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1. THE MONACO GRAND PRIX, THE LEGENDARY RACE

Monaco is the most legendary race of all.
It's a challenge taken up every year by the best racing drivers in the world. The race has been masterfully organized by the Automobile Club of Monaco since it was formed in 1929.
Maximum speed: 270 kph. An average speed of more than 140 kph to cover just over 3 kilometres between manhole covers, pavements, barriers and walls.
And there are no escape routes! Only the best drivers win at Monaco to earn a page in the history of this legendary race.

70 years of history

On April 14 1929, Williams, at the wheel of his Bugatti 35B, crossed the finishing line. After 100 laps and 318 kilometres, at an average speed of 84.8 kph in a race lasting 3 hours 56 minutes, he had won the first race in Monaco. But history does not record his first name. Le Grand Prix de Monaco©, however, was to become a Motor Racing legend, today as famous as the Le Mans 24-hour race or the Indianapolis 500.
Since this first race in 1929, racing cars have continued to duel in the streets of Monaco. Only the Second World War and a few unexpected events in the early 50s have prevented the race from taking place; 14 times only in 70 years.

Anthony Noghès

The idea of racing in the streets of Monaco – something of a strange idea, even today – goes back to the mid-20s.
Holding a motor race in the middle of town was

not a novel idea, though; races of this type already existed in the United States. But everyone has always agreed that Monaco is in a class of its own.

In the 20s, Anthony Noghès founded the A.C.M., the Automobile Club of Monaco, with several friends. It grew out of the Automobile and Velocipedian Association, which in turn sprang from the Monaco Velocipedian Association founded in 1890. It is to Anthony Noghès, a keen sports and automobile enthusiast, that we owe this race. After getting official support from His Highness Prince Louis II, Anthony Noghès showed his plans to a motor racing celebrity of the time, the Monegasque champion, Louis Chiron, who was completely taken with the idea. After studying the layout of the town of Monaco, it was quickly apparent that its topography was ideal for tracing a motor racing circuit. From that moment on, nothing could stand in their way and, on April 14 1929, 60 cars took part in the first motor race in the streets of Monaco.

Since this date, the Automobile Club of Monaco has been in charge of the event and remained sole organizer of this mythical race.

A CIRCUIT FULL OF DANGER

Less tortuous than it is today, the circuit used to form a loop that linked Monte Carlo, the harbour and Monaco. The track was 3.18 km long and more or less stayed that way until 1952 when some modifications to the Sainte Dévote corner shortened it by 35 metres. It wasn't until 1973 that a new piece of track was added, running alongside the harbour, round the new swimming pool, and ending with the hairpin bend at the "La Rascasse" restaurant. New chicanes were added in 1976 and 1986 to complete the circuit that we know today. It's now 3.367 kms long, the drivers doing 78 laps in just under 2 hours.
But even if the original circuit was simpler than it is today, it was, in many ways, more risky. The cars soon became far too powerful for their weight – with hardly any brakes. With none of today's protective barriers, the chances of car and driver nose-diving into the harbour were far from slim.

Today, there are different dangers for, despite ultra-powerful brakes and considerable downforce, the streets are no wider – in fact, they're narrower. The walls are still there, still just as hard, and the engines have 700 horsepower and more. A few years ago, during the turbo era, it was reckoned you needed 1100 horsepower just to qualify! Engines capable of lightning acceleration send the cars hurtling from one bend to another in a matter of seconds. Which means that Monaco has always crowned great champions, exceptional drivers. It's no mean feat to slalom your way between pavements, bumps, walls and barriers for 2 hours at an average speed of 145 kph. Before 1950, the legendary drivers, Chiron, Nuvolari and Farina – amongst others – added their names to the list of winners. Since 1950, out of 47 races, drivers who were, or were to become, world champions have won 31of them.
One thing is for sure, the driver who wins at Monaco enters a different league; an exclusive winners' club. Even if the title of world champion is the objective of all drivers, if there's one race most of them would want to win in their career, it's Monaco.

A WEEKEND LIKE NO OTHER

A race in the heart of a town like Monaco is no picnic. Many inhabitants leave town until the motor racing tornado has passed in order to avoid the disruption it causes. Every night of the week before the race, technicians take over the streets of Monaco and turn them into a circuit, putting up the necessary barriers and signals but also the pits and other prefabricated official buildings for the race.

The Monaco race is bright but ephemeral; two days after the end of the race, everything will have disappeared. During the few days before the race, the inhabitants can see the circuit taking shape. On the Thursday morning, day of the practice runs, everything must be in place. As well as offering a unique layout, Monaco has a different calendar of events to the other races. The Friday, which is usually reserved for practice runs, is a rest day and thus the competition starts the next day.

Another peculiarity is that the circuit is opened to traffic between the different stages of the competition so that the town does not get completely saturated. It's an opportunity for budding champions to see for themselves just what the track is like.

ONE LAP

At 140 kph between barriers and pavements... The cars waiting on the grid stretch the length of the slightly curved straight that runs in front

of the pit wall. The engines roar as the drivers keep their eyes riveted on the 5 red lights suspended above the starting line. With 22 cars in rows of five, their engines roaring, the track looks ridiculously small and narrow – an effect accentuated by the funnel-shaped St Dévote corner in the distance. It's obvious that there won't be enough room for everyone. When the last light goes out, more than 15,000 horsepower screams in unison towards that first right-hand bend. Both at the start and during the race, it's the circuit's blackspot; scene of many, often spectacular accidents. Directly after coming out of St Dévote there's the long Beau Rivage uphill incline.

It's hard down on the accelerator and through all

the gears. Vigilance is called for because speeds are very high, the road “snakes” and the white lines, there for everyday traffic, can be treacherous.
260 kph at the top of the rise and straight into the Massenet corner. It’s a left that is taken in 3rd right up against the barrier ready for a short acceleration up to the Casino straight in 2nd.

Then up into 4th and just over 210 kph before coming into the slowest part of the circuit: a series of hairpins to be negotiated in 2nd.

Brakes hard on to enter the Mirabeau straight, then left into the Loews hairpin where the cars practically come to a standstill. Downhill into the Portier straight and then it’s the highspot of the circuit: the plunge into the pitch-black Tunnel.

With foot hard down on the accelerator, the car has to be taken into 5th and up to 240 kph through the curving tunnel. Exit to be blinded by the sun just as the next chicane comes up. In 6th gear at 270 kph, the brakes need hitting fast to get down to 2nd to negotiate the left/right/left before plunging towards the left Tabac corner.

It’s taken at full speed, before easing off the accelerator a little and into the first left/right of the swimming pool chicane. Slam on the brakes for a right/left in 2nd and then a short straight up to the Rascasse hairpin.
Another brief acceleration before the Anthony Norghès corner and then flat out for the home straight that ends in St Dévote.

For those still in the race, there’s only another 77 laps to go!

2. A RACING WEEKEND

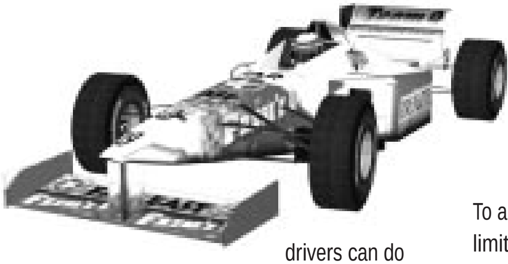
It's a pretty impressive sight when the circus hits town for the weekend. Dozens of enormous trucks discharging cars, tires and parts take up residence behind the pits where they will remain for 4 very busy days.

THURSDAY

Everyone gets ready.
The first trucks are already there on the Wednesday night and by Thursday evening everyone has arrived. This first day is far from being an idle one: the pit has to be set up and made thoroughly presentable and the material has to be unloaded. The cars are not taken out but it's a time for the whole team to gauge the atmosphere of the circuit before the real contest starts on the track. Thursday is also the day that the officials check that the cars meet the technical regulations.

FRIDAY

Practice sessions.
With nothing to play for, the practice runs on the Friday are used to acclimatize the car to the track. Even though the cars are set up with the help of computers, there will be numerous modifications made in order to find the perfect balance that will make a car the best on the grid. Very often Friday is devoted to setting the cars up for the race. Drivers and engineers try out the different options with varying quantities of fuel in order to see how the car performs. The practice sessions take place in two parts, from 11 to 12 a.m. and from 1 to 2 p.m. The number of laps the



drivers can do is unlimited but they are not allowed to use the back-up car. Hence the importance of managing to put the car through its paces to see what it is capable of, but without incident (coming off the track or having engine failure, for example.) Damaging the car during practice seriously jeopardizes one’s chance in the race on Sunday.

SATURDAY

Objective: to qualify
Saturday is a big day because at the end of it are the qualifying heats. It begins with another practice run in two 45-minute sessions, from 9 to 9.45 and 10.15 to 11 AM.

This time there’s no more going round with a full tank. Sheer performance is the aim now. It’s all about doing the fastest lap in preparation for qualifying. Bit by bit, corner by corner, foot by foot, the drivers perfect their trajectories and the engineers their settings. It’s also the moment for the crucial decision about tires. Before the heats, each driver must say what tires he will use for the rest of the competition. Between the end of second practice sessions and the end of the race on Sunday, a driver can use no more than 28 tires (14 at the front and 14 at the rear.)

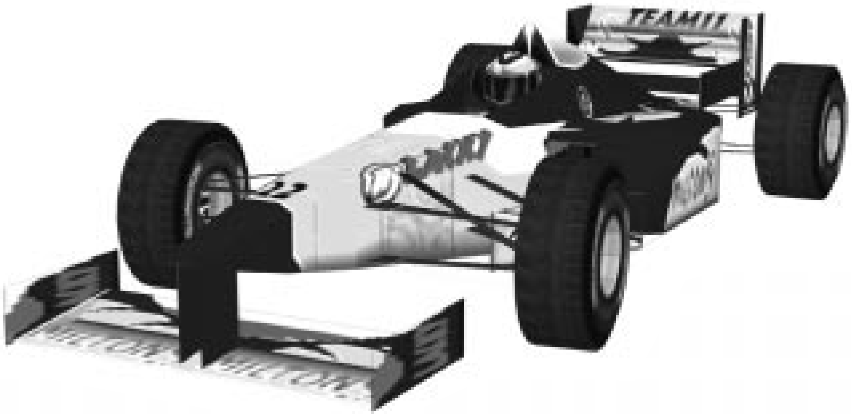
A one-lap sprint
At 1 PM, a green light at the end of the pits straight signals the start of the qualifying heats. Overtaking being virtually impossible, he who has the fastest qualifying time is in with a very good chance of winning the race.

To add a bit of spice to it, the rule-makers have limited the number of laps per driver to 12, which means no more than 4 attempts. The cars take on just enough fuel to complete 3 laps: one warm-up lap leaving the pits, one lap at top speed to make a time, and a deceleration lap back to the pits. In order to try and gain a few hundredths of a second, some drivers set off on their last try with just enough fuel to do two laps, abandoning their car by the side of the track after the fast lap.

It’s worth the walk back to the pits if it puts you in pole position!

SUNDAY

A little warm-up.
The warm-up takes place on the Sunday morning, $4\frac{1}{2}$ hours before the start of the race.



The drivers and their teams have half an hour to decide if the options they have taken are the right ones or whether they want to revise them for a sudden change in the weather.

It is not unusual, if the weather is uncertain, to see a team prepare one car for dry conditions, another for wet – just in case. In any event, 30 minutes is short and the drivers jostle each other coming out of the pits to do as many laps as possible, trying both the race car and the reserve car.

THEY'RE OFF!

30 minutes before the start, the pits are opened and the drivers, after one lap of the circuit, can come and take their positions on the starting grid. Some take advantage of this period to do several laps to see how the car is performing and, if necessary, have some adjustments made. Of course they need to come into the pits after each lap to do this.

17 minutes before the start, a horn sounds and 2 minutes later the lights go red to indicate that the pits are closed. Any car, which has not left the pits at this moment, will have to start last from the pit lane. On the 10-minute signal journalists, visitors and other VIPs must leave the starting grid.

1 minute from the start, the engines are started and the teams' technical personnel must clear the grid.
On the green light, the cars begin a formation lap before coming back to line up on the grid. When all the cars are in place, 5 red lights go on and then off, one after the other.

When the last light goes off, it's the start of a race lasting 2 hours maximum over a minimum distance of 305 kilometres.

1. INSTALLING AND LAUNCHING THE GAME

1.1 Configuration and launch

Minimum system requirements	Recommended system requirements
Windows 95 or Windows 98	Windows 95 or Windows 98
133 Mhz Pentium	166 Mhz Pentium
Compatible with most 4Mb 3D graphic cards compatible with Microsoft Direct 3D.	Compatible with most 4Mb 3D graphic cards compatible with Microsoft Direct 3D.
Glide native support for 3DFX cards.	Glide native support for 3DFX cards.
24 Mb RAM	32 Mb RAM
Direct X6	Direct X6
16 bit sound cards	16 bit sound cards
4X CD-Rom speed or more	6X CD-Rom speed or more

1. Launch Windows 95.

2. Place the MONACO GRAND PRIX Racing Simulation CD in your CD-ROM drive.

3. The installation program should appear on the screen automatically. If this does not happen, double-click on the Ubisetup program on the CD-ROM.

4. Choose your preferred language.

5. Click on INSTALLATION in the menu.

6. Choose the right configuration for your system and click on OK. The higher the level of the installation you choose, the greater the amount of space the game will take up on your hard disk, but on the other hand you will get faster access to the various menus.

7. When installation is complete, click on PLAY.

When installation is complete, you may need to reboot the computer. Once you have done that, to launch Monaco Grand Prix all you need to do is to select Ubi Soft / MGPRS/ Play MGPRS in the Windows 95 task bar.

Notes:

When you play Monaco Grand Prix your screen-saver is disabled. However, when you enter the menus, it reactivates. To play Monaco Grand Prix, you will need a minimum of 40 Mb of free space on your hard disk after installation.

1.2 The first screen.

1 PLAYER
Access to 1-player mode

MULTIPLAYER
Access to multiplayer mode

LEFT HAND CAR
Racing modern cars in 1-player
or multiplayer mode

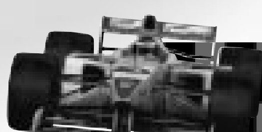
RIGHT HAND CAR
Racing 50s cars in 1-player
or multiplayer mode

IDENTIFICATION
Player name identification page

2. IDENTIFICATION

PLAYER 1 / 2
Selects player 1 or 2 for the split MODE
NAME
Edits name of player selected
FIRST NAME
Edits first name of player selected
TYPE OF TRACK RECORD
Selects and shows track record

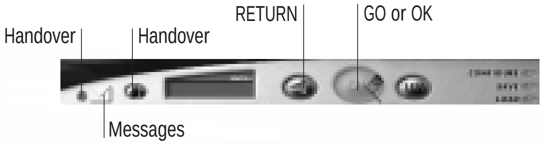
SELECTION
Selects a name from among the 10 saved
SWAP THE NAME OF THE 97 DRIVER WITH THE PLAYER’S NAME
Allows player to use the driver’s name (No)
or player’s own name (Yes) that can be edited
on this page
NATIONALITY
Edits the player’s nationality
DATE OF BIRTH
Edits the player’s date of birth
WEIGHT
Edits the players weight
WAIST
Edits the player’s waist size
TRASHCAN
Deletes player’s name and track record



3. MENUS

3.1 The navigation bar

All the menu pages have a navigation bar at the bottom of the screen.



