken to the **Track** screen. A list of the 2001 Championship Season tracks appears on the left.
- Click on **Italy** then select **OK** to return to the **Main Menu**.

Italy now appears in the Track panel. Now choose the kind of race you want.

- Click on the **Race Type** panel and select **Practise**.
- Click **OK** to return to the **Main Menu**. The preparations are over. It's time to drive!
- Click on the **Drive** button. You'll see a **Weather** screen that details the **Current Track** and **Sky** conditions and the **Forecast** chance of rain.
- Click **OK** to start your first practice session.

You're now sitting in the Ferrari cockpit in the pits at Monza. As with any test session, it's now time to check the instruments and controls...

- *Below the LCD screen on the steering wheel is a row of nine lines. Each corresponds to a Driving Aid designed to help you control the car. Keys F1 to F9 turn each of these on and off. In **Rookie** mode, all lights should be on with the exception of Launch Control (F9) which will only be on as default at the start of a race. If they're not, press the relevant F key. Suggested Gear (F6) is not needed for this session. With the Driving Aids activated, you won't have to worry about changing gear or braking: this will be done automatically and all basic steering around the circuit will also be assisted. You may crash if you stray from the racing line, but your car will not be damaged. If you spin off the track, the car will right itself once it has come to rest and face the right direction so you can get on with the session.*

**SCREEN 3 / COCKPIT
VIEW - PIT AT MONZA**

- ***Now check the Monza track plan below...***



- Find the Star/Finish line and then run your eye clockwise around the course until you come back to the Finish line. Check where the pit lane joins the track so you'll know exactly when you'll be on the actual racing track. Memorise the track plan so you can anticipate what the corners will be like. As you improve your racing skills and become more experienced, you'll realize just how important knowing each circuit will be to your success.***

Your car is still on its jacks in the garage.

- *Select the **Leave the Pits** option on the LCD, using the Throttle and Brake controls, then press the Gear Change button. The car will come down off its jacks and you'll see a new LCD screen appear on the central steering wheel panel.*
- *Now slowly squeeze the accelerator... Your car will begin to move forward (if it doesn't, check that you've pressed F2 and that the second symbol on the Driving Aids display is lit).*
- *Steer out from your pit garage and drive down the pit lane. Remember that in race conditions, you'll need to stick to the pit lane speed limit of 50mph/80kph. If you want to pause the simulation at any point, press key P (or Space if you are driving with a Joystick, Wheel or a Joypad). Press P again to reactivate. During this session, pause as many times as you feel you need to, so that you can study the track plan and anticipate what's coming next. As you steer out of the pit lane, join the main track, keeping on the inside of the broken yellow line. Once on the circuit proper, the yellow line will be replaced by a long broken white line.*
- *Try to keep the middle of the steering wheel lined up with the broken white line as you progress around the circuit. This white line is the **Best Driving Line Driving Aid (F5)**: the quickest possible line into and out of bends without spinning off the track. At some point before the first bend, you should, see a white sign with a black arrow bending to the left, then countdown marker signs with 200 and 100. These signs show how many metres remain before the approaching left-hand bend.*

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- This is a good spot to pause the simulation and check the Monza track plan again: The first bend at Monza turns to the left and is followed by a sharp right. Next is another left-right combination making up a double chicane called the **Variante Goodyear**.

- Find the **Prima Variante** on your track plan and examine the next bend, the **Curva Grande**.

This is what Formula One racing is all about: being aware of the next part of the course and making sure you are properly prepared to drive through it. Only by knowing what lies ahead can you optimise the line you take through each corner.

- Reactivate the simulation by pressing **P** or the **Space** bar.

- Steer carefully around **Variante Goodyear** (don't try to go too fast) - left then right, along a short straight and left and right again. Try to follow the broken line even though it sometimes appears to be aiming away from the track. If you do leave the track at any time, steer back towards it (this might be slippery on grass or gravel) to get back on the tarmac. If you have spun and are facing the wrong way (and you still have the **Auto-right the Car (F3) Driving Aid** on), don't touch the controls. Wait for the car to right itself and point in the correct direction.

- See how the ideal racing line takes you out of this last corner, using the whole width of the track and taking you over to the left side of the road, ready for the approach to the long sweeping right-hander: the **Curva Grande**. You'll probably find that you can drive quite fast through this bend.

- Continue along the straight and go under the bridge. Just after the bridge is a left turn.

- Press pause and have another look at the track plan. This left turn is the first part of the **Variante della Roggia**: another chicane. Check how this looks and imagine how you will drive through it.

- Now look ahead on the plan to the next three bends and try to imagine what they will look like from the cockpit.

- Press the pause button again to continue.

- Steer through the chicane and on through the next two right hand curves (**Lesmo 1** and **Lesmo 2**). You'll now face a long, downhill straight.

- Accelerate! As you're moving, glance at the gear indicator (the red number in the centre of the wheel display) as the car changes gear automatically. Listen to the sound of the engine and watch the rpm indicator lights as the gears change up and down. Get used to glancing quickly at the displays and the mirrors as you're travelling at speed. At the end of this straight is an unusual chicane called the **Variante Ascari**. Pause, check your track plan, analyse and memorise, reactivate the game and drive through the corners, following the ideal racing line. The more you can commit to memory, the easier the corners will be to drive through at speed.

- Accelerate along the straight and see if the automatic gear change will take you into top gear (6th or 7th) before the auto-brakes slow you down for the **Curva Parabolica**. As you come out of the bend, you'll see the grandstands, the pits and a yellow dotted line marking the pit lane entrance. Remember that each track has its own specific pit entrance and exit layout, and it's important to take a note of this as part of your race preparation.

- Keep following the broken white line. You're now back on the start/finish

straight: the **Rettifilio Tribune**.

- Accelerate at full speed. You'll see the starting grid - the spaces where the cars line up for start of the race - and a thick solid white line across the track that marks the end of this lap.
- As you cross the line, you'll be starting your first flying lap: the timer on your cockpit lap time display will start. You can pause the game at any time to double-check the track plan - your lap time will not be affected.
- When you complete your first flying lap, check your time and try another lap to see if you can beat your previous time.