RETURN	Enables you to return to previous saved version by cancelling any modifications to the current page. Also makes it possible to disconnect during a multiplayer game.
EXIT	Exits the game
GO or OK	Move to the next screen
CONFIGURE	Takes you to the menu pages that enable you to configure the controls (keyboard, joystick, joypad or steering wheel) sound or graphics.
SAVE	Takes you to the save pages (Round, Replay, Adjustments, Configuration)
LOAD	Takes you to the loading pages (Round, Replay, Adjustments, Configuration)
LCD screen	Contains miscellaneous information
Messages	Only active when a game is being played over a network. A click on this button launches an application making it possible to send messages to the other players connected.
Handover	Only active when a game is being played over a network and only on the computer of the player who initiated the game. Makes it possible to hand over control to one of the other players online.

3.2 Saving and Loading

Game

Loading is available from any page of the menu (except those preceding the main menu). A game can be saved at any time.
Saving is available during any session via the menu displayed by pressing Esc, and also from the Grand Prix menu page (Grand Prix, Championship, Individual Championship or Challenge).

Set-up

The loading and the saving of the current set-up of the car are accessible from any menu page where the GARAGE button is displayed, as well as in the garage pages themselves.

3.3 Controlling the car

The keyboard
(default keys)

Accelerate	A
Brake	Z
Right	.
Left	,
Changing to higher gear	Space
Changing to lower gear	Ctrl

The game can also be played with a steering wheel, joypad or joystick
They first need to be calibrated under Windows 95 (see peripheral documentation).

3.4 The function keys, camera views and pit-stops

F1 Summary of keys used in the game

F2 The various playable views:

The cockpit view

Choosing this view is like putting yourself in the driver's seat.

It also gives you all the information you need for driving your car:
from current speed (kph or mph), engine speed (rpm), gear engaged, LEDs of engine (the first LED lights up 500 revs before maximum rpm, the second 400 revs before, the 3rd 300 revs and the 4th 200 revs, amount of fuel (in litres), fuel consumption (in litres per rev), damage to car, pit-stop indicator and radio messages from your team.

The three external views

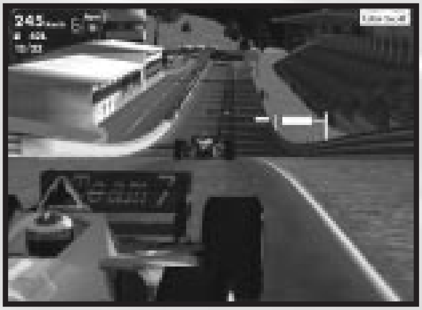
The 1st and 2nd external views are very useful for learning the circuit because they enable you to see the bends in good time and thus choose the right trajectory to negotiate them.

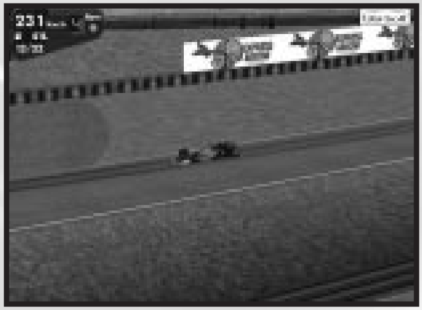
The 3rd external view gives good visibility enabling greater precision when choosing a trajectory. This ‘muzzle’ view also enables you to better appreciate the effect of oversteering and, above all, understeering (see driver set-ups).

In the 3 external views the player has an information box, top left, which contains the following:

1 Current speed (km/h or mph).
2 Gear currently engaged.
3 Rev limiter LED.
4 Quantity of fuel left in the tank.
5 Player’s position with respect to the other competitors.
6 Pit-stop indicator.

F3 Director views





F4 Various views of the car

F5 Displays the current placing

F6 Displays the distance between the car ahead and the car behind

F7 Automatic/manual gear shift

F8 Next competitor

F9 Previous competitor

F11 Displays the modifiable pit-stop strategy:
Insert and Delete modify tire type.
Home and End modify fuel quantity.
Page up and Page down show next planned pit stops.

F12 Displays the adjustments modifiable during the race:
Insert and Delete modify break balance.
Home and End adjust the front anti-roll bar.
Page up and Page down adjust the rear anti-roll bar.

Enter *Pit stop:*
Switches the pit-stop indicator on or off.
Warns the mechanics that the competitor may be on his way.

Tabulation Speed limiter for the pits (active by default).

Backspace Calls up a menu which makes it possible to choose the job the mechanics have to do. Only active in the pits.
You can also confirm by pressing Backspace (or Enter).

This menu makes it possible to choose the amount of fuel and the tires to be fitted.
The default value is the amount of fuel allowed for in the race strategy; otherwise it is the amount in the tank that is displayed.
To change the type of tires use Insert and Delete.
To change the amount of fuel use Home and End (the amount of fuel shown includes that in the tank).
Confirm using Backspace (or Enter).

P	Pause
Esc	Displays a pause menu which varies according to game mode. Also enables you to skip certain displays.
H	Makes it possible to deactivate the automatic display of placings and average times (for external views).

3.5 Replays

The buttons Car, Exterior, Subjective and TV correspond to the various views, which are available.

When a player switches to a full screen, he still has access to the functions of the navigation bar. This is what each key represents:

Function	**Corresponding key**
Load/Save	No corresponding key
Read, slow motion	Direction arrow → (1st touch)
	Direction arrow ← (if reading)
Pause	Space bar
Stop	
Fast forward	Direction arrow → (2nd touch)
Fast backward	Direction arrow ← (2nd touch)
Return to start	Direction arrow ↓
Go to the end	Direction arrow ↑

4. THE TYPES OF GAME

4.1 Easy Mode

To start a game immediately: choose a mode, a circuit and a car and find yourself at the wheel of a single-seater.
The physical behavior of your car and the technical adjustments to it are fixed according to the circuit and the team chosen in order to make it easier for you to drive and to anticipate the difficulties of the circuit. With automatic gear-change, automatic breaking system option, ideal weather conditions, minimal or no car damage, you will not need to immerse yourself in the basic principles of aerodynamics in order to experience what a grand prix is like!
Watch out all the same because there are 21 other competitors on the starting grid, each with his own behavior – and the smallest error could spin you off the track...

4.2 Realistic Mode

To go right to the heart of MONACO GRAND PRIX© Racing Simulation, the new benchmark for racing simulations.

Amateur

This level of difficulty is recommended for people who are playing this type of simulation game for the first time. The computer adjusts the settings of the competitors making their performances slower and less aggressive than they would normally be. Furthermore, the player has every aid at his disposal: automatic gearbox, ABS, anti-skidding device, self-steering into the pits and indestructible cars.

Pro

This level of difficulty is recommended for players who are experienced drivers and who know the circuits.

Expert

This level is reserved for players who consider themselves capable of driving in the most realistic conditions possible. The only available aids are the automatic gearbox, the anti-skidding device, anti-wheelslide device and ABS. The competitors' behavior is highly realistic and the player who wants to compete for the world championship title must have complete control of his car on all the circuits.

5. CHOOSING A TEAM AND A DRIVER

There are 11 teams and 22 cars with different levels of performance. Click on the icon of the team for which you want to race and choose the driver you want to be.

5.1. Editing the Team

THE TEAM EDITOR enables you to personalize the 11 teams in the game.
The player can edit the name of the team, the type of engine, the name of the general manager of the team and the technical manager.

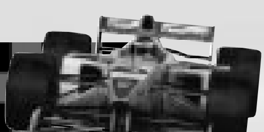
Name	Edits the name of the team selected
Vertical scroll bar (up/down) (to the right of the team icon)	Selects among the 11 teams
DEFAULT	Re-initialization of the selected team
ENGINE TYPE	Edits the name of the team's engine
GENERAL MANAGER	Edits the name of the general manager of the team selected
TECHNICAL MANAGER	Edits the name of the technical manager of the team selected

5.2 Editing the drivers

NAME	Edits the name of the driver selected
FIRST NAME	Edits the first name of the driver selected
Vertical scroll bar (up/down) (to the right of the team icon	Selects among the 11 teams
DEFAULT	Re-initialization of the selected driver
LED DRIVER1 – LED DRIVER2	Selects the driver to be edited
NATIONALITY	Edits the nationality of the driver selected (maximum 3 characters)
DATE OF BIRTH	Edits the date of birth of the driver selected
WEIGHT	Edits the weight of the driver selected
WAIST	Edits the waist measurement of the driver selected
EDIT LIST	Only in Individual Championship mode, to edit the list of drivers
PLAYER SELECTION 1 / 2	Only in Multiplayer mode with split screen to distinguish the driver selection of player 1 from that of player 2

6. CHOOSING A CIRCUIT

There are 17 circuits around the world including the town centre circuit of Monaco. Each circuit has its own characteristics. It’s up to you to adapt your driving accordingly.



7. THE OPTIONS

7.1 In Easy mode

The player clicks on this button to access the options page. Depending on the game mode and the level of difficulty, some options may, or may not be accessible.

7.2 In Realistic mode

The car

Unit of speed	Kph - Mph	Kilometres or Miles per hour
Changing gear	Auto	Gears change automatically whenever the player brakes or accelerates.
	Manual	The player has to change gear himself.
Anti-sliding device	Yes - No	Help reacceleration when exiting from a bend and stops car from running off track.
Anti-skidding device	Yes - No	Help acceleration to stop the wheels from skidding.
ABS	Yes - No	Device to stop the wheels locking during braking.
Steering lock	Yes - No	This aid is only accessible when the keyboard is being used. It makes road holding easier when entering a bend.
Autosteering in the pits	Yes	Whenever there is a pit-stop, the player is taken over as soon as the pit lane begins and regains control after leaving the pits when he is back on track.
	No	The player remains in control from the entrance to the exit of the pits.

Breakdowns

The player can decide whether or not to tolerate his driving lapses and the aggressivity of his opponents by avoiding the occurrence of certain mechanical breakdowns.

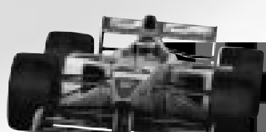
A distinction is made between major breakdowns that force the player to abandon the game and minor breakdowns that do not prevent the player from continuing the race.

The race

Weather	Sun	Sunny weather for the whole race.
	Cloudy	Risk of rain during the race.
	Rain	Rain throughout the race.
	Random	Random choice between the 3 above weather types
Number of competitors	1…21	Number of competing computer cars.
Level of competitors	Identical	All the competitors are at the same level.
	Random	The levels are randomly distributed.
	Realistic	The competitors have the most realistic
		behavior possible.
Identical cars	Yes	Same technical adjustments and choice
	No	of race as those of the player.
Percentage of laps	10%-25%-50%	Percentage of laps to be raced in relation to the actual
	75%-100%	number of laps on the circuit.
Relative wear and fuel	Yes	Tire wear and fuel consumption relative to the
	No	percentage of consumption laps chosen above.
Position on the grid	1…22	Player’s position on the starting grid.
Damage	None	The car is indestructible.
	Intermediate	The car is only damaged on heavy impact.
	Realistic	The car is affected on minor impact.

The rules

False start	Yes	At the start of the race, the player has control of the car as soon as the five red lights are lit. However, before starting, he must wait for the lights to go out, otherwise he will be penalized for a false start.
	No	The player has control of the car as soon as the 5th light goes out!
Restricted speed in the pits	Yes	In the PIT LANE (the straight where the pits are located) the player is not allowed to exceed a certain speed (80
	No	kph at Monaco and 120 kph on the other circuits).
Limit of 30 laps per session on practice runs	Yes	In a practice run session, the player cannot do more than 30 laps (including entering and leaving the pits).
	No	Unlimited number of laps.
Limitation of twelve laps per qualifying session	Yes	During a qualifying session, the player cannot do more than 12 laps (including entering and leaving the pits).
	No	Unlimited number of laps.
Limitation of 36 dry tires and 28 wet tires per weekend	Yes	During Grand Prix weekend, the player only has the right to use 36 dry tires and 28 wet tires.
	No	Unlimited number of tires.
The 107% rule	Yes	The player can only take part in the race if his qualifying time is less than 107% of the time of the car in pole position.
	No	No restriction on qualifying times.
Limit of one replacement per weekend	Yes	On a Grand Prix weekend (practice runs, heats, vehicle warm-warm-up, race), the player has the use of only 2 cars: his own and the reserve car.
	No	Unlimited number of cars.



1. TRAINING – APPRENTICESHIP

This gives the player three options

Training: the player is alone on the circuit of his choice. He can familiarize himself with the layout of the circuit.

Demonstration: the player does not race. He watches a car race on the circuit of his choice. In this way he can see the ideal trajectory and get to know the speeds at which he should be entering and exiting bends.

Apprenticeship: identical to training except that the player is not alone, he has a ghost car ahead of him to show him the trajectory to take and the correct speed.

The various aids are:

- Recommended gears: before getting to a bend, the optimal gear is displayed.
- Leaving the track: when the player leaves the track he is automatically brought back to it.
- Weather: choice of weather.

2. SIMPLE RACE

Once you have trained on the circuit of your choice you will be ready to take on opponents during a simple race.

3. GRAND PRIX

Experience a complete Grand Prix weekend: practice runs, heats, warm-up and the race itself.

3.1 Practice runs

On a Grand Prix weekend, the player is entitled to two practice run sessions to try different car settings. At the end of the sessions a ranking order is established, but purely for information. The player is placed directly in his box with the following menu: Ranking, Garage and GO. When he chooses GO, he switches to the cockpit view and can start at any time. The exit manoeuvre for leaving the box is automatic.

Once on the track, the player can return to the pits directly via the menu of the Escape key. He may also drive into the pits at any time. In both cases, the player must position himself in the pit space allotted to him by his mechanics. The Ranking, Garage and GO menu will then be displayed again.

3.2 Heats

At the end of the heats, a ranking order is established to determine the positions the drivers will take on the starting grid of the race. The game procedure is the same as for the practice runs.

3.3 Warm-up

This session is held on Sunday, 4 ½ hours before the race begins; this is the time when drivers need to make their final adjustments before the actual race.
The game procedure is the same as for the practice runs.

3.4 The race

The race lasts for a maximum of 2 hours.
The player arrives on the circuit where he can view the starting grid and the positions of the competitors (Escape to skip).

The start

- The player is placed in his cockpit
- The 1st red light comes on
- The next four lights come on at one-second intervals
- When the five lights go out, it is the signal to start!

Entering the pits

During the race, a player who wants to enter the pits must signal his mechanics by pressing the Enter button.
Once he is on the lane leading to the pit, a dialogue box is displayed top right. This warns the player what action the mechanics will take about the type of tires and the amount of fuel. The mechanics follow the race strategy set by the player.

To modify the race strategies, press Backspace to display the pit menu.
When the mechanics have finished their job, the player accelerates to get back into the race.

The finish

When a player crosses the finishing line – if he's still in the race – his finishing position is displayed (Esc to quit).

The flags

The Yellow Flag means there is danger on the track.

The Blue Flag tells a driver that he must let a competitor overtake to lap him.

The Black Flag indicates a penalty for the player. The player must then enter the pit to serve his penalty in the form of 10-second STOP and GO routines. A player who has been penalized has the right to pass the pits twice before stopping. He can be disqualified if he passes the pits a third time.
Be careful because penalties are cumulative!
Penalties are imposed for the following reasons:

- Excessive speed in the pits (if this option is active in the rules menu).
- False start (if this option is active in the rules menu).
- Skipping a chicane: the player is penalized if he does not keep to the layout of the circuit in an attempt to gain time.

The Chequered Flag: means finish of the race.

4. CHAMPIONSHIP

The objective is to become World Champion. This means taking part in a series of 17 Grand Prix races in all.
The points acquired in a Grand Prix are accumulated from one Grand Prix to the next; the driver who becomes World Champion, is the one who has accumulated the most points at the end of the 17th Grand Prix.

Points are allocated for each Grand Prix as follows:

1st:	10 points
2nd:	6 points
3rd:	4 points
4th:	3 points
5th:	2 points
6th:	1 point

5. INDIVIDUAL CHAMPIONSHIP

This enables the player to compete in a championship in which he can choose the number and series of Grand Prix races as well as the list of drivers.

5.1 Editing the list of drivers:

The player either clicks on a team to add its two drivers to the list, or he can click on an individual driver.
To remove a driver from the list of competitors, all the player needs to do is to choose his name in the list, then click on the Trashcan icon.

5.2 Editing the list of circuits:

The player clicks on the circuit he wants to add to the list of races that makes up his championship season.
To remove a circuit from this list, all the player has to do is to select the circuit and click on the Trashcan icon.

6. CAREER MODE: THE CHALLENGE

This new mode is specially for experienced drivers and fans of single-seater racing. What it means is making a career of being a driver, trying to be part of the best team going for the world title!

It means that the player competes for a complete season (17 races) but, this time, he drives the car he is given. He therefore has to achieve the best results possible with it.

At the end of the season, if the players results are considered encouraging, he can find himself offered a contract – a virtual one – with a more prestigious team and thus get to drive a better car.

7. TIME ATTACK

Ghost off (crossed out)	Race without ghost
Trashcan	Deletes ghost selected

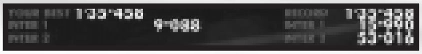
This mode is for players who are trying to break lap records.
For this, the car is indestructible: there is no fuel consumption and the tires do not wear out. The player can therefore drive for as long as he likes, improving his time as he covers the laps, hoping to get to the top ranking in the “Hall of Fame”.

The player has two options: Free Run mode or Ghost mode.

7.1 Free Run

The player’s car is placed just in front of the starting line so that it can be crossed at optimal speed. As soon as the player crosses the line, the stopwatch starts.
The race against the clock will only end when the player hits Esc.
If the driver manages to beat the race record time (Hall of Fame), the ghost for this lap will automatically be saved.
For each lap, the player is informed of his two current average times, of the differential with the best time for the circuit chosen, as well as his time passing in real time:

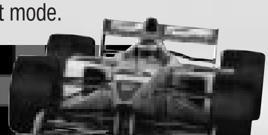
Example:



Your Best (1’35”458) corresponds to the player’s best current time.
Inter1 and **Inter2** corresponds to the player’s two current average times.

In the middle of the screen there is the player’s current time passing in real time (9”088). Each time the player exceeds an average, the differential with the record time is displayed (-8.205).

Record (1’35”458) corresponds to the best time for the circuit in question. **Inter1** (15”990) and **Inter2** (53”016) corresponds to the 2 average times of a player who has done a record time.



7.2 Ghost

When the Ghost mode is activated, the player races against a ghost car. This ghost single-seater represents either his best time or that of another player who has previously registered to play. Since the ghost is only an image, the player cannot collide with it. The ghost opponent starts as soon as the player himself crosses the starting line.
The Ghost's lap time is recorded, the stopwatch starting again at zero each time that the two competing cars cross the starting line. (**Esc** to stop the race).

Saving a ghost

To save a ghost the first time, you have to have completed at least one lap.

- Press Esc and choose "Terminate" to save the best time, which is recorded as a ghost's result.
- To compete against him after that, select him from the ghost page.
  A player can save up to 10 ghosts per circuit. Their times are recorded in descending order.
- Delete a ghost in order to save others, or beat the 10th ghost's time...

Changing a ghost

- All the ghosts are stored in the following directory: Game directory]\f1datab\scope.
- Their file extension is .SEQ
- All the ghost files use the following name patterns:

1st character:
A letter corresponding to the circuit on which the ghost raced.

A…Australia	**B**…Brazil
C…Argentina	**D**…San Marino
E…Monaco	**F**…Spain
G…Canada	**H**…France
I…Great Britain	**J**...Germany
K…Hungary	**L**…Belgium
M…Italy	**N**…Austria
O…Luxembourg	**P**…Japan
Q…Europe.	

2nd character:
A figure which corresponds to the minutes of the ghost.

3rd and 4th characters:
Figures corresponding to the seconds.

5th 6th and 7th characters:
Figures corresponding to the thousandth of a second.

Example: e125205.seq
This file represents a lap done by a ghost on the Grand Prix de Monaco circuit in a time of 1'25"205.

- Players may rename a ghost file but must always retain the extension .SEQ.

8. SCENARIO MODE

The Scenario mode enables you to pit yourself against the fastest and best drivers in special conditions…

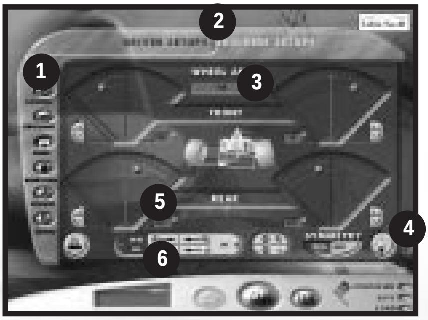
Amateur	25 % of the distance and Amateur mode difficulty
Pro	50 % of the distance and Pro mode difficulty
Expert	100 % of the distance and Expert mode difficulty
SCENARIO LIST	Selection of a scenario
OBJECTIVE	Informs you of the objective to meet
DESCRIPTION	More complete description of the scenario

…all with a detailed analysis of your performance when the race is over.

1. THE GARAGE

A player can make 13 types of set-up to his car, and so get to know the mechanics of single-seater Grand Prix racing.

Here is a typical garage page:

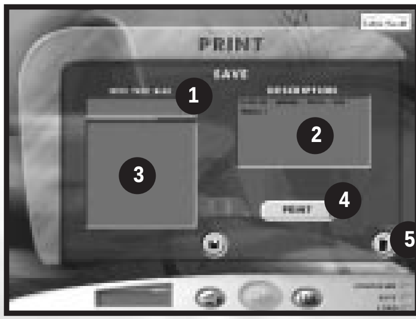


1 Access to different types of set-up.
2 Switch from 6 driver set-ups to 7 engineer set-ups.
3 Changes right and left set-ups symmetrically.
4 Go to following set-up on the same page.
5 Duplicates the “pre-race” set-up to “race” or from “race” to “pre-race”.
6 Enables duplication of all the “pre-race” set-ups to “race” or from “race” to “pre-race”.

Thus it is possible to save one or all of the choices and combinations of set-ups in the pre-race session so that the car driven during the race uses the parameters worked out during practice.

7 Choose default set-up.
8 Choose default for all the set-ups.
9 Print set-ups.
10 Help: explanation of the various set-ups and their effect on the behavior of the car.

To print set-ups :



1 Give a file name.
2 Save set-ups in text file form accessible in: [Game directory]\Save\1997\Prints.
3 List of text files.
4 Print text file selected without exiting the game.
5 Delete text file selected.

2. THE SET-UPS

2.1 Driver set-ups

Transmission

Choose between a manual and an automatic gearbox. If automatic is selected, the computer will make the optimal gearchange for the player.

If you are a beginner, you'll find it easier to go for the automatic option.

Gearbox ratios

The gearbox ratios must be adjusted and adapted to the style of each circuit. Adjusting the sixth gear ratio sets the car's maximum speed: a long ratio will mean a faster straight line speed – but will also take longer to reach it. A short ratio gives significantly sharper acceleration but a weaker top speed. After setting the sixth gear ratio, adjust first gear for the slowest bend. Only then start spacing the other ratios between sixth and first.

In order to adjust the gearbox ratios, set up sixth gear taking into account the maximum revs reached during the longest straight. If the revs haven't reached the maximum that the engine can take, then the gear ratio is too long. Similarly, if maximum revs are reached too early then the gear ratio is too short. Afterwards, set first gear to reach maximum revs during the slowest bend on the track: if maximum revs are reached too soon, lengthen the first gear ratio, if the maximum isn't reached then shorten it. The other ratios are spaced between first and sixth.

Long - Short

A gear ratio is the quotient of the teeth in the two gearwheels of the gearbox. The sixth gear ratio is generally near 1 (this could be 62/64, 71/72 or 46/48 for example). The ratio of first is the smallest or the shortest, the ratio of sixth the longest. Lengthen the ratio by increasing its value, shorten it by reducing it.

Spacing

Spacing consists of setting the gear ratios between first and sixth. Good spacing means no gaps between two gears, which means once the maximum revs in a gear are reached, the revs reached when changing to a higher gear don't drop too far. The ideal would be to have similar rev increases whatever ratio is chosen.

Steering

The steering ratio is that between the steering lock angle and the wheel lock angle.

Adjust this ratio well enough to be able to turn into the slowest bend on the circuit: for example setting the steering ratio to a high value for the Monaco circuit would mean no problems tackling Loews corner. Note: the higher the wheel lock, the quicker the tyres will wear.

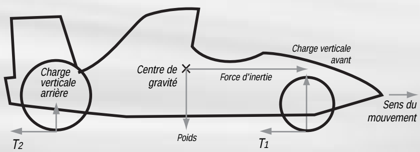
Brake balance front/rear

Brake balance is the ratio between the front and rear braking force. If brake balance is badly set, the 4 wheels will not brake at their maximum potential. Since brake balance also influences the approach to a bend, the more that the balance is set to the rear, the more the rear

brakes are likely to jam first making the car oversteer. In all cases, a car that locks its front wheels first is easier to steer than one that locks its rear wheels first.

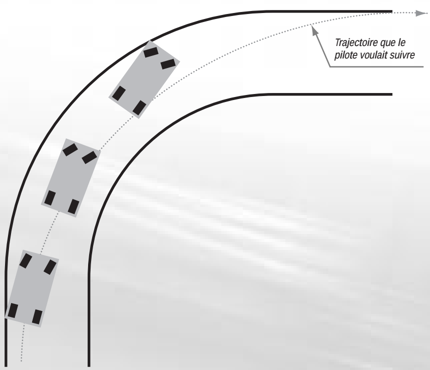
*It's worth taking the time to set the brake balance if you have already modified the car's aerodynamics because correct balance will vary with the **vertical load.***
*If you have difficulty braking in a bend (**understeer**), apply more brake balance to the rear. Similarly, if the car seems unstable while braking and has a tendency to **oversteer**, place more emphasis on the front brakes.*

Braking force
Braking force (or braking drag) is the amount of tyre to ground friction opposing forward movement of the car.
The wheels will lock when braking if the tyre to ground grip isn't sufficient.

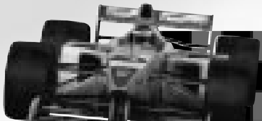


Because inertia is applied to the car's centre of gravity under deceleration, braking is accompanied by a transfer of vertical load, which tends to remove the burden from the rear axle loading it onto the front. An axle tyre to ground adhesion limit is relative to the vertical load: the higher the load, the greater the grip and vice versa. The drag can then exceed the tyre to ground adhesion limit forcing the rear wheels to lock and lose their grip.
Brake balance therefore is an adjustment of front and rear drags so as to either prevent the rear wheels from locking or make them easier to lock.

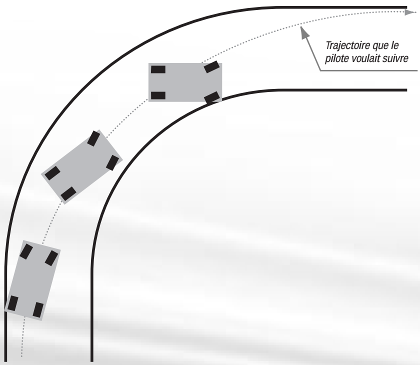
Understeer (car understeering)
A car understeers in a bend when the front tyres lose their grip (slip) before the rear tyres do. The front wheels then no longer respond well to the steering; the driver, no matter how much he turns the wheel, finds that the car continues on a path that tends to make it leave the road by the outside.
In order to re-gain control of a car that's understeering, it's important to immediately increase the vertical load at the front by lifting the foot off the accelerator, perhaps even braking lightly. A car that understeers remains **stable**, contrary to one that oversteers.



Oversteer (car oversteering)
A car oversteers in a bend when the rear tyres lose their grip (slip) before the front ones do: the car then goes into a rear skid which, more often than not, finishes with the car facing in the opposite direction. To avoid this awkward situation, you have to lightly steer into the skid by gently lifting the foot from the accelerator in order to try and re-establish rear wheel grip. Don't lift the foot too suddenly though or even



worse brake too sharply because vertical load on the rear will drop, further reducing rear wheel grip. The best drivers manage to maintain the car's skid by playing on the counter lock and accelerating very lightly.
A car that oversteers is **unstable**, contrary to one that understeers.



Stable/unstable behaviour
A car is said to be stable if, when the speed drops sharply, it returns to its initial trajectory.
A car that understeers is as stable as a car, which behaves neutrally.
A car that oversteers is, by definition, unstable because dropping the speed sharply makes the car suddenly spin forcing it into the opposite direction.
A car that is stable is therefore a lot easier to steer than an unstable one.