CONTROLLING YOUR OWN BRAKES

Although the auto-brakes you were using are effective, they're still a **Driving Aid**. To get the very best lap speeds, you'll need to apply your own brakes. When you feel confident you've mastered steering and the racing line, try switching off the **Auto-brakes Driving Aid**:

- Press **F1** and check that the auto-brakes light has gone out on the bank of green icons below the LCD. Now it's up to you to choose the best moment to brake as you continue lapping Monza! The car will feel very different this time. Remember how the brakes are operated by your choice of controller:

Keyboard : Brake = **Z**

Joystick : Brake = **Back**

CONTROLLING YOUR OWN GEARS

- When you're ready to try controlling your own gears, stop on a straight part of the circuit and press **F2** to cancel the **Auto-gears Driving Aid**.

- Now press **F6** to activate the **Suggested Gear Driving Aid** we left off earlier in the session. The corresponding icon will light up on the display. You're now in control of ALL gear changes, but to guide you, when you see a number in the **Suggested Gear** panel, that will be the gear to be in as you go into the NEXT corner. Check the gear change method for your choice of controller:

Keyboard : Change Up a gear = **Accelerate A key + Space**
Change Down a gear = **Space**

Joystick : Change Up a gear = **Accelerate + Press Fire Button**
Change Down a gear = **Press Fire Button**

Note: If you have separate buttons for gear changes then you do not need to accelerate to change up.

- Practise gear changing up and down and watch the red gear indicator.
- Try to get into neutral (N) and then accelerate. The engine will rev and make a highpitched noise.
- Blip the accelerator and look at how the revs rise on the digital rev counter, then select first gear BUT keep the



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revs up - not too much power otherwise the car may spin. The '1' on the red gear change indicator in the centre will appear, showing that you've successfully selected 1st. You'll start moving forward...

- Listen to the change in engine tone and watch your speed rise on the mph/kph indicator.
- Accelerate away and watch the rpm indicator lights illuminate as the revs increase. When the red light appears at the end of the set of green lights, change up to second gear (you'll see a '2' on the display).
- Try changing up as far as fourth gear, then try changing down before a corner by taking note of the **Suggested Gear** indicator.

Note: You don't have to be braking when changing down, but you must not be accelerating. Your car has six or seven forward gears, neutral (N), and reverse (R). If you are in reverse, accelerate to move backwards (just like in a real car).

DRIVING INTO THE PITS

Once you're familiar with the Monza circuit and the basic car controls, practise driving back into the pits.

- At any point during the lap before you want to come in, press the Return key to let your pit crew know you're going to come into the pits. The pit signal on your instrument panel will light up in green, giving you the 'all clear' to come in. If the pit signal is red, this means that your crew are busy with the other team car. Do another lap before trying again.
- Drive slowly into the pit lane keeping on the inside of the broken yellow line. The simulation will then 'direct' you into the correct bay, and the pitcrew will push your car back into the garage. As your car is jacked up by your crew, a **Pit Options** menu will appear on your cockpit LCD allowing you to add **Fuel**, change **Tyres**, **Leave the Pits** or go to the **Car Setup Options**. Use the A/Z keys or joystick Up/Down to select the option you want from your cockpit LCD menu.

SCREEN 4 / PIT
OPTIONS MENU

Note: Grand Prix 4 features extremely detailed **Car Setup Options**, ranging from Basic to Advanced (Level 1) and Advanced (Level 2). To enjoy the simulation to the full, you can learn much more about setting up the car for the track conditions later in the manual.

REFUELLING

- First select the **Fuel** option from your cockpit LCD menu.
- Use your left/right steering control to alter the amount of fuel (in laps) to be taken on board.
- Press the space bar or the joystick fire button to quit the Fuel menu.

TYRES

- Select **Tyres** from your cockpit LCD menu. The cockpit LCD will show your available sets of tyres with the amount of laps completed on each set. At the top of the LCD is the tyre type.
- Select using the A/Z keys or joystick Up/Down. Switch tyre type using the

left/right controls. When you select Tyres on the LCD you will see three tyre sets marked 0, three tyre sets marked r1, r2, r3, three tyre sets marked q1, q2, q3 and one set marked qr. The 0 sets are for practice. The 'r' tyres are the sets allocated for the race (r1 starts the race, r2 being used at the first pitstop etc.) but you can also use these sets in practice if you have used up the other 0 sets. The q sets are reserved for qualifying sessions with the exception of the one qr set which can be used in qualifying and race.

Note: A tyre set comprises of 4 tyres. Be aware that there are different tyre sets for different conditions: two types of Dry - Hard and Soft and four types of wets - Intermediate, Hard, Soft and Monsoon, and that before

you begin your qualifying sessions you will have to decide what type of Dry tyres you are going to race on during the rest of the race weekend

- Press the spacebar or the joystick fire button to exit the Tyres option.

LEAVING THE PITS

When you're ready to leave the pits, highlight this option on the LCD, press the spacebar or fire button and the jacks will be lowered. You can now drive out of the garage and down the pit lane (remember the speed limit!) and re-join the circuit.

CAR SETUP OPTIONS

Select **Car Setup Options** from your cockpit LCD menu.

- This will take you to the Car Setup screen. First of all change from the default track setup (which you cannot edit) to the user selected setup where you'll be able to adjust all the basic options for your car: Front Wing, Brake Balance, Rear Wing, Gear Ratios and Pitstop Strategy. The Car Setup Options screen also gives you access to all the Advanced Setup options (Levels 1 and 2). For details on all these, see The Car Handling Section on page 22.
- Press **OK** to return to the **Pits Options** screen.
- Press **Return to Cockpit** to get back to your car.
- Press the Esc key to open the **Practice** menu.
- Select **Leave Practice** to return to the **Main Menu** screen. Now you can try to get a good qualifying lap time and enter a race at Monza (you should know the track quite well by now). This will be a 'one-off' Non-Championship Race.

A TIMED QUALIFYING SESSION

- From the **Main Menu** screen, click on the **Race Type** panel.
- Click on the **Non-Championship Race** button, then click on **OK** to go back to the **Main Menu**.
- Click on the **Drive** button and you'll be taken to the **Italian Grand Prix** menu screen.
- Select **Qualifying**. The **Track** and **Sky** conditions and



Weather screen will appear. If it's raining, you'll want to fit special tyres for wet conditions. These wet tyres vary depending on whether it's a light drizzle, rain or very heavy rain (monsoon). Remember, you can also do this from within the cockpit (in a pitstop) if race conditions change during a race.

- Click **OK**. You'll now be taken to the Pits, but this time, a 'telemetric' monitor will appear in front of your cockpit. This lists all drivers in the qualifying session, with your name highlighted. Ideally, you should still be in Rookie difficulty level and have all your Driving Aids (F1 to F8) switched on - you're free, of course, to deselect one or more of them.

Check your tyres. You will see that qualifying tyres q1, q2, q3 and qr are available plus seven sets of the four wet types.

Note: Once you go to qualifying the Dry tyre choice (Hard or Soft) in Car Setup screens is fixed for the rest of the race weekend. Wet tyres will always be available however. Don't adjust anything on the car at the moment. When you're ready, set off on your first qualifying session.

- Press the spacebar (or the fire button in joystick control) and the telemetric monitor will swing out of the way and your car will lowered off its jacks.
- Using the experience you gained in the earlier session, drive away from the pits and complete a lap. Remember, you won't be timed until you cross the start/finish line for the first time. As soon as you do, the lap timer in the panel below the LCD will be triggered and your time for that lap will be displayed when you next cross the start/finish line. The time remaining in the qualifying session is shown on the LCD in your steering wheel.
- When you have logged two lap times, return to the pits. (You can either drive around to the pit lane entrance or hit **SHIFT + Q** to jump back to the pits.)
- Once you are in your garage, your car will be raised on its jacks and the monitor will appear once again in front of you showing practice times so far - the four nearest to your times and the current pole. You can now change the qualifying tyre set by selecting Tyres and using the left/right control.

Now you can view the other cars with Pit monitor.

Press **N** to put on laptimes of the other cars.

Press again, it turns it off.

Note: Qualifying tyres are only good for a limited amount of laps and the fresher they are the more effective they are. You can now alter the setup of your car by selecting the **Car Setup Options** on the LCD display. If you're still new to Formula One car setups, stick to the default settings of Grand Prix 4.

- If you want to speed up the qualifying session, select the fast forward symbol (>>) in the cockpit LCD menu.
- If you ever want to exit the session before the end, press **Esc** and select **Abandon Qualifying**. No time will be logged and you will start the race from the back of the grid. When time is up, the **Qualifying Over** screen will

SCREEN 5 / COCKPIT
VIEW - PIT QUALIFYING SESSION

appear. You can choose to **View Full Session Times**, or go to the **Options** screen (where you can alter Controls, Driving Aids, Race Options, Graphics, Sound, Save or Exit the game) or **Continue** with the Non-Championship Race.

- When you click on the **Continue** button, you'll have the option of a **Pre-Race Warm Up** or you can go straight to the **Race**. The **Pre-Race Warm Up** is a chance to practise on the circuit in full racing trim. For this **Quickstart** tutorial, you will go straight to the race.
- When **Race** is selected, you will see side-on views of the cars in their qualifying positions on the starting grid.
- Click on the control buttons to find your name and car, then click **OK**. Again, the track, sky and weather conditions will appear on the screen, but this time, you'll also be given the option to make **Last Minute Changes** such as altering **Pitstop Strategy**, **Tyre Choice** (for instance, if the weather has changed radically) and full **Car Setup Options** (at all 3 levels).
- Click **OK** when you're ready to race.

A NON-CHAMPIONSHIP RACE

You're now on the starting grid at Monza - somewhere between a headline-grabbing pole position at the front of the field or on the last row if your performance was poor (or you failed to get a time)! Your LCD display will show the number of laps in the race. This will be a percentage of the real race and can be altered in the **Options** menu. Your pitstop strategy (**No Stop, One, Two or Three Stops**) is also pre-set. Whatever your position on the grid, you'll be able to see the starting gantry: five banks of five lights. Wait for the banks of lights to come on in sequence. When all five are glowing red, watch for the moment when they all go out. This is a random number of seconds later.

- When the red lights go out, the race is on! The most dangerous moment of the race, yet also the best chance to make up places on the grid, be prepared to jostle for position as you head for the first corner. Be extra careful when you approach the braking area and be prepared to take evasive action to avoid touching other cars. If you've selected Driving Aid F4, you'll be indestructible but you might still be slowed and perhaps pushed off the track by other cars.

As you race, keep checking the cockpit display for:

- Your position = **P**
- The lap you are currently on = **L**
- The fuel left in tanks (in laps) = **F**
- Your water temperature = **T**

It's best to choose a moment on one of the straights to carry out these checks.



Pitstops

If the **Pits Indicator** (cockpit lower right) turns green, you're being called into the pits by your crew for a planned pitstop (to change tyres and refuel) or for an unplanned pitstop to repair damage. Drive into the pits as soon as you complete the current lap. If you want to cancel this order, press Return and the light will go out. Similarly if you decide you want to pit, press Return and the green Pit Indicator will light (press Return again to cancel).

Flags

At the side of the track, you may see race marshals waving different flags at the drivers: **YELLOW** means **NO OVERTAKING** - there's probably been a spin or accident on, or near the track. Do not overtake. When you see a marshal waving a **GREEN** flag, the yellow flag order has been cancelled - continue all out racing! **RED** means stop racing immediately. **BLUE** means a faster car is trying to overtake you. The cockpit has flag warning LEDs to show which of the main flags are in force. Throughout the race, you'll be given information about who is achieving the fastest laps.

Pulling Out

If you ever want to leave the race at any time press the Esc key. A menu screen will appear: if you select the **Leave race** option, you can **Save** the game (see below) and then return to the **Main Menu**.

SCREEN 6 / SAVE
GAME SCREEN

Saving the Game:

You can save the race at any point. Here's how:

- Press Esc to freeze the race and access the Race menu.
- Select the **Options** button.
- Click on **Save** to go to the **Save Game** screen.

Note: The **Option** panels allow you to change the Path and Drive on your computer, but leave these as default for now.

- Click on **Filename** and name your saved game 'Monza1'.
- When you have named the saved game, click on **OK** and you'll get a confirmation that the game is saved. If you return to this **Saved Game** screen, you will see **Monza1.ran** in the file/directories panel. If you select this file and look at the information panel (bottom right), you'll see detailed information about this specific save: ---Date saved Number of Players Time saved Race condition (e.g. in race/in pits) Race Type Laps completed Track Race Leader
- Click on the **Cancel** button to return to the **Options** screen.
- Click on the **Back** button to return to the **Race** screen.
- Click on **Return to Cockpit** to return to the race (the game will be paused when you return to the cockpit).
- Press **P** to resume the race.

Finishing the Race

- Keep racing until you see the chequered flag waved over the start/finish

line or you see a 'Race Over' message. You will then be taken to the **Race Results** screen.