A car is said to behave neutrally if in a corner, the front wheels lose their grip at the same time as the rear wheels. It's the ideal situation because as the car slides along its trajectory, the driver doesn't need to make any corrections.

Aerodynamics - wings

The front and rear wings allow the car to "stick" to the road thanks to the **downforce** that they generate. They give more grip to the car in bends by increasing the vertical load, but also lower the straight-line top speed by generating drag.
The wing setup allows you to adjust their **incidence angle**: the greater this value, the greater the car's grip and the lower the maximum speed.

It's advisable to set the gearbox ratios immediately after the wing settings have been decided on.
The wing settings can also influence braking: the lower the incidence, the greater the need to brake earlier.
The car's bodywork also helps create downforce, depending on the car incidence. The bodywork or bodyshell, which refers to the whole of the car with the exception of the wheels and suspension, also creates another force: **ground effect**.

If the car doesn't reach high maximum speeds, lower the wing incidence front and rear. This will promote a faster straight-line speed but also have the knock-on effect of diminishing grip in a corner. Generally, for slower circuits (Monaco, Budapest), set the wings with a high incidence angle to favour grip. For faster circuits (Monza, Hockenheim), set the wings t o a lower incidence angle in order to favour speed in long straights. For those circuits which are a little more variable, you'll have to find a compromise between speed and grip in the corners.If the car has a tendency to understeer, increase the front wing angle of incidence.
If the car has a tendency to oversteer, increase

the rear wing angle of incidence. Note: don't create too large a gap between the front and rear wings otherwise you risk making the car understeer.

If you decrease the incidence at the rear to gain in speed, make the car's behaviour stable by decreasing the incidence at the front.

Downforce
The wings are like inverted aeroplane wings. For the same reason that a plane flies, a wing, when placed in a relative wind (i.e., a wind generated by the car's displacement against its environment) will create a downward force which increases the vertical load, planting the vehicle more firmly to the ground with greater effectiveness the faster it goes. The downforce is relative to the car's speed squared and this force can be 3 to 4 times the car's weight.

Vertical load
The vertical load is the total of all vertical pressures supported by the vehicle. These are the weight of the car, aerodynamic forces, and inertia forces when accelerating or braking (transferring load). The vertical load has a major influence on a car's behaviour: the greater the force on the suspension, the more this will be passed onto the tyres. So as a general rule, the greater the vertical load, the more the car will "stick" to the road.

Drag factor
The bodywork and aerodynamic extras, like all bodies in an airflow, slow the car down – this is known as aerodynamic drag. This force is also proportional to the speed squared, therefore the faster you go, the more you are slowed. When the wing incidence increases (especially at the rear), the drag factor is raised.

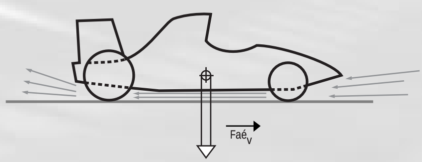
Wing incidence angle
This is the angle that the wing makes against the airflow. The larger the angle, the larger the downforce, but also the greater the drag factor.

In the aerodynamic set-up, it is the angle that is adjusted.

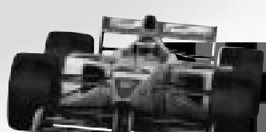
Car incidence
Bodywork contributes, like the wings, to the downforce. The bodywork through the suspension settings (**ride height**) also has an incidence. The more this is increased, the greater the downforce.
However, the influence of this downforce in comparison with the downforce created by the wings is less important. On the other hand, the car incidence plays an important part on the drag factor: the greater it is, the greater the drag factor and the slower the maximum speed.

It's always important to set the car incidence in such a way that the front is lower than the rear.

Ground effect
Due to the flat bottom and extractor behind, there is a depression under the bodyshell, which has the effect of improving the car's grip on the road. It varies according to the height of the bodyshell against the ground. This depression creates a suction force between the car and the ground increasing the vertical load.



The lower the bodyshell the greater the suction forces.



Fuel level

This is the amount of fuel held in the tank. The more fuel you have in the car the heavier it becomes. This means that acceleration becomes slower, braking takes longer and your maximum speed drops. However you must make sure that you have enough fuel so that you don't run out.

Fuel consumption ultimately depends on your style of driving. The harder you go, the more the tyres will skid and the more fuel you'll consume. Carefully choose the amount of fuel you take and try to anticipate the number of refuelling stops. Always take a little bit more than the strict minimum in case of over consumption.

Tires

Tires provide the only link between the car and the ground and are crucial to your car's performance. If the tires are good, your car's performance can be good, if the tires are bad then your car won't be up to much.
The tires of a single-seater are high performing, but even the most resistant never last longer than one race and sometimes last only a few laps at the highest performance.
The way you drive greatly influences the amount of wear and tear: the more the car skids, the more the wheels will lock and the more your tires will wear out.

There are two types of tires: smooth tires – used in dry conditions (known as 'slicks') and treaded tires – used in the wet. Only one quality of rubber exists for wet tires while there are four types for slicks.

The different types of tires that exist in motor racing are classified by rubber quality, according to their endurance/performance ratio.

In general, whatever the tire, one that's soft (S) has a high performance because it grips the track well, but tends to wear out after only twenty laps or so.
A hard tire (H) performs less well because it has a weaker grip, but it will last longer.

Select the highest performance tires (soft) for the heats which last a maximum of 12 laps – a little more than half the average life span for this type of tire.
Select your tires thinking about the number of refuelling stops you'll make and your style of driving: choose hard if you've planned 0 or 1 stop, soft if you'll make several stops in the pits. Wet tires will not wear out too much in the rain (in fact, they can last for the whole race), but in dry conditions they will wear out quickly. If the track dries out, change your tires for some slicks.

2.2 Engineer set-ups

Springs

The suspension is made up of springs, **anti-roll bars** and **dampers**. The springs control the wheel's vertical movement against the bodyshell, this is known as **travel**. The firmer the springs (stiffness), the greater the force needed to make the wheels travel. Setting the spring rate for each wheel influences the car's behaviour, notably the **roll** and the **pitch**. The firmer the springs, the less the car will roll in corners and the less it will pitch under acceleration and braking.
In a straight line, the softer the springs, the more the suspension will absorb the bumps, allowing the tyres to stick to the road better. However, the vertical load transfer is greater when braking,

removing the weight from the rear wheels, which provokes a loss of braking efficiency. In corners, softer spring settings mean the wheels stick to the road but if the setting is too soft, entering and leaving corners becomes difficult and the car is slower to react.
The front and rear anti-roll bars re-enforce the springs only when the car rolls. Therefore, the firmness of the suspension can differ in a straight line where there is normally no roll, to corners where the car will roll. In corners the suspension is firmer because of the anti-roll bars.

If the car bounces too much over bumps, making you lose acceleration time, reduce (soften) the spring rate at the front and rear. If you wear out your tyres too quickly, soften t the spring rate.

If you frequently lock the rear wheels when braking, change the brake balance or raise (stiffen) the front spring rate and reduce (soften) the rear.
If the car understeers, lower (soften) the front anti-roll bar and/or raise (stiffen) the rear. If this isn't enough, soften the front spring rate and/or raise it for the rear. But remember, by doing this you'll also risk changing the car's behaviour over bumps, when braking and entering/leaving corners.

If the car oversteers, raise (stiffen) the front anti-roll bar and/or soften the rear one. If this isn't enough, stiffen the front spring rate and/or soften the rear one but you'll also risk changing the car's behaviour over bumps, when braking and entering/leaving corners.

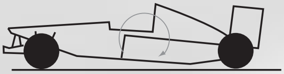
If the car is slow to react when you take a corner, stiffen the springs at both the front and rear. If the car scrapes the ground creating sparks while accelerating in a straight, stiffen the rear springs, or set up ***bump stops****, or even raise the ride height at the rear. If the car scrapes the ground creating sparks when breaking in a straight, stiffen the front springs, or set up bump stops, or raise the ride height at the front.*

Pitch and roll

The pitch and the roll angles affect a car's position in relation to the road.
Roll describes the angle between the body and a longitudinal horizontal axis. Centrifugal force in corners creates this angle, as does a wheel going over an obstacle or banking a slope. Roll has some annoying repercussions for road holding: the tyres can slip more easily and vertical load transfer is greater.
Pitch is the relationship between the body and a transversal horizontal axis, which depends not only on the inertia that occurs under braking or acceleration, but also when a wheel goes over an obstacle or an uphill road. Pitch has some annoying repercussions for road handling: the tyres can slip more easily and the vertical load is greater.

Roll:
Example of a single-seater that's rolling a lot

Pitch:



Travel
Travel is the wheel's position against that of the body of the car. For example, in a right-hand corner, the front outside wheel will lower the distance between itself and the body whilst the inside rear wheel gap increases. All four wheels have travel.

Anti-roll bars
Anti-roll bars are a part of the suspension in that they help to control roll. They help out in corners and harden the suspension.
The anti-roll bar setup has a major effect on how the car will behave in a corner: if it understeers, soften the front anti-roll bar. If the car oversteers, soften the rear anti-roll bar.

Ride height

Ride height, is the height between the car and the ground and is measured from the front and rear axles. The height is given while the car is stationary and varies when the car is moving due to: downforce, wheel travel, pitch and roll. Ride height affects car behaviour by lowering the centre of gravity making the car pitch and roll less. Lowering ride height also raises downforce.
Note: The front of the bodyshell must always be lower or equal to the height of the rear of the car, otherwise downforce will be zero. Minimum ride height is when the bodywork touches the ground.

Lower the ride height in order to raise downforce without increasing the drag factor. Always set the front to be lower than the rear in order to benefit from downforce.
Lower the ride height in order to make the car more nimble when entering corners, changing direction and braking.

Raise the ride height or stiffen the spring rate or fix bump stops if the car occasionally scrapes the ground. You'll know the car touches the ground when sparks fly from under it or by hearing a scraping sound.

Bump stops

A bump stop is a piece of very hard rubber fixed to the dampers. They allow the springs to stiffen when a certain amount of wheel travel occurs. You adjust the travel setting from which the bump stops will have an effect. Stops are used once the spring rate has been set and the car still continues to touch the ground. You can, of course, choose not to use bump stops if you don't want to. It's something that's used to complement the spring rate.

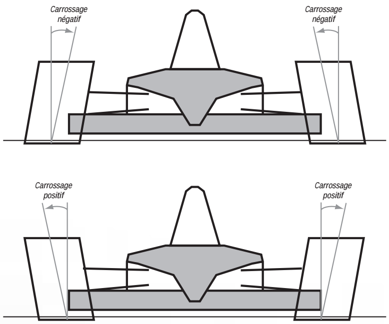
If the car scrapes the ground and you don't want to change the spring rate, you can lengthen the bump stops. Adjust the rating until the car no longer scrapes: use the telemetry to gauge the travel of each wheel in order to set the stops.

Adding stops allows you to reduce the ride height. Adjust the rating so that the car no longer scrapes the ground in a straight or in a corner. Use the telemetry to gauge the travel of each wheel and to more accurately adjust the stops.

Using bump stops in corners is the equivalent to strongly increasing the spring stiffness. Therefore, if you use front bump stops the car will understeer and if you use rear stops, it will oversteer.

Dampers

The dampers, like the springs and the anti-roll bars, form part of the suspension. They absorb travel, dispersing the accumulated energy in the springs and prevent excessive wheel travel.



When the car enters or leaves a corner, brakes, accelerates or goes over an obstacle, the dampers will limit the travel.
The role played by the dampers is not the same depending on whether the wheel moves towards (bump) or away (rebound) from the bodyshell. When bumping, the dampers control the movement of the car as it goes over a bump. When they rebound, they control the roll and contribute to the car's handling when entering and leaving a corner. In general, the dampers are set to provide three to four times more force on rebound than on bump.
If the car bounces over bumps and seems to take off over vibrators when accelerating, soften the bump of the rear dampers or possibly even all four of them.

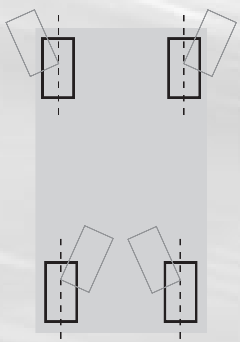
If the car bounces over bumps and seems to take off over vibrators when braking, soften the bump of the front dampers or possibly even all four of them.

If the car shakes a lot after a bump or a vibrator, provoking a loss of downforce or wheel spin when accelerating or braking, stiffen the bump of all four dampers.
If the car is slow to respond when entering/leaving a corner, increase the rebound of all four dampers.
If the car has a tendency to understeer when entering/leaving a corner, soften the rebound of the front dampers whilst possibly stiffening the rebound of the rear ones.
If the car has a tendency to oversteer when entering/leaving a corner, soften the rebound of the rear dampers whilst stiffening the rebound of the front ones.

Try to respect the rebound and bump setup of a damper.

Camber

This is the angle formed between the wheel and the vertical. It is positive when the wheels, at ground level, “come in” towards the inside of the car and negative when they splay out.



The camber setup is used to place the tyres in a position where they can provide the best performance; it must allow for the full use of

the tyre's width in corners. An inappropriate camber will make the tyres heat up too much provoking excessive wear and tear.

By measuring the inside, middle and outside temperature of the tyres, it's possible to work out the best camber.

Watch the temperature on these three points of the tyres. If the temperature rises on the outside of the tyre, the camber is too great, therefore: lower the rate, do a few more laps and then check the temperature again. However, if the temperature rises on the inside of the tyre, the camber is too weak and needs raising. If the temperature remains roughly consistent over the whole tyre, the camber doesn't need changing.

Wheel alignment

Wheel alignment adjusts the angle that a set of wheels has in relation to the longditudinal axis of the car. It is called “toe-in”, if the wheels form a V open towards the rear of the car, or ‘opening’ if the wheels form a V open towards the front.

The toe-in or opening basically modify the response time of each set of tyres because it affects the drift of each tyre when the car takes a corner. The wider the opening on the front set, the less responsive the car is. The bigger the rear toe-in, the more stable the car is.
Wheel alignment has a big influence on tyre wear, creating permanent drift.

If the car enters a corner too slowly, reduce the front opening and reduce the rear toe-in.
If the car is not accurate enough entering a corner, increase the front opening and reduce the rear toe-in.
If your tyres wear too quickly, reduce the opening or toe-in of the set concerned.

Engine power

The engine is characterised by its rev to power curve. You can set the revs up to what the engine can take but you must also realise that the higher the revs, the more powerful the engine and the less reliable it will be.
The higher the engine power, the faster the maximum speed.
Find a balance between power and reliability.
If you play in breakdown management mode, reliability will never be 100%.