This screen allows access to a number of screens showing extensive race information:

- Full Race Results Driver Race Points
- Driver Best laps Constructor Race Points
- Circuit Records Lap Chart
- Starting Grid

SCREEN 7 / RACE
RESULTS SCREEN

- Click on the **Continue** button and you'll be taken to the **Race Completed** screen. This gives you the option to **Race Again On This Circuit** or to **Leave the Circuit** (return to **Main Menu**). By now you will have seen just how different it feels to race compared to the practice and qualifying sessions. The big difference, of course, is the proximity of other cars and the competitive attitude of the other drivers - some are aggressive, others take chances, all have a real passion to win.

WINNING THE WORLD CHAMPIONSHIP

If you have followed the **Quickstart** guide up to now, you should know the Monza circuit pretty well, but winning a World Championship means acquiring intimate knowledge of all 17 tracks on the calendar. If you undertake a **Championship Season**, you'll be entered into the 2001 championship and race on all the tracks in the correct sequence - it's hard work and there are no easy answers except practice and defining the correct car set up. You can win the World Championship in Grand Prix 4 even at the lowest level starting with all eight **Driving Aids** turned on (F1 to F8) and with the opposition on their lowest performance level. Then, as you progress through the season, you can begin to turn off some of the **Driving Aids**, but if you do win the Championship, it will still only be at the **lowest** level. To win the Championship at the **highest** Ace Level, you'll need to drive with just the **Ace Level Driving Aids** on for the complete duration of the season.

COCKPIT CONTROLS

Packed into the confines of a typical Formula One car is a wealth of information designed to help the driver extract the best performance from his machine, to work out his race strategy and keep an eye on the opposition. Knowing how to use this information and acting on it in a fraction of a second can mean the difference between winning and losing. You've



had a taste of racing, but now it's time to delve a little deeper into the cockpit and its many secrets.

DIFFICULTY LEVELS

These five lights indicate your chosen Difficulty Level, the hardest at the top, the easiest at the bottom:

Ace
Pro
Semi-Pro
Amateur
Rookie

The Difficulty Level affects the ability of the opposition and also limits the number of driving aids you can switch on.

SCREEN 8 / COCKPIT
VIEW FEAT. LAP
TIME/SPLIT TIME DIS-
PLAY

DRIVING AIDS

	F1	F2	F3	F4	F5	F6	F7	F8
	Auto Brakes	Auto Gears	Auto-right the car	Indestructible car	Ideal Line	Suggested Gear	Throttle Help	Steering Help
Ace		✓					✓	✓
Pro		✓				✓	✓	✓
Semi-pro		✓	✓	✓		✓	✓	✓
Amateur		✓	✓	✓	✓	✓	✓	✓
Rookie	✓	✓	✓	✓	✓	✓	✓	✓

These eight icons show which Driving Aids are active. The higher the Difficulty Level, the fewer of these will be switched on. Some can be turned on and off from inside the cockpit.

F1 - Auto Brakes

The computer applies braking functions to suit the circuit but will **not** brake to avoid other cars.

F2 - Auto Gears

The computer changes all the gears for you at the correct point.

F3 - Auto-right the Car

If you spin off the track, the computer will auto-right the car by pointing it in the correct direction so you can keep racing (so long as your car is not too badly damaged, in which case it will be craned off the track).

F4 - Indestructible

Your car will not be damaged, no matter how serious the shunt.

F5 - Ideal Line

A broken white line on the track shows the 'best line' around the track. Keep the line in the centre point of the cockpit.

F6 - Suggested Gear

This cockpit indicator shows the best gear to be in as you approach the next corner.

F7 - Traction Control

This will reduce the throttle when the rear wheels spin.

F8 - Steering Help

This will help you with any basic circuit-driving manoeuvre that requires the steering wheel to be turned.

F9 = Launch control

Form of clutch control to help provide traction for rear wheels during the start of the race. This is only on at the start of the race and will switch itself off. You may turn it back on during the race but run the risk of burning out your clutch.

DRIVING AIDS AND DIFFICULTY LEVELS

The number of Driving Aids available varies with each Difficulty Level.

OPPOSITION SPREAD

The **Opposition Spread** indicator displays your chosen performance distribution among the other drivers. You can set up racing **Opposition Spread** by accessing **Main Menu > Options, > Race Options** screen.

A flat line means all teams and drivers have the same potential performance.

A rising line simulates 2001 performances for all drivers and teams.

A wavy Line represents a random distribution of performance for all drivers and teams.

RPM INDICATORS

These two banks of five LEDs will light up as your revs increase and guide you as to when to **change up** or **down** a gear. The final LED on each bank is red: when this lights up, **change up** a gear; when all the lights go out, **change down** a gear. Like a conventional rev counter measuring revs per minute (rpm), the LCDs tell you at

what speed your engine is spinning when in a particular gear. Keeping within the limits of the LCD scales will help you to change up a gear at the right time, avoid hitting the rev limiter (a device designed to prevent engine damage due to over-revving, for instance when dropping down to a lower gear), as well as show you when you are using too high a gear, losing speed in the process.

Should you be racing from any of the external on board camera views, you will see an analogue rev counter displayed in the bottom left hand corner of the screen. Your current gear is shown in the middle of this counter.

GEAR INDICATOR

This tells you what gear you are currently in. There are, depending on the car you are driving, either 6 or 7 forward gears (7, 6, 5, 4, 3, 2, 1), Neutral (N), and Reverse (R).

FLAG WARNING LIGHTS

These two sets of three flag warning lights indicate the current colour flag in force, if any (yellow flag - no overtaking, blue flag - car trying



GRAND PRIX 4

to overtake). If all six are flashing, look at your instruments or read the message on the LCD.

Should you be racing from any of the external on board camera views, you will see the track marshalls waving the flags all around the track.

DRIVER STATUS INDICATOR

This shows the car is being driven by a player.

SUGGESTED GEAR INDICATOR (F6)

If the F6 Driving Aid is on, you will see a small number here telling you what gear you should be in before the next bend. This is an 'intelligent aid' and the suggestion will vary depending on the car setup you have chosen.

DAMAGE INDICATOR

This diagram will highlight any faulty or damaged parts on the car. If any section is lit and you can still drive the car, make your way back carefully to the pits where the damage will be repaired.

PITS INDICATOR

This gives you the current status of your pit-to-crew communication:

Off - No pits request in force.

Green - You've been called in to the pits by your team (press the Return key to cancel this order).

Green - You've warned your team you're coming in to the pits (by pressing the Return key).

Red Cross - Your pit crew are currently busy with your other team car. Stay out. Press the Return key to inform your crew of your intention to pit. Press again to cancel.

LCD DISPLAYS

The central steering wheel LCD shows a lot of important information, depending on what you are doing at any given stage of the Grand Prix weekend.

During Qualifying/Practice:

Time to go - The amount of time in minutes and seconds left to complete this part of the qualifying session.

Car - Your car number.

Runners - The number of cars on the track.

Split/Best - Your best lap time or split time.

During the Race:

XX Lap Race - The number of laps in the race.

Car - Your car number.

Runners - The number of cars on the track.

You will also receive split time information and nearest rival details.

Split Times

On each circuit, there are two intermediate timing points in addition to the start/finish line. During practice, a 'split' time is shown on the LCD as you do a timed lap. This is a time you are trying to beat at the next intermediate timing point. The split times come from the best lap time you have achieved so far. As you cross the

intermediate timing point, you will see a new time displayed. If this has a minus symbol, you know that you have put in a faster time. During a race, a timed gap is shown on the LCD a little time after you cross the Start/Finish line. This shows the time difference between your car and the one behind and the one in front.

PITSTOP CONTROLS

Qualifying

The LCD shows Tyres, Fuel, Leave the Pits, Car Setup and (if in the middle of a session) >> Accelerate Time

All tyres are marked with the number of laps driven on them.

Race

The LCD shows Fuel Laps + /- and Stops to Go +/- When you come into the pits, the crew will automatically change your tyres to the next set of selected race tyres, and refuel the car according to the current pitstop strategy. If your race position warrants it, then you can adjust the pitstop strategy by increasing or decreasing Fuel carried and increasing or decreasing the number of pitstops. Use your Selector and Controller to change these values.

Pit Strategy

In the basic Car Setup screen there is a Pitstop Strategy panel that can be set to Automatic or Custom. Automatic will allow the computer to set a 'sensible' strategy based on race length and conditions. Custom allows you to set your own choice from None, 1 Stop, 2 Stops or 3 Stops. The bar graphs indicate a percentage and a lap of the race that you will stop at. Just before you enter a race, a Last Minute Changes button (shown on the Weather > Conditions screen) allows you to alter the Pitstop Strategy, Car Setup (and Tyre Choice) taking into account track conditions. Your "Come into the Pits" warning light (green) will come on as you cross the finishing/start line of the lap before you stop. Remember that you must go into the pits next time you pass the pit lane (or cancel the call by pressing Return).

CAMERA VIEWS

You're not limited to the cockpit view in Grand Prix 4. The simulation allows you to access a large number of other camera views. And if you've just pulled off a breathtaking overtaking manoeuvre or want to review a spin to see just what went wrong, you can select the replay option.

COCKPIT VIEW

Right Arrow Key

The race from the cockpit of your car. This is your default racing view.

SCREEN 9 / COCKPIT
VIEW



T-CAM VIEW

Right Arrow key a second time

The race from the popular T-Cam. This is the view often shown on the TV.

SCREEN 10 / T-Cam View

ON CAR CAMERA VIEWS

PageUp Key (Cycle through)

You can view the action from various cameras attached to your car. The PageUp key scrolls through a large number of views.

SCREEN 11 / On Car Camera Views

OTHER CAR VIEWS

Up Arrow/Down Arrow/Home

You can 'jump' into the cockpit of the car ahead by pressing the Up Arrow Key. Further presses will move you forward (one car per press). In the same way, you can move back through the field with the Down Arrow Key. The Home key will return you to your own car.

TRACKSIDE CAMERA VIEWS

Left Arrow Key

View all the action centred on any car at any time during the race (Use Up/Down arrow keys to move through the field). The Right Arrow Key will return you to your own cockpit view.

SCREEN 12 / TRACKSIDE VIEW

CHASE VIEW

PageDown Key

View any car from just behind and slightly above it.

SCREEN 13/ CHASE VIEW

REVERSE CHASE VIEW

Delete Key

View any car from the front and slightly above.

SCREEN 14 / REVERSE CHASE VIEW

TV DIRECTOR

INSERT KEY

TV Director mode automatically shifts the trackside views between different cars and different camera angles. When you press the Insert key, a 'clapperboard' will be displayed for five seconds in the top right hand corner of the screen. When you turn Director Mode off (by selecting any other view) the clapperboard will appear with a cross through it.

REPLAY MODE

Pause Key P + R

Pause key (P) pauses the action and the R key replays the previous action with an 'R' displayed on the top left of the screen. You can change all camera views during a Replay (see above). Use the F keys as shown on the replay icons to pause, fast forward, rewind and frame advance the game. At the end of the replay, the game is left in Pause mode. Either press R again to see the replay as many times as you want, or press P to continue with the game and return to your original position (in your cockpit if you were racing). The length of the replay is determined by the amount of Ram in your PC and can be altered in the Graphics Options section up to maximum of 90 Minutes.

GPAEDIA

GPAEDIA CONTENTS:

Setting up a formula one car

General

- Introduction to Mark Hemsworth*
- Purpose of changing a cars set-up*
- Tour of a Formula One car*
- Qualifying*
- Wet race*
- Fast circuits*
- Slow circuits*



Car handling

- Car handling introduction
- Basic car set-up
- Standard car set-up
- Advanced car set-up
- Data logging & performance analysis

Drivers

- History & data

Teams

- History & data

Tracks

- History & data

CIRCUITS ON THE FORMULA ONE CIRCUS

Details of each of the circuits can be found within the Gpaedia area of the game.

THE MULTIPLAYER SECTION

Select Multiplayer from the Main Menu.

Grand Prix 4 allows you to play the simulation across a number of multiplayer connection types from Serial Cable, Modem, IPX Network and TCP/IP Network. The top panel in this screen allows you to set up the following connections:

CONNECTION TYPE

- **Serial Cable (2 players):** Creates a serial cable link between two machines.
- **Modem (2 players):** Creates a modem connection between two machines.
- **IPX Network (2 or more players)**
- A local area network game.
- **TCP/IP Network (2 or more players)**
- A local area network game.

NUMBER TO DIAL

This allows you to enter the number to dial for a modem game.

Player Name: Enter the name that you will be known by in a network game.