Revs

The revs indicate the engine revolution speed. The higher they are, the greater the engine power and the greater the risk of a breakdown.

Torque

Torque is the data that applies to an engine. It varies according to the revs. The obtained curve is defined by the internal characteristics of the engine (capacity, shape of the cylinders etc.). The engine power is a product of the torque produced by the revs.

3. Car configuration

3.1 The effect of settings.

When setting up a car, it's a good idea to have two objectives in mind: improve the performance and/or improve the balance of the car for a given circuit. A car is balanced if it doesn't understeer or oversteer too much making it as neutral as possible. The difficulty in setting up a single-seater is that each setting influences some or all of the others. Changing a parameter may increase a car's performance in one respect but could weaken all the others. A car set up with the compromise for the whole circuit will achieve the best lap time.

The main objectives when configuring the car are:

1 - Balanced handling in corners

2 - Finding the best compromise between high speed in corners and low top speed in straights.

It's important to smooth out specific problems relating to control and car stability at all points of the track.

3.2 Slow straights and bends.

Braking in a slow straight

The fuel level is extremely important for this kind of braking because it affects the weight of the car: the greater the fuel level, the greater the difficulty in braking. The choice of tyres also influences braking: the softer they are, the more efficient braking becomes. Once these two decisions have been settled, you can then set about adjusting the brake balance in order to ensure that the brakes are as efficient as possible, reaching their locking limit at the front first. The ideal balance for this type of braking depends on the previous two settings. You may find that the springs need adjusting in order to prevent too much pitch which can be harmful when braking and also the dampers if the track is bumpy.

Braking and entering a slow bend

The correct brake balance for braking in a straight, might not be good enough when the car enters a corner because the outside front tyre suffers more load than the inside rear tyre. Too much emphasis on the rear could force the rear wheel to lock. Try and adjust the brake balance to avoid this problem.
Next, set the anti-roll bars. The harder they are, the quicker the car will respond at the wheel. But be careful, as the anti-roll bars influence the car's handling in a corner, making it understeer or oversteer.
The dampers must also be as firm as possible for the car to be lively but it'll be necessary to find a balance so that there isn't too much understeer or oversteer.
Set the ride height as low as possible so that the car is nice and lively but make sure that it won't touch the ground as it goes round the track.
Finally, set the alignment at the front (opening) and at the rear (toe-in) to modify the way the car responds when turning the steering wheel.

In a slow bend, begin by setting the camber: a slightly negative camber will increase the tire grip. Check the chosen camber value by keeping an eye on tyre temperature after a few laps of the track. An even temperature indicates a correct setting. You can adjust one side of the car differently to the other for those tracks where the majority of the bends are in the same direction – but watch out for those in the opposite direction.
Tyre choice is essential, as it will affect not only the grip but also the speed through the bend.
Next, set the anti-roll bars and the springs so that the car will behave as neutrally as possible. You can also set your car to understeer or oversteer to suit your driving style but a neutral car is more efficient and wears the tires out less.

Accelerating out of a slow bend

The most important setting here is engine power as the greater it is, the stronger the acceleration and the higher the maximum speed. The more fuel you take on, the heavier the car will be and therefore acceleration will suffer.
At the same time, you must set the gearbox ratios to obtain rapid acceleration.
The choice of tyre is also important. The softer they are, the earlier you can accelerate out of a bend.
Then set the anti-roll bars to be firmer at the front so that the rear wheels spin less and the car understeers more in the corner.
Finally the dampers need to be set as firm as possible to limit roll.

Accelerating in a low speed straight

The engine power determines the car's acceleration; the more powerful the engine, the greater the acceleration. The fuel level is also important: the heavier the car, the less lively the acceleration.
After setting the engine power, set the gearbox ratios in order to obtain rapid acceleration.

3.3 Fast straights and bends

Braking in a fast straight

Drag helps the brakes, the greater the wing incidence the greater the drag. Ground effect and wing downforce are also major factors. They help the brakes by raising the vertical

load over the tyres. Watch that there is enough downforce on the rear to avoid the rear wheels locking first.
The wings and the car incidence play a part in setting up the best brake balance, which can change with the speed of the car. The ideal high-speed balance is different from an ideal low speed balance because of aerodynamic influences.

Braking and entering a fast bend

Downforce affects the car's high-speed stability when braking. The greater the downforce, the more efficient the braking and the more stable the rear of the car. If there is enough downforce at the front, it helps the car enter into the corner.
The best brake balance for high speed corners isn't the same as that for straight line braking, as the outside front tyre in a bend has more load than the inside rear tyre. Therefore, brake balance that favours the rear can end up locking the rear wheel. Try to ensure you avoid this when setting up the brake balance.
Then there is the choice of tire: the softer they are, the later you can brake in a bend.
Set the dampers to firm, this will avoid dangerous high speed rocking affecting the handling.
Finally, set the alignment at the front (opening) and at the rear (toe-in) to modify the way the car responds when turning the steering wheel.
In a fast bend, the downforce raises speeds in a corner but also increases the drag. Try and find a balance to have the highest speed in fast bends. Adjust the wing incidence front and rear so that the car is balanced.
Ride height also plays an important part as it influences ground effect. Set the ride height as low as possible while making sure that the car doesn't scrape the ground.

Accelerating in a fast straight

Engine power determines the car's acceleration: the more powerful the engine, the better its acceleration leading to a higher maximum speed.
The aerodynamic settings decide final maximum speed: the greater the wing incidence, the greater the drag and the weaker the maximum speed. Try to find a compromise between a high maximum speed and having enough grip in the corners for the type of track.
After the engine power, set the gearbox ratios so that the engine is used at its best over the six gears.

Help

Click on the set-ups page button
(cf. 1. THE GARAGE)

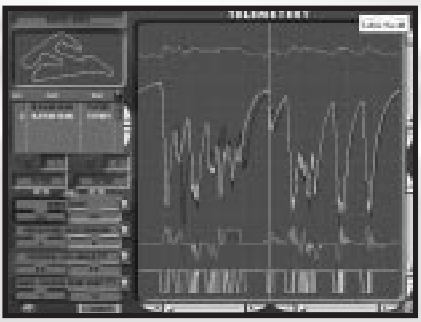
4. TELEMETRY

This is a tool which is used to analyse the behaviour of one's car on a lap as well as one's driving at each stage of the lap: entering or coming out of a particular corner, negotiating a particular straight, and so on.
It's accessible via the Garage icon after a mimimum of one lap of the race.

4.1 Data saved:

- Speed
- Gearbox ratio
- Wheel travel (front left and right, rear left and right)
- Wheel camber (front left and right, rear left and right)
- Ride height front and rear
- % of acceleration
- % of braking
- Angle of steering circle
- Speed of rotation of wheels (front left and right, rear left and right)

4.2 How to analyse the data



Name of circuit

Representation of the circuit

makes it possible to know which part of /he circuit is represented in the display zone for corners (in yellow). The bar corresponds to the one in the display zone.

Magnifying glass

used to review the record of zooms

Left horizontal bar

used to move on the X-axis

Right horizontal bar

used to modify the level of zoom in Z

Top vertical bar

used to move on the Y-axis

Bottom vertical bar

used to modify the level of zoom in Y

LCD screen below the right column

X-axis: displays the position in X of the green bar

List of the laps completed (No., Date, Time)
selection of the lap to be displayed and analysed

Grey downward arrows and LCD screens
gives a lap its column

Single arrow on the left
only displays the left column

Single arrow on the right
only displays the right column

Double arrow
displays the 2 columns
So the player can select one or two laps and display them at the same time

Arrow towards left (bottom left)
return

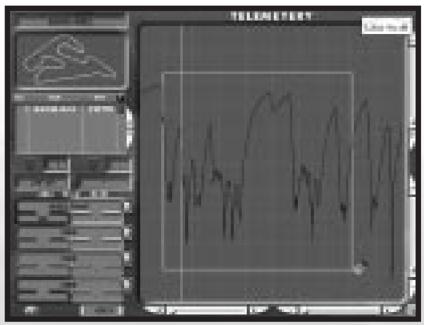
Grey buttons (on the right of the right column) selection of the data to be displayed graphically (speed, gear, etc)

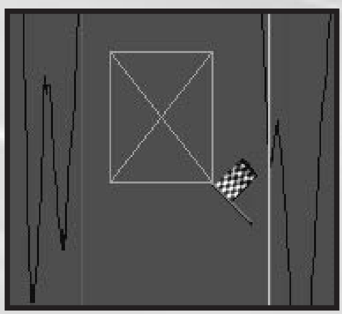
Name of data, curve (e.g. : SPEED)

Left LCD screen
Y-axis value of lap in left-hand column

Right LCD screen
Y-axis value of lap in right-hand column

Button
Selection of type of curve to be displayed (i.e. of saved data)



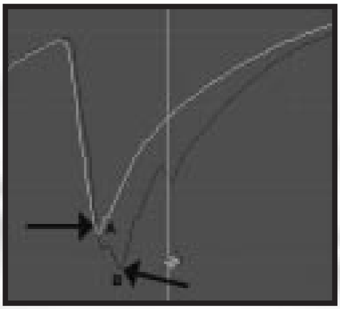


The mouse can be used to:

- Zoom: right click (a cross in the frame indicates that maximum zoom has been reached).
- Move the vertical line: left click.

4.3 Telemetry by example

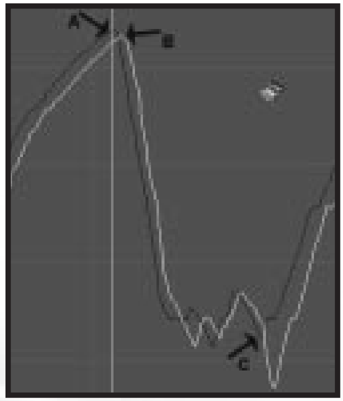
Telemetry is a very powerful tool that enables you to master driving and setting up the car so that optimal performance can be attained. Telemetry is a twin tool, for it allows you to optimise both the way the car is set up and driven.



Optimising driving

Example 1: Reacceleration point
Comparing 2 speed curves, one very quickly notices that reacceleration point A is much earlier in time than reacceleration point B. Determining the ideal reacceleration point for each bend is an easy way of gaining time. In theory, the ideal reacceleration point is the mid-point of the curve

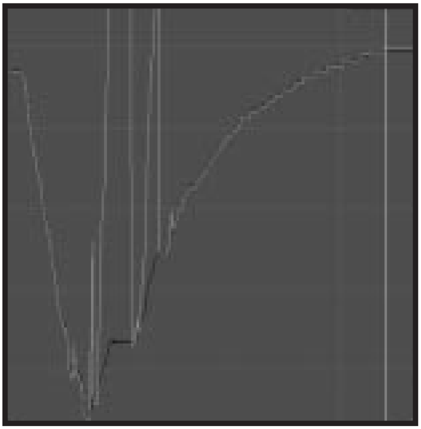
Example 2: Braking point
The example below shows that late braking (point B on the white curve) takes you further into a corner with consequent loss of speed, delaying the reacceleration point. With an earlier braking point (point A on the black curve) you can position your single-seater better when entering a corner and, above all, get to reacceleration point quicker, which enables you to gain a lot of time.
You should use telemetry with a view

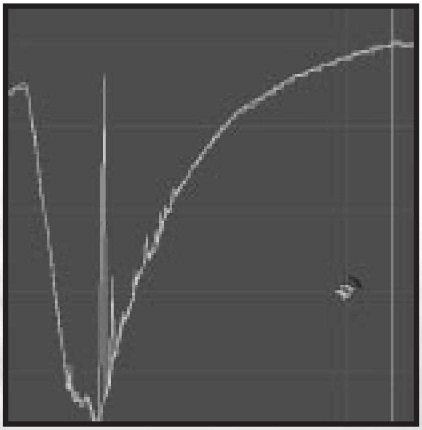


to optimising your driving to the maximum. You can, for example, follow a similar procedure to the above for the steering lock angle. If the angle is too large, the front wheels will respond less well and the car will understeer, which has a considerable effect on speed in corners.

Example 3: Acceleration
In order to understand the effects of a driver's errors better, it is possible to compare two different laps. Here, the speed of the car and the speed of a rear wheel are compared. When a car goes into a spin, the wheels turn faster than the car does. To reach optimal acceleration, the speed of the wheel should be as close as possible to that of the speed of the car.
Spinning is minimised by using the anti-spinning or by having better control of the accelerator.

Example of accelerator control:
The curves represent speed curves (black and white) and the speed curves of a rear wheel (green and yellow) in corner at 2 different moments.

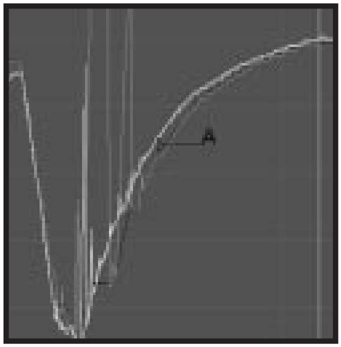




The difference between the green curve and the yellow curve shows that in the first, the driver spun a lot, much less than in the second.

The third graph shows the two 2 drives superimposed:
It is easy to see from the difference (A) between the 2 driving speeds that through optimal control of the accelerator, a lot of time can be gained because while the car is spinning, the tyre is unable to transfer maximum power.

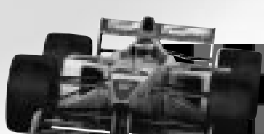
Example 4: Braking
It is possible to see that during braking the driver



applied the brake pedal too long (part A), which resulted in wheel-blocking (point B).

Slipping, brought about by too large a difference between the speed of the car and the speed of the wheel (part A) should have been avoided by good braking.

Here is an example of where well judged variation of pressure on the brake pedal (part D) results in a significant time gain. Slipping (part C) has been reduced to a minimum and the wheels did not block.



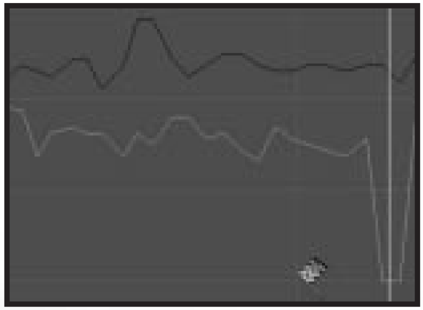
Optimising the settings

Example 1: Ride height settings
Front and rear ride height settings are very important. They will vary according to the speed, the faster the car goes, the closer it will be to the track.

When the ride height is at minimum, the bodywork will scrape the track and slow down the car. Telemetry will enables you to measure the effect of this so that you know to what degree the ride height needs to be modified.

The curve below (green curve, left) shows the effect of minimum ride height over a short distance. Remedy this by adjusting:
• The stiffness of the springs (increase).
• The bump stops.
• The ride height.
Naturally if you change one of these settings it can modify the general behaviour of the car. Therefore it is necessary to establish which setting will be the most effective.