Game Selection: The lower panel in this screen allows you to input the number of players.

Two Players : Two player games can use all connection types (Serial, Modem, IPX, TCP/IP) and allow all Grand Prix 4 race types (Quickrace, Non-Championship Race, and Championship Season).

Two or More Players: Multiplayer games are Local Area Network only (TCP/IP and IPX) and will only allow players to jump into the race without needing to qualify.

SESSION SELECTION

This allows you to select whether you want to Host or Join a multiplayer session.

Host a New Session: In a two player Serial link, the host has control of both machines during setup. In a Modem link, the host also has control of both machines but must initially wait for the joining player to dial through.

Join an Existing Session: In a two-player link game, the player joining the session will 'follow' the host, who will have control of the menus on both computers. In a modem link game, the player joining will dial the other player.

SESSION NAME

Click on the default name, delete and type in a session name to identify the multiplayer game on a Network.

The Settings Button: This will take you to the Multiplayer Settings screen and detect technical settings (Port, Baud Rate and TCP/IP Address) for the link method you are using.

The Phonebook Button: Takes you to your phonebook. Use it to store phone numbers for 2-player modem linked games. Click on the Add button to enter a telephone number and name. Click on the Add button to add numbers to your book. Up and Down buttons allow you to scroll through your phone number list. Other buttons allow editing or removal of numbers. You can also Load and Save phonebook numbers (saved with a .pho suffix).

CONNECTING

The Linking Screens: The Connect button will take you to the Linking screen. This will implement the linkup for the multiplayer game using the method you have selected (Network game or Modem/Serial Cable game).

The Network Game: The Linking screen shows (in the top panel) the players' names, which drivers they are playing and where they are in the game (Main Menu etc). The lower panel shows the number of players who are Ready to Play.

The lowest panel in the Linking screen allows access to Driver selection, Track, and Difficulty Level. All players can access Driver Selection but Track and Difficulty Level are set by the Host.

The Chat Button: The Chat button allows you to type in a message to chat to other players. Type a message in the lower panel and press the Send button to transmit. The chat messages will appear in the central main panel of the chat screen showing who sent the message and when.

The Options Button: This allows you access to all the game options: setup controls, graphics, sound and race options.

The Leave Session Button: Click to leave the multiplayer game and return to single player mode. If you are hosting the session, then host control will migrate to the next player in the session.

The Close Session Button: Select if you are the host and



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GRAND

wish to end the race session.

- Click on Ready to get started. The game will wait for all players to be Ready. The Ready message will flash to prompt you to click on it. It will flash more intensely when everyone else is ready and waiting for you. Once everyone has clicked on ready all other linking options will be greyed out and unavailable to you.

Weather Screen: Once all players have clicked Ready you will be taken to the Weather Network screen. This is similar to the standard Grand Prix 4 Weather screen but also has options for going to the Last Minute Changes screen (and then Car Setup), to Chat or Leave the session. You also have option to Continue/Go Back.

- Click on the flashing Ready button to indicate you are ready to race.

Last Minute Changes (Network) Screen: This summarises the weather/track and sky conditions and has a Driver list, Pitstop Strategy settings and Tyre choice. You can also access Car Setup from here as well as the Chat and Leave Session options.

CAR HANDLING

INTRODUCTION

Anyone can drive a Formula One car fast. It's easy. You get in and point it in a straight line with your foot down hard on the throttle until you reach maximum revs in 6th gear. And there you are. Going fast. Only there aren't many Formula One tracks that consist of just one long straight. Drive too fast on most tracks and you'll end up in the first gravel trap. Which is why professional drivers talk about being 'quick' rather than being simply 'fast' - 'quick' is the controlled application of speed around a race circuit. In order to drive a Formula One car 'quickly' you need three things:

- A fast car.
- Knowledge of the best route around the circuit.
- The ability to operate the car at its limits. But what do we mean by these things and how are they achieved?

A fast car is generally one with a relatively high-powered engine, low overall aerodynamic drag and well-balanced setup of suspension, drivetrain and aerodynamic wings. Some of these things are set by the designer and cannot be changed but others are fully within the driver's ability to adjust in order to achieve greater performance from the car. The best line to take around the circuit is determined by the layout of the corners and straights. You've already had a chance to experiment and learn the lines around Monza if you followed the Quickstart guide. More instruction on how to calculate the ideal racing line is described in detail in the Driving Techniques section (see page 101). However, a fast car driven on the best line around the circuit will not perform very well unless it is driven correctly and to its limits. This is an important concept to grasp and means that it is crucial for you, the driver, to develop your driving style and proficiency at the same time as developing an understanding for setting up your car. The setup must suit your driving style and equally, your driving style must suit the setup. No two drivers are

exactly the same and so their optimum setups may differ. What's more, it's always possible to improve your driving style and/or setup in order to find more speed, even if it's only improving a lap time by a 1000th of a second! Discovering how to operate the car at its limits is a challenging and rewarding process. And this is where it starts!

BASIC CAR SETUP

The only way you will succeed at the highest levels in Grand Prix 3 is to get involved in 'setting up' your car for each specific track. For now, we'll concentrate on trying out a few things on just one track, beginning with the Basic Car Setup. The basic Car Setup option is available from various menus in the game, including the cockpit LCD display. From the Main Menu...

- Select a Practice session.
- Select Italy for the purpose of this demonstration.
- Select Drive and you will be placed in your car cockpit in the pits at Monza. Then, from the cockpit LCD display...
- Select Car Setup on the cockpit LCD and you will be taken to the Pits Options screen.
- Select the Car Setup button and you will be taken to the basic Car Setup screen. You'll see three options:

1. Basic Car Setup lets you...

- Alter the angle of the front and rear wings.
- Alter the brake balance.
- Alter your gear ratios.
- Alter your pitstop strategy.
- Create different setups for qualifying and racing.
- Create a different setup for each individual circuit.
- Load and save your setup for the each and every track.
- Load and save your setups for different weather conditions.
- Do all of the above for each and every driver.

Other Basic Car Setup options also allow you to View Other Track details and to Copy The Setups From another track.

2. Advanced Car Setup which lets you...

...have more in-depth control of car setup by clicking on the Advanced button at the bottom of this screen. More about this later.

3. Inspect Vehicle which lets you...

...look at the degree of plank and tyre wear. More about this later. As in all things, your first tentative steps may seem daunting. Don't worry. So long as you've spent enough time enjoying the default settings and practising your driving so you can drive fast around at least one of the tracks, you're ready to start tinkering with the setup of your car and start noticing



a difference in performance.