When braking (see red curve representing speed), ride heights vary. The green curve (rear ride height) increases more rapidly than the black curve which represents the front ride height. This is a representation of the phenomenon of transfer of vertical load.

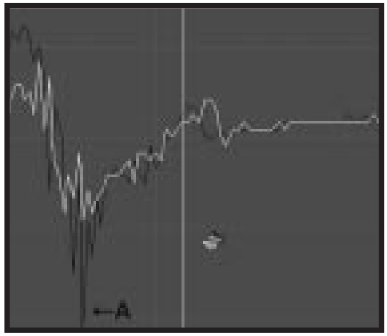


A transfer of vertical load of this type is an advantage for a car that understeers: because of this transfer, there will be a load shift to the front axle which will increase its efficiency making it possible to increase cornering speed. On the other hand, if there’s too much transfer of vertical load a car behaving neutrally, or even oversteering, the removal of load from the rear axle may put the car into a spin.

Furthermore, the rear ride height needs to be greater than that of the front because it has an effect on different aspects of the behaviour of a single-seater: ground effect and compensation for the reduction in rear ride height caused by downforce of the rear wings at high speed.

Example 2: Setting the dampers
Looking at wheel travel helps to know how to deal with the problem of setting the dampers. When wheel travel is equal to ground effect, the bodywork is in contact with the track. When going over vibrators, wheel travel can become negative (the gap between car and

wheel widens – point A in the diagram). When wheel travel is negative, load on the wheel is almost zero (not counting the weight of the wheel itself). This phenomenon can cause anything from loss of wheel grip to a spin.



Conclusion :

In conclusion, telemetry is used to analyze and compare the settings chosen and the graph curves (example: maximum speed and aerodynamics settings). One the comparisons have been made, you should only change one setting at a time, then do a practice run on the track.
Be careful also of points on the curves that cannot be repeated (due to driver error, vibrations, difficulties of recording etc.)
One last important point: remember that some settings may be static (bodyshell, suspension etc.) but their effects are dynamic and interactive...

... as you will see in the analysis of your performance when the race is over.

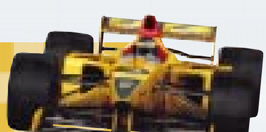
1. THE CIRCUITS

1.1 Germany

The Hockenheim circuit, with its 1 km plus straight at a maximum speed of 350 km/h, is unique and very exciting. After several long straights that are joined by three chicanes with famous names, the drivers emerge from the forest. It's a great moment for all the drivers, particularly the Germans who are warmly applauded. A series of bends follows before the pit straight completes the lap.
The secret of this circuit is to minimize downforce so that high top speeds are reached, though keeping enough to lose as little time as possible through the chicanes and the Stadium. The drivers need to brake very sharply to slow down from 300/350 kph and down from 6th into 2nd gear in the space of a few metres.
The circuit is deceptively simple. However, it requires a large amount of experience to balance the car. And you need determination and unswerving confidence to drive at 350 kph between rows of trees.

Diagram:
Germany
Length: 6823 m
Laps: 45
Total distance: 307.035 km

Strategy:
- Stops: 2 or 3
- Tires: soft



1.2 Great Britain

Ever since the first race on this former RAF aerodrome in 1948, this circuit has always been a favorite with the drivers. Its special feature is its curved starting grid followed immediately by the first corner: Copse corner. From flat out in 6th, it's down to 5th, then downhill before coming back into top gear for the superb sequence of Maggot's and Beckett's.
The best drivers combine speed and ideal trajectory to shoot out of Chapel and reach maximum circuit speed at the end of Hanger Straight before taking the blind Stowe corner in 4th. The Club bend requires some gentle acceleration. The descent to Bridge is taken flat out with an empty tank, or slightly easing off the acceleration if the tank is full again a question of striking the right balance. Finally, Brooklands and Luffields, a tricky sequence taken in 2nd until Woodcote corner, then up to maximum speed, except when it's raining which is pretty often.
It's a demanding circuit that requires a lot of concentration. Every mistake is a costly one and there are plenty of opportunities to make them.

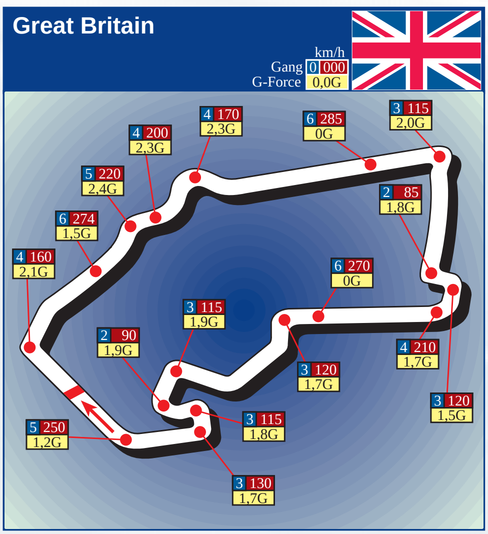
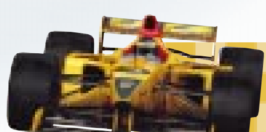


Diagram:
Great Britain
Length: 5140 m
Laps: 59
Total distance: 303.26 km

Strategy:
- Stops: 2 or 1
- Tires: soft



1.3 Argentina

The circuit is situated south of Buenos Aires, the Argentinian capital. Little appreciated by drivers, who find it tedious, it has been nicknamed the Temporada turnstile. The layout, quite similar to that of a go-cart circuit is very winding and there is very little room to overtake outside the pits. It is further criticized for the poor quality of its surface making it difficult to grip, and the numerous bumps that destabilise the cars.

The incidence angle of the wings needs to be as much as possible to produce maximum grip. As for the chassis, it must stay flexible to absorb the effect of the many bumps. Careful not to enter the Curvon corner too fast. Even more important, come out of it as quickly as possible to take the straight that follows which can be taken at top speed. At the end of it is the “Curva Ascari” which is taken in 6th gear. The question is whether to ease off a little or keep one’s foot down, those who dare to keep their foot down may gain the few vital centimetres that get’s them pole position. Remember: overtaking on this circuit is not easy!

Diagram:

Argentina:

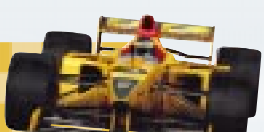
Length: 4257 m

Laps: 72

Total distance: 306.504 km

Strategy:

- Stops: 2
- Tires: soft



1.4 Australia

The circuit is in the centre of Melbourne, in Albert Park. The circuit is popular with the drivers for its long fast bends and its tricky chicanes. Like all circuits that are infrequently used, it is bumpy and dusty, therefore an intermediate chassis setting to ensure good stability while braking is necessary. Downforce should be close to a maximum. Note that some corners are blind and, as with every good city circuit, concrete walls are never far away, so slight mistakes could be more than costly. There are two hotspots: the first chicane after the start that can be a “killer”, and the follow on from the big bend on the opposite side to the pits. It is taken very fast in 5th, reaching 280 kph at the end of it before diving into the left-hand corner just touching on the brakes before dropping down to 4th gear. A tricky right-hand corner and then flat out which is where the best drivers come out in front.

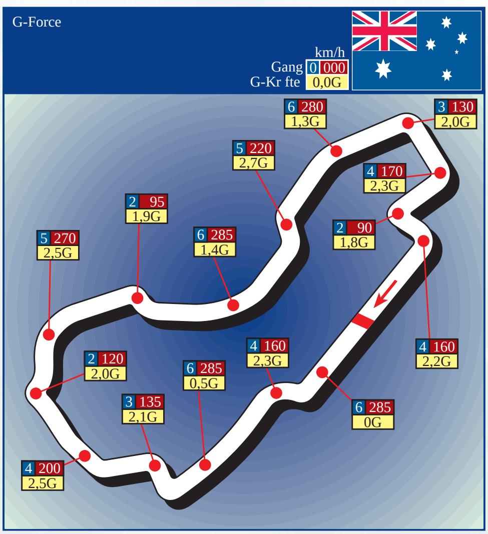
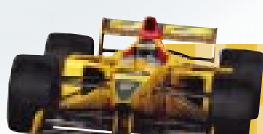


Diagram:
Australia
Length: 5302 m
Laps: 58
Total distance: 307.516 km

Strategy:
- Stops: 1 or 2
- Tires: soft

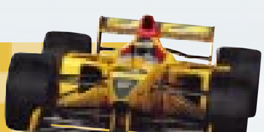


1.5 Austria

The new Austrian circuit with its new layout is very different indeed from the historic Osterreichring circuit. Even so, itís a fine circuit for drivers and produces breathtaking races in which overtaking is always possible, especially during the “Remus Kurve”. To do that, the gentle “Castrol Kurve” that follows the pit straight needs to be successfully negotiated, avoiding the bumps in the braking zones and getting up to full speed for the long uphill straight that leads to “Remus”. The “Niki Lauda Kurve” is tricky due to the way the track slopes towards the outside. This lightens the load at the front of the car so that it tends to understeer. The slightest lapse of concentration here and the car will spin off the track. To sum up, this circuit requires intermediate downforce settings to produce the best compromise between the very fast sections of the track and the slow bends preceded by heavy braking. Good general balance of the car here is very important indeed.

Diagram:
Austria:
Length: 4323 m
Laps: 71
Total distance: 306.933 km

Strategy:
- Stops: 2 or 3
- Tires: soft

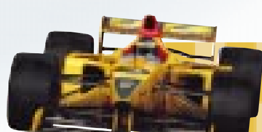


1.6 Belgium

The Belgian race, on what is probably the most attractive course of the season, is THE rendez-vous of the year, looked forward to by drivers and fans alike. All the challenges a driver is likely to face are to be found there: high speeds, hard braking, tight corners and fast bends. Straight after the starting line comes the Source hairpin. This bend is very tight and is negotiated in 1st at 60 kmh before plunging into the track's star attraction: the Eau Rouge/Raidillon sequence. The downhill slope between the wall and the spectator stands is very impressive. At the bottom of the dip one can see the left/right of Eau Rouge and the Raidillon rise. It sorts the men from the mice with the most courageous drivers being able to take it at top speed!
But there are other strong points to this circuit like the long, gentle but tricky Pouhon bend, the fast Blanchimont bend surrounded by trees. The difficult chicane called the Arrêt de Bus leads to the finishing line.

Diagram:
Belgium
Length: 6967 m
Laps: 44
Total distance: 306.548 km

Strategy:
- Stops: 2
- Tires: soft



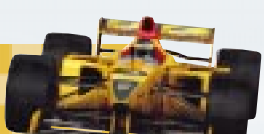
1.7 Brazil

The circuit in the south of Sao Paulo in Brazil is the first of the South American circuits visited and is one of the drivers' favorites despite having a very bumpy surface. It's also the only circuit where the cars go round anti-clockwise. This particularity is quite difficult to deal with physically because it results in neck-muscle fatigue. As far as the chassis and the mechanics are concerned, it is also a demanding circuit with its complete range of bends some hard braking to be done, its uneven surface, its full-speed uphill incline to the pits and, finally, the altitude - a factor not to be ignored when considering engine performance.

In a well set-up car there should be a good compromise between ride height and suspension. As far as the driver is concerned, the downward sloping bend "Curva Senna", which follows the pit straight is the most difficult to negotiate. But it's the place where the best drivers overtake.

Diagram:
Brazil
Length: 4325 m
Laps†: 72
Total distance: 311.40 km

Strategy:
- Stops: 1
- Tires: soft

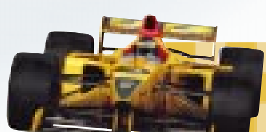


1.8 Canada

The Canadian race takes place on a circuit situated on Notre Dame island, right in the middle of the Saint Lawrence river. Similar to a town circuit, it is little used, as in Argentina, and thus the track lacks grip. The long fast straights followed by slow, tight corners, donít make the settings very easy to get right. The right balance has to be struck between the best possible maximum speed and enough downforce to take the corners and chicanes effectively. The very long straight that leads to the entry Àto the pits is very demanding of engines and the way the chicane that follows is negotiated affects performance in the pit straight. It's a right/left, then right up against a wall on exit to gain maximum speed. It's a tough one, careful on the brakes!
The Canadian circuit often produces a very interesting race with overtaking always possible and much enthusiasm in the stands for the local drivers.

Diagram:
Canada
Length: 4421 m
Laps: 69
Total distance: 305.049 km

Strategy:
- Stops: 1 or 2
- Tires: soft



1.9 Spain

The Catalan circuit is very popular because virtually all the teams go there in the winter to prepare for the new season by testing and perfecting the new season's cars. The drivers know this circuit well because of this. It's a fast track with a racing speed averaging close to 200 kph. The engine has a lot of work to do and there braking is harsh, especially at the end of the long pit straight. It's also one of the best places to try and overtake. The very abrasive surface of the track means that drivers have to make sure their tires don't wear out too quickly. The chassis setup must be flexible to absorb the numerous bumps. The engine needs to be flexible enough to en hance acceleration coming out of corners. Finally, sufficient downforce is needed to get through the sequence of three long fast bends in which the drivers can be subject to as much as 4G!

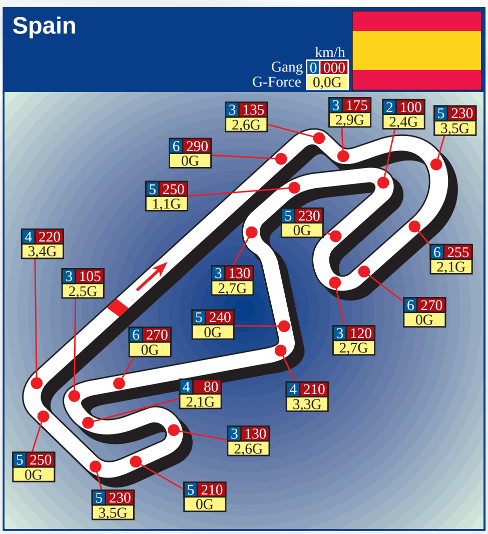
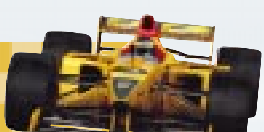


Diagram:
Spain
Length: 4726 m
Laps: 64
Total distance: 302.464 km

Strategy:
- Stops: 2 or 1
- Tires: soft



1.10 France

Many find the French circuit tedious, mainly because it’s impossible to overtake. Despite this it offers some fine moments where pure driving skill is required beginning with the great Estoril bend that follows the pit straight. It’s a very tricky one. Many a driver enters it too fast and is unable to counteract the centrifugal force taking him towards the gravel at the side of the track. It’s important to get it right because it leads into the fastest straight of the circuit. He who doesn’t can find himself overtaken at the Adelaide hairpin.
Another high point is the rapid sequence leading to the downward sloping bend at Château d'eau. The surface of the circuit is very smooth which means the ride height can be lowered, but the track is quite slippery. One last detail: the rather tricky winding entrance to the pits should be entered carefully. But all in all the car’s setup is not that complex and an optimal solution can be found quickly.