BASIC CAR SETUP OPTIONS

Don't do anything yet. Instead, have a quick look at the basic options...

Front/Rear Wing Downforce Adjust

In general terms the wings on a Formula One car push it down on the track, creating 'downforce'. This produces better grip and less roll, giving better control in corners, but less speed on the straights because of greater aerodynamic drag. You can adjust the amount of front and rear wing used by the car, using a scale from 1 to 20. The higher the number, the more downforce. Adjust the wings (front and rear) by clicking on the +/- buttons.

Front/Rear Brake Balance

Grand Prix cars have a low centre of gravity, centred just behind the driver. If you brake hard at speed, the weight - and the centre of gravity - shift towards the front of the car. Therefore, brakes must be balanced to cope with the weight transfer during deceleration (slowing down).

You can change the brake balance of your car by altering the way in which the front and rear brakes are applied. Remember that in the dry, it's always best to have more brake bias at the front than at the rear. The scale goes from 50% to 75%. The lower the figure, the more balance is applied to the rear of the car. Adjust the balance by clicking on the +/- buttons.

Gear Ratios

You must set the gear ratios in your gearbox to suit each circuit. This is usually done by setting the 6th gear for the fastest possible speed along the longest straight and then setting the lowest gear for the slowest corner. The rest of the gears are ranged evenly between the two. Gear ratio selection is very important. Different cogs can be fitted to the gearbox that can have a major effect on the car's acceleration, performance in bends and top speed.

- Twisty circuits with few long straights and plenty of chicanes need 'short' gearing - the cogs are closer together - for quick acceleration. The nearer the cogs are to each other, the less work the lower gear has to do to get to the higher gear.
- Circuits with predominantly long straights require 'long' gearing - the cogs are further apart - to help the car reach a higher top speed. The further away the cogs are from each other, the more work it has to do to get up to the higher gears but the faster the speed in top gear. The gearbox has a range from 1 to 64. Select +/- to change the gear ratios.

PUTTING IT INTO, PRACTICE

Now it's time to try out some of these setup changes. Some changes you make will make the car behave differently and you may notice significant changes as you drive. Other changes will make more subtle differences, resulting in a better lap time, assuming your driving was consistent each time. Finally, changes and their effects can also be analysed using the **Performance Analysis Guide** (more about this later).

A Quick Demo

To demonstrate how setup changes can affect a car, try the following exercise. We'll make a dramatic setup change to a rear wing setting

so you can compare the effect, before and after. Although exaggerated, the procedure shown here applies in principle to other areas of the car.

Again, we will be at Monza for this session. This is a fast track with good long straights and fast corners, one which does not require excessive grip in corners. Monza is known as a **low downforce** track, so the rear wing which creates the downforce that holds the car on the ground will normally be set at a low angle.

- On the **Car Setup** screen, look at the rear wing adjustment buttons. We're going to increase the angle of the rear wing significantly...

SCREEN 15 / CAR SET
UP - REAR WING
ADJUSTEMENT

- Click the + plus button five times.

- Click the **Save Setup** button which will take you to the **Save Setup** screen.

- In the **Filename** panel, name the save 'Setup1.csn' and click on **OK** to return to the **Car Setup** screen.

- Click on **OK** to return to the **Pit Options** screen and select the **Return to Cockpit** button. You'll now be back in your car with your rear wing set at the new angle.

- Select **Leave the Pits** on the LCD and drive two laps to set a time in the **Data Logger**.

- After you pass the start/finish line, press **CTRL + Q** to return to the pits (or drive back if you prefer).

- Now select **Car Setup** from the cockpit LCD to go to the **Pit Options** menu.

- Select **Fetch Logged Data** (you will see an indicator bar loading in the data).

- Select **View Logged Data** and you'll enter the **Performance Analysis** screen.

The **Performance Analysis** screen is an extremely powerful utility that allows you to select laps and analyse numerous aspects of your car/driver performance for each lap.

SCREEN 16 / PERFOR-
MANCE ANALYSIS

- Select **Lap 1** (this should be the complete lap) and click the **Save Lap** button and you'll enter the **Save Performance** screen.

- Enter a filename for the lap (Perf1.pan) and click on **OK**. You have now created a lap of **Performance Analysis** at Monza with a **high wing** angle.

- Now exit the screen (click on **Back**) and select **Car Setup** in the **Pit Options** screen.
- Now **restore** the rear wing to its original setting by clicking on the - minus symbol 5 times.
- Click on **OK** and then **Return to Cockpit**. You will now be back in your car cockpit with your rear wing set at the original angle.
- Select **Leave the Pits** and drive two laps to set a time in the Data Logger, then press **CTRL + Q** to return to the Pits (or drive back if you prefer), as before.
- Now select **Car Setup** from the cockpit LCD to go to the **Pit Options** menu.
- Select **Fetch Logged Data**.
- Select **View Logged Data** to enter the **Performance Analysis** screen.
- Select **Lap 4** (this should be the complete lap) and click the **Save Lap** button to enter the **Save Performance** screen.
- Enter a filename for this lap (Perf2.pan) and click on **OK**. You have now created a lap of Performance Analysis at Monza with a low wing angle. You now have two saved '.pan' laps (where pa- stands for Performance Analysis and -n is the code for Monza).
- Select **Perf1** and click the **Copy to Background** button (it will appear in the lower panel).
- Select **Perf2** and click the **Copy to Foreground** button (it will appear in the lower panel).
- Click on the **Graph Selected Laps** button and you'll now enter the **Performance Display** screen.
- Use the drop down Graph menu (at the top of the screen) to select **Custom Graph**.
- Make sure only the **Speed** trace is shown in the first drop down panel for both laps (the other three panels should show 'None').

The graph shows the two complete laps with Perf2 in the foreground and Perf1 in the background (the dotted line). Notice how the higher rear wing angle is much slower in Speed than the lower rear wing angle (assuming you drove consistently through both laps!).

- If you like, adjust the X value zoom (click on the panel to increase the green bar) to see more detail and use the +/- buttons to scan the length of the graph.
- Now select the **Map** option (in the centre). This shows you the section of the track that is being analysed on the graph. Can you work out where the fastest straight is in Monza? Do you think you can drop the rear wing angle further and get a faster speed? Why not try it and see? You'll now have some idea of what **Performance Analysis** is all about: trying out different car setups, examining the results on the graph, then choosing the best setup for that track under those conditions. **Performance Analysis** covers all measurable performance data, it simulates real Formula One circuit details and is a powerful aspect of the game. More information on recording data follows later in the manual.