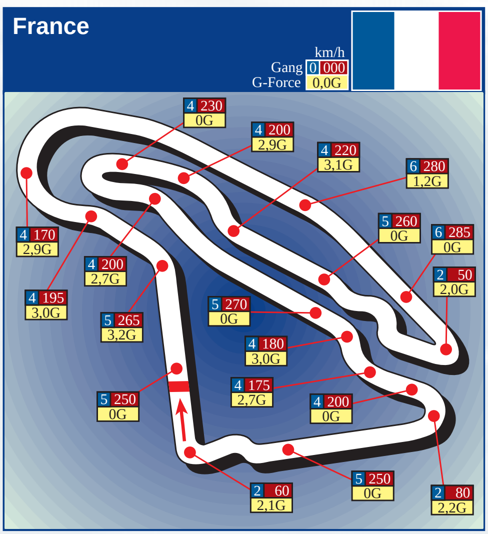
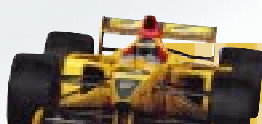


Diagram:
France
Length: 4247 m
Laps: 72
Total distance: 305.784 km

Strategy:
- Stops: 2
- Tires: soft



1.11 Hungary

This circuit at Budapest is a fairly slow one with few straights and offering few opportunities to overtake. It's another of the circuits that are considered to be a little tedious. It is not used very much during the year, there are many bumps and it's very slippery due to sand on the track. Thus, in the numerous bends, there's always the risk of spinning off the track. The absence of straights means that the drivers have no opportunity to lapse in their concentration. Which makes it a physical and tiring race. Because the circuit is situated in a dip it can get very hot in mid-August, which makes it very testing on the tires. The right set up will include a lot of downforce.
To stand a chance of winning, the driver must take the lead from the start, which is clearly easier if one starts the race in pole position. Either that or come up with a good strategy for overtaking in the pits.

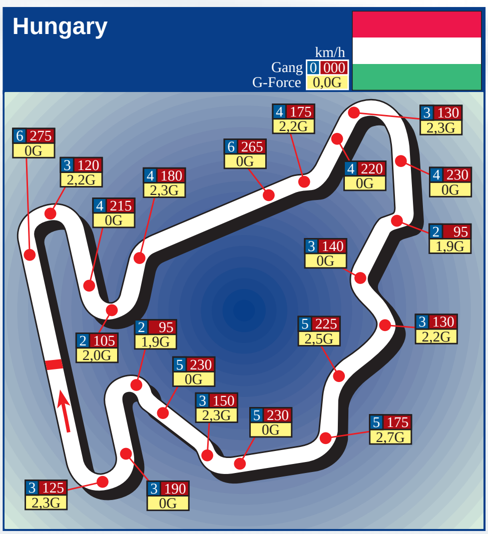
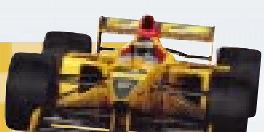


Diagram:
Hungary
Length: 3968 m
Laps: 77
Total distance: 305.536 km

Strategy:
- Stops: 2 or 3
- Tires: soft

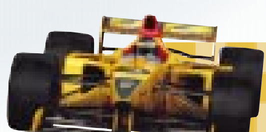


1.12 Italy

The Italian circuit is all about speed. It has the fastest track with an average speed per lap of 240 kph. The long straights are broken up by chicanes and the bends, “Curva Grande”, “Curva di Lesmos” and “Curva Parabolica” are fast. It can be compared to the German circuit because the same careful attention should be paid to downforce and engine settings given that most of the time the car is going flat out. The car must have excellent mechanical setups to accelerate with maximum effectiveness coming out of the chicanes. Entering these same chicanes is hard work on the brakes and can cause quite a few problems. The first sequence after the starting line is a fairly tight left/right/left which often gives rise to early collisions. To avoid the risk of that, better to be one of the first to go through it. Hence the importance of doing a good time in the heats and why not get in pole position.
And finally, this circuit is very Italian and its atmosphere is unique!

Diagram:
Italy
Length: 5770 m
Laps: 53
Total distance: 305.81 km

Strategy:
- Stops: 1 or 2
- Tires: soft



1.13 Japan

After the Belgian circuit, Japan's is considered to be the most attractive, technical, and well laid out with many opportunities for overtaking. This circuit is well liked by all drivers. What's more is that the races that take place have a great and unique atmosphere. Tuning the car is not very easy: the car needs to be able to go very fast in the long pit straight, but also have enough downforce to take the many fast bends. The fast tempo of the whole race requires perfect engine tuning. The hot spots of the circuit are the fast bend after the pits straight. The magnificent sequence of S bends before entering a left-hand corner is a real tester. Those who have the know how to go through it quickly will get a head start over the rest of the circuit.
A last point: it's the only circuit where the cars have to go over a bridge!

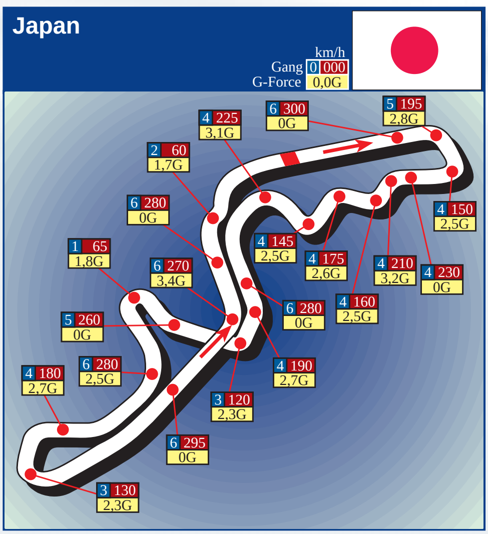
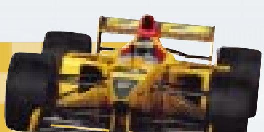


Diagram:
Japan
Length: 5860 m
Laps: 53
Total distance: 310.58 km

Strategy:
- Stops: 2
- Tires: soft

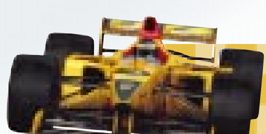


1.14 Luxembourg

The Luxembourg race actually takes place in Germany between Bonn and Dusseldorf. It's an interesting circuit with very varied straights and bends. It is laid out on quite hilly terrain, with the accent on driver safety. Unfortunately it offers few possibilities for overtaking. As far as set-up in concerned, this circuit, with its frequent bends, requires a lot of downforce. Most of the bends are fast ones and are taken in 3rd or even 4th gear. As on all circuits where overtaking is difficult, if not impossible, a place at the front of the starting grid together with a good race strategy are indispensible for victory. The big unpredictable factor is the weather for the circuit is in a region that gets a lot of rain, so the track can get totally drenched in water.

Diagram:
Luxembourg
Length: 4555 m
Laps: 67
Total distance: 305.185 km

Strategy:
- Stops: 2
- Tires: soft



1.15 Monaco

Le Grand Prix de Monaco© organized by the A.C.M. (Automobile Club of Monaco), is the most charismatic of races, apart from being the most famous in the world.
Snaking its way through the centre of the town, the circuit is the season's shortest and slowest with an average speed a little over 140 kph. The hot spots are Sainte Devote, scene of many pile-ups soon after the start. Next it's the Beau Rivage incline at top speed followed by the Massanet corner where the barrier jumps right out at you. Then follows the tunnel in the dark at maximum speed and out to the harbour chicane. This is followed by rapid entry into the Piscine chicane, next La Rascasse hairpin, then the corner named after Anthony Nogès, founder of the A.C.M. and instigator of this fabulous race in the 1920s.
The circuit demands a lot from both the drivers and the car. The settings must give maximum downforce, gentle suspension and a fairly high ride height in order to minimise scraping.

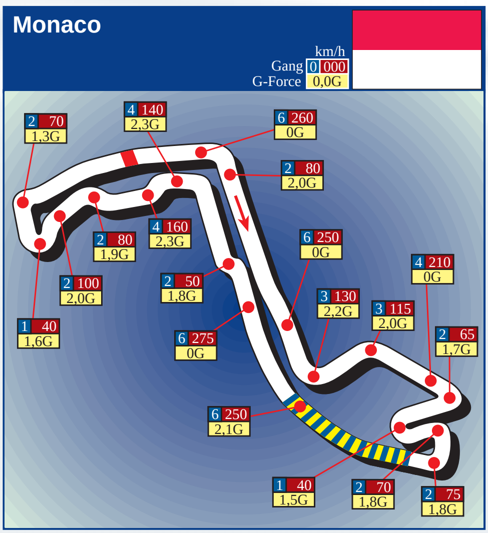
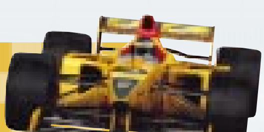


Diagram:
Monaco
Length: 3367 m
Laps: 78
Total distance: 262.548 km

Strategy:
- Stops: 1 or 2
- Tires: soft

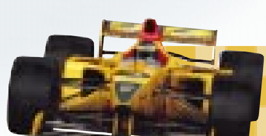


1.16 San Marino

The San Marino track will remain famous for the unhappy reason that two great drivers were killed there on May 1 1994. Since then the circuit has been considerably modified and the terrible Tamburello corner has lost a chicane. Despite all these changes, it remains a very technical circuit with long acceleration sections followed by tight, tricky corners requiring heavy braking. To stay on the track, the drivers must remain on the ball at all times. The right balance between strong acceleration and tight corners are reached by setting intermediate downforce. However, the heavy braking calls for tight chassis settings.
And the thousands of local fans that pour into the circuit en masse cannot help but remind you, in case you had forgotten, that the local color is red.

Diagram:
San Marino
Length: 4930 m
Laps: 62
Total distance: 305.66 km

Strategy:
- Stops: 2 or 1
- Tires: soft



1.17 Europe

The Spanish circuit brings the long 16 Grand Prix seasons suspense to an end. This last race of the season sees the most talented driver win the coveted title. The circuit will remain in everyone's memory for having given us one of the greatest moments in the history of motor racing.
The modern layout alternates between fast bends and tight corners. Two of them slope downhill, which means that the single-seaters need to be perfectly adjusted. But that's not all: good downforce is necessary to be able to come out of the bends quicky, early and adroitly without cutting back too much on the car's potential for reaching top speed.

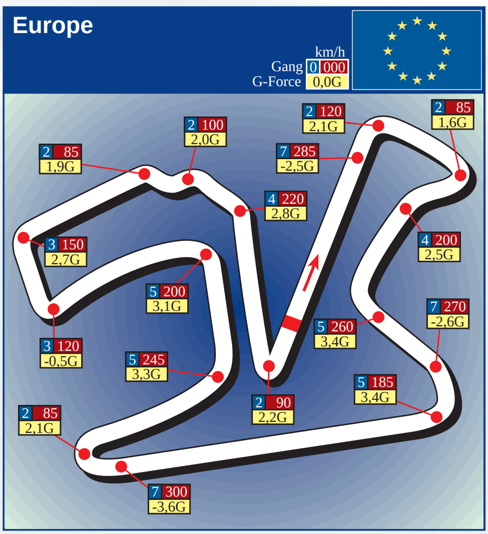
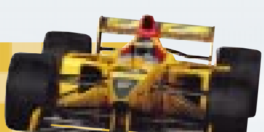


Diagram:
Europe
Length: 4428 m
Laps: 69
Total distance: 305.532 km

Strategy:
- Stops: 2 or 1
- Tires: soft



2. THE TEAMS

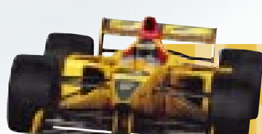
Technical Data for 11 teams: chassis and engine

TEAM 1

Technical Data:

Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: 3000 mm
Front: 1650 mm
Rear: 1600 mm
Total length: 4700 mm

Engine:
V10 cylinder - 72° - 700 hp - 14000 revs/min
Maximal speed: 14400 revs/min
Material: aluminium block
Valves: 4 per cylinder
Weight: 105 kg

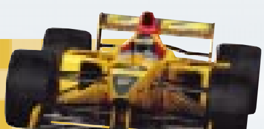


TEAM 2

Technical Data:

Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: 2890 mm
Front: 1670 mm
Rear: 1600 mm
Total length: 4150 mm

Engine:
V10 cylinder - 71° - 755 hp - 14600 revs/min
Maximal speed: 15300 revs/min
Material: aluminium block
Valves: 4 per cylinder
Weight: 132 kg

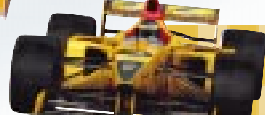


TEAM 3

Technical Data:

Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: 2935 mm
Front: 1690 mm
Rear: 1605 mm
Total length: 1348 mm

Engine:
V10 cylinder - 75° - 760 hp - 14800 revs/min
Maximal speed: 15300 revs/min
Material: cast-iron
Valves: 4 per cylinder
Weight: 140 kg

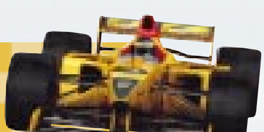


TEAM 4

Technical Data:

Chassis:
Weight empty: 550 kg, without driver
Wheelbase: 2880 mm
Front: 1700 mm
Rear: 1600 mm
Total length: unknown

Engine:
V10 cylinder - 71° - 760 hp - 14600 revs/min
Maximal speed: 15300 revs/min
Material: aluminium block
Valves: 4 per cylinder
Weight: 132 kg

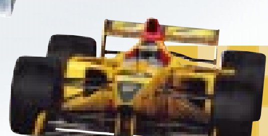


TEAM 5

Technical Data:

Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: not disclosed
Front: not disclosed
Rear: not disclosed
Total length: not disclosed

Engine:
V10 cylinder - 75° - 760 hp - 15800 revs/min
Maximal speed: 16600 revs/min
Material: aluminium block
Valves: 4 per cylinder
Weight: not disclosed

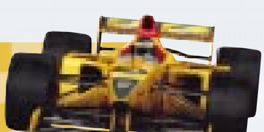


TEAM 6

Technical Data:

Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: 2950 mm
Front: 1700 mm
Rear: 1618 mm
Total length: unknown

Engine:
V10 cylinder - 72° - 740 hp - 13900 revs/min
Maximal speed: 14400 revs/min
Material: cast-iron block
Valves: 4 per cylinder
Weight: 133 kg