SCREEN 17 / PERFORMANCE DISPLAY

GLOSSARY

Active Suspension Software controlled method of automatically pitching the suspension for specific bends.

Aerodynamics The force that comes into play when the car has picked up speed. Wings mounted upside down give negative lift and hold the car down.

Angle of Slip The angle between the direction of the wheels (front and rear) and the direction of travel.

Anti-Roll Bar Forms part of the suspension assembly and helps to support the car when cornering, by resisting the tendency for the body to roll.

Apex or Clipping Point The nearest point a car gets to the inside of a curve in an ideal racing line.

Balance The degree to which a car has understeer or oversteer in a corner.

Brake Balance The bias of braking power between the front and rear tyres.

Braking Distance The distance between the point where braking starts and ends.

Bump Damper An energy absorbing device, fitted between the wheel and car body, which resists upward movement by the wheel.

Camber Slight upward curve to the centre of race track.

Camber Angle Camber angle is designed to make a tyre work as effectively as possible when a car is going through a corner. Negative camber is applied so that when fully stressed a tyre will be as close to perpendicular as possible.

Castor Angle Castor gives greater responsiveness and stability to the front wheels. The larger the castor angle, the heavier the steering and more stable the front end.

Centre of Gravity The position within the car around which all the mass is gathered. The lower the centre of gravity, the greater the downforce.

Chicane A sharp 'S' bend that reduces speeds by forcing drivers to drive through in single file.

Damper Forms part of the suspension system and absorbs the energy that is produced when the spring is compressing or extending. Damper force increases with speed (heave, roll and pitch velocity).

Downforce The force which pushes the car downward allowing the vehicle to 'grip' the road surface.

Drag Resistance to forward motion of the car. Can be caused by aerodynamic resistance or mechanical resistance.

Electronic Control Box Contains, among other information, the Driver aids software and settings, (traction control, active suspension etc.) The Electronic Control Boxes are frequently inspected by the FIA following a race to test for illegal driving aids being used by constructors.

FIA Federation Internationale de l'Automobile. The motor racing sport's governing body.

Getting a Tow Another term for 'slipstreaming', gaining speed by sitting behind a rival car prior to overtaking.

Ground Effect Now outlawed by FIA but in the period 1980 to 1982 virtually all cars were built in this way. The car had an underbody shaped like an inverted wing which almost sucked the car on to the track and gave tremendous grip.

Increase the Lock For some tight hairpins, such as Loews in Monaco, the car steering lock is increased to take the bends faster albeit to the detriment of the tyres.

Logged data chart Graphical method of displaying information which has been recorded during a lap. Also known as Performance Analysis.

Outbrake To brake very late into a corner when dicing with a rival car.

Oversteer Oversteer is characterised by the rear end of the car losing grip, giving the car a tendency to spin.

Packers Packers form part of the suspension assembly and adjust the position at which the bump rubbers become loaded.

Paddock The parking area behind the pits where all the equipment, trucks and spare cars are kept by the teams.

Parc Fermé The area where cars are isolated after a race finishes. Only officials may touch the vehicles for an hour after the finish. Some engines may be 'sealed' for later inspection.

Plank, The A 10mm plank running down the length of the underside of all Formula One cars. This addition following the '94 Imola Grand Prix, means that the ride height of the car must be sufficient to avoid the plank 'grounding'. This results in less downforce and therefore lower speeds, particularly round dangerous corners.

Points System The points awarded for finishing a Grand Prix are as follows:
1st = 10 points, 2nd = 6 points,
3rd = 4 points, 4th = 3 points,
5th = 2 points and 6th = 1 point.

Rebound damper An energy absorbing device fitted between wheel and car body which resists downward movement by the wheel.

Refuelling Refuelling is an essential part of race strategy. The less fuel a car holds, the faster it can travel, but this will result in the need for more time-consuming pit stops to refuel.

Responsive handling The car responds quickly to steering, acceleration and braking inputs from the driver, allowing very accurate manoeuvres.

Rev limiter A device which limits the RPM of the engine to a preset value. This is used in the pit lane to keep the car speed within the pit lane speed limit.

Ride height The height of the car floor, above the ground, measured from the wheels. 168

Rumble Strip The bobbly, coloured strip on the edge of the track which serves as a warning to the driver to transgress no further.

Run Off Track A stretch of track close to a dangerous section of the circuit, that gives the driver an escape route if things go wrong, e.g. the driver loses control of the car.

Shunt A knock from the car behind you.

Skidblock See Plank, The.

Springs The springs form part of the suspension assembly and are the main means of supporting the car.

Stewards Decision In the event of a breach of FIA rules, a stewards enquiry is normally called. The party in question is called before the 'Steward of the Meeting' who issues a 'Stewards Decision' with accompanying fine/disciplinary action, if relevant.

Super Licence A licence required by all drivers, competitors and officials participating in a Formula One Championship.

Suspension travel The distance through which the moving parts of the suspension travel in relation to the fixed parts.

Telemetry System Multi-function system that measures all aspects of car and driver performance.

Tifosi Italian Fans.

Time Penalties Should the stewards choose to impose a time penalty the offending driver must, in normal circumstances, proceed to the designated area and remain there until a specified time period has passed, after which the driver may rejoin the race.

Torque The amount of thrust driving through from the engine to the wheels.

Traction The ability of the rear tyres to grip the track surface and cause the car to accelerate.

Traction Control An electronically-controlled clutch allowing the car to accelerate as fast as possible without losing traction and the wheels spinning. This system was outlawed in the '94 and reintroduced during the 2001 season.

Turn-in The point on the track where the driver starts to steer the car into a corner.

Tyre Blankets Special electric blankets placed over tyres just before a start to keep them up to racing temperature.

Understeer Understeer is characterised by the front end of the car losing grip. This gives the rear of the car a tendency to carry straight on, through a corner.

Wings Devices fitted to the front and rear of the car which produce aerodynamic downforce. This allows faster cornering speeds. The rear wing also produces significant aerodynamic drag.



GEOFF CHAMMOND'S
GRAND PRIX 4



GEOFF CHAMMOND'S
GRAND PRIX 4





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