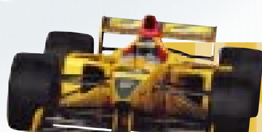


TEAM 7

Technical Data:

Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: 2995 mm
Front: 1693 mm
Rear: 1608 mm
Total length: 4335 mm

Engine:
V10 cylinder - 72° - 710 hp - 13900 revs/min
Maximal speed: 14500 revs/min
Material: cast-iron block
Valves: 4 per cylinder
Weight: 140 kg

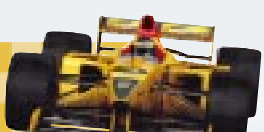


TEAM 8

Technical Data:

Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: 2940 mm
Front: 1660 mm
Rear: 1610 mm
Total length: unknown

Engine:
V10 cylinder - 75° - 760 hp - 14500 revs/min
Maximal speed: 15200 revs/min
Material: cast-iron block
Valves: 4 per cylinder
Weight: 140 kg

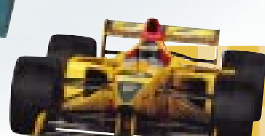


TEAM 9

Technical Data:

Chassis:
Weight empty: 600 kg
Wheelbase: 2990 mm
Front: 1700 mm
Rear: 1610 mm
Total length: 4330 mm

Engine:
V8 cylinder - 75° - 665 hp - 13700 revs/min
Maximal speed: 14200 revs/min
Material: aluminium block
Valves: 4 per cylinder
Weight: 130 kg

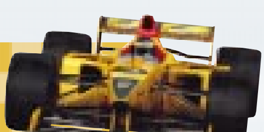


TEAM 10

Technical Data:

Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: 2900 mm
Front: 1680 mm
Rear: 1620 mm
Total length: unknown

Engine:
V8 cylinder - 78° - 680 hp - 13100 revs/min
Maximal speed: 13600 revs/min
Material: aluminium block
Valves: 4 per cylinder
Weight: 115 kg

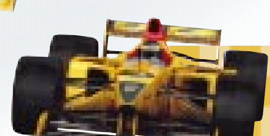


TEAM 11

Technical Data:

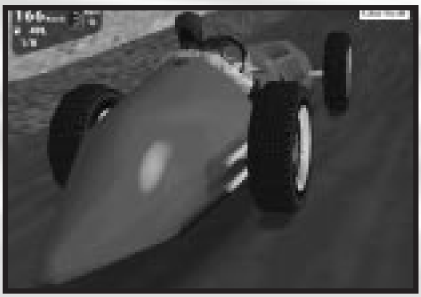
Chassis:
Weight empty: 600 kg, driver on board
Wheelbase: 2950 mm
Front: 1690 mm
Rear: 1585 mm
Total length: unknown

Engine:
V10 cylinder - 72° - 720 hp - 15100 revs/min
Maximal speed: 16000 revs/min
Material: block made of cast-iron, aluminium and titanium
Valves: 4 per cylinder
Weight: 120 kg



1. NEW SENSATIONS.

Click on the 50s car in the first menu ... and find yourself transported back to the 1950s!



BETA JULIETTA
Weight empty: 914 kg
V8 engine, 1478 cc, 350 hp at 8500 revs/min
Max. speed: 290 km/h

SCUDERIA ROSSA
Weight empty: 710 kg
V12 engine, 4498 cc, 330 hp at 7000 revs/min
Max. speed: 290 km/h

SAMCI GORDANO
Weight empty: 474 kg
4-cylinder engine, 1940 cc, 164 hp at 5250 reves/min
Max. speed: 220 km/h

TALGOT LABOT
Weight empty: 910 kg
6- cylinder engine, 4482 cc, 280 hp at 5000 revs/min
Max. speed: 240/260 km/h

50s mode is designed to give players new driving sensations. But it’s also a very challenging mode because not everyone is capable of handling those ancient single-seaters.
In Easy Race, Grand Prix or Time Attack mode there are 4 teams and 8 cars which the game motor has given many of the behavioral characteristics of 1950s cars, including engine sounds you haven’t heard before! You won’t be able to rely solely on your mastery of modern single-seaters, so thrills are guaranteed!

2. NAVIGATION

Options:

- Unit of speed
- Changing gear
- Steering lock
- Autosteering in the pits

Settings:

- quantity of fuel

In this part of the game, a player can neither change the names of the drivers nor of the teams.

1. THE MAPS EDITOR

To use the Maps editor it is recommended that you set your display to 16 bit (high color) mode. After installation, the working directory by default, YOUR BITMAPS, is to be found in: [Game Directory]\editors.
It is possible to modify the working directory by clicking on “Set working folder…” then choosing the desired path.

1.1 Functions

Unselect all	Unselects the files concerned.
Refresh	Lists the new files placed in the working folder since it was opened.
Extract	Extracts from the working directory the selected files from the game.
Insert	Inserts in the game files from the working directory. It is necessary to select the file to be replaced (in GAME DATA SET) and the file to be inserted (in YOUR BITMAPS), then click on “Insert” .
View	To view a bitmap, it must first be selected (1-22), then click on “View”.
Reset	To reset a game file, it must first be selected, then click on “Reset”.

1.2 The formats

Cockpits
Cockpit bitmaps: 24 bits non compressed in 640*175.

Circuits
Track textures: 8 bits non compressed (the size of the page depends on the circuit), the coordinates must be adhered to if successful results are to be obtained.

Cars
Car textures: 8 bits non compressed in 256*256.

Note that the first common page has a palette of 64 colours.
This palette is used for all the other team pages (the 64 colours are to be found on each page and they are the first 64 colours); The rest of the palette is specific to each page (there are a further 192 colours for each team).
Non zero (255, 0, 255 in RVB) is used to lighten the colours and it is the last colour (the 64th) of the common palette.

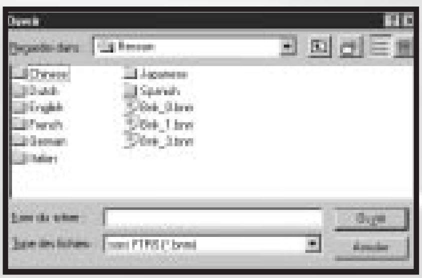
Menus

Menu bitmaps: 24 bits non compressed in 90*60 for logos.

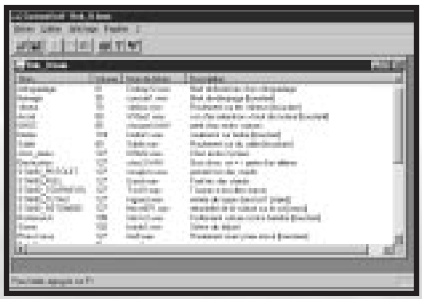
2. SOUND EDITOR.

The program CustomSnd makes it possible to modify sound banks.

After launching the program, select the sound bank to be modified. To do this, enter the menu File\Open, or click on the corresponding icon. The following window appears:



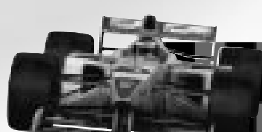
The sound bank is opened by a double-click on the name of the file (*.bnm), or when entering one’s name before clicking on the “Open” button. One then sees a list of the sounds stored in the bank.



Another solution is to drag the sound bank to be modified from the explorer and drop it in the second editor window.

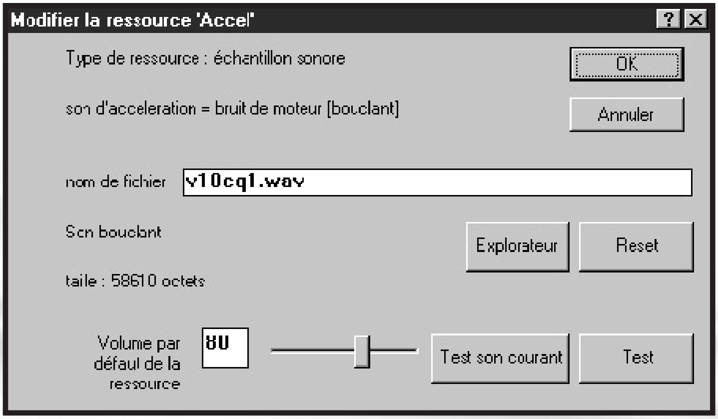
The sounds can be modified in several ways:

- Slide one sound towards another (within one sound bank, or even from one bank to another).
- Double-click on the sound to be modified, which brings up a dialogue box. This solution has the advantage of allowing you also to modify the volume of a sound in a game and to listen to it (“Test” buttons). For help just



click on the question mark at the top of the window. The “Reset” button returns you back to the original sound and volume. It is also possible to import sound files (.wav) into this window by sliding them from the explorer.

Careful: file format must correspond exactly to format used in the game: samples to 22 kHz, in mono, and with no special indications in the headings (author, commentaries etc.).



Multiplayer mode can be used in either link-up or networking mode.
Only the Simple Race mode is available during split play or link-up split play.
In link-up (2 to 4 players) and network (2 to 8 players) it is also possible
to play a Grand Prix race or an Individual Championship.

In all types of MULTIPLAYER games there are two types of player:

The master player	for networking games it is he who creates the game session and is responsible for configuring the game. He’s also responsible for saving the games.
The slave players	take part in a game created by the master player.

After choosing Multiplayer, the players get to this screen:

1. Choice of type of Multiplayer game: SPLIT, LINK OR NETWORK
2. In this page the player’s name is displayed. If it is incorrect it must be changed on the driver identification page.

1. SPLIT (2 PLAYERS)

Makes it possible for two to play on the same machine. Only one person can use the keyboard.
After validating split mode the players will go straight to the main menu.

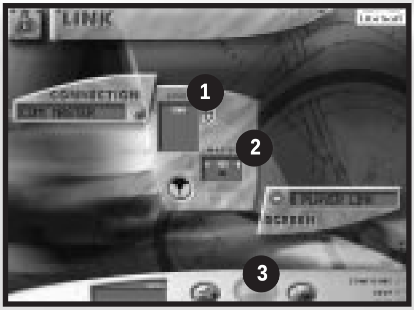
During the game, the second player will have access to the following functions via
the number keyboard:

PLAYER 1 KEYS	PLAYER 2 KEYS (NUMERICAL KEYBOARD)	FUNCTION
F2	/	Playable views
F3	*	Director views
F8	+	next/last Competitor
F9	-	
Enter	Enter	Lights pit-stop indicator. Warns mechanics that player is coming in.
Tabulation	0	Limits speed in the pit
H	6	TV display active / inactive

2. LINK-UP (2-4 PLAYERS)

The players must have 2 computers at their disposal, linked by a Null Modem cable. This must be connected to the Communication ports of the two machines (COM1 – COM4).

1. List of ports available for connecting the Null Modem cable
2. The player decides if he wants to be the master player in the game.
3. When the parameters are defined, press on this button to link up.



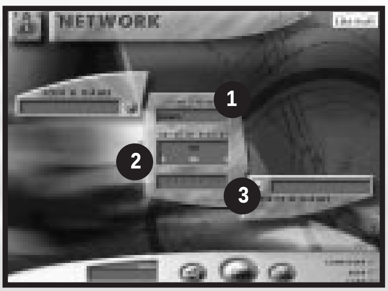
Once the two machines are linked up (once the connection button has been pressed), it is still possible for each machine to be in split screen mode so that two can play. After this choice the players get to the main menu page and the master player configures the game.

3. NETWORK (2-8 PLAYERS)

MONACO GRAND PRIX© Racing Simulation will play on a network with 10Mb power and with IPX protocol installed. To play a game in network, one of the players must create a game. This will be the master player, the others must join a game.

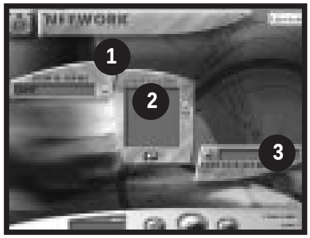
As many as 8 players can race a complete Grand Prix in real time: from the practice runs to the race itself, with the heats deciding the position of each player on the starting grid!

3.1 Create a game

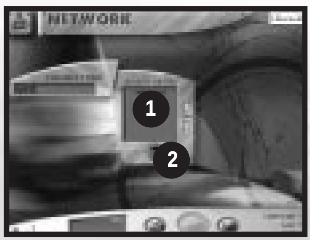


1. Name of player
2. If YES only a fixed number of players can link up to the game.
   If NO, up to 8 players can link up in the same game. The master player can start the game at any time.
3. Active only if NUMBER OF PLAYERS FIXED is on YES. Enables the number of players taking part to be chosen.

3.2 Join a game



1. Name of the current game.
2. Button to switch between the list of playable games and the list of players linked up to the game.
3. List of the unstarted games waiting for players to join.

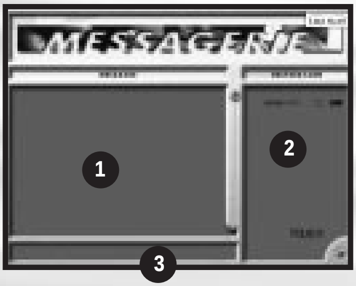


1. List of the players linked up to the game.
2. Button that's active only for the master player. Makes it possible for him to disconnect any of the players.

Once all the players have joined or created a game, they will get to the "Players wait" page. After this page, all the players come to the main menu page. It is then up to the master player to configure the game.

4. MULTIPLAYER TOOLS

1 Messages enables the players connected to the game to send each other messages.
2 Allows the master player to hand over control of the game to another player.
3 When a player has received a message the indicator lights up.



1 List of messages sent and received between the players.
2 The player ticks the list of players to whom he wants to send his message. He can select all players.
3 The player enters his message here and sends it by pressing ENTER.

1. TECHNICAL SUPPORT

1.1 Installation problems

Do you have the right hardware?
See THE GAME,1. INSTALLATION, 1.1 Configuration and launch.

1.2 Sound problems

Ensure that your loudspeakers (or headset) are properly connected. Starting from the desktop Windows 95, under VOLUME CONTROL check that the control is up high enough and that the MUTE and ALL MUTE options have not been selected.

Check that Windows 95 can produce the sounds:
- From the task bar, select START / SETTINGS / CONTROL PANEL.
- Double-click on the icon SOUNDS.
- Select a sound file then play it.

Make sure your sound card is properly installed.
- From the task bar, select START / SETTINGS / CONTROL PANEL.
- Double-click on the SYSTEM icon.
- Click on DEVICE MANAGER.
- Click on SOUND, VIDEO and GAMES CONTROLLERS.

The name of your sound car should appear. If this does not happen, you need to install the drivers supplied with your card.

1.3 Configuration of the network

When playing the game over a network, all the players' computers need to be linked physically to the same network. The IPX/SPX protocol also needs to be installed on each computer.

To check that the protocol has been installed correctly:
- From the task bar, select START / SETTINGS / CONTROL PANEL
- Double-click on the NETWORK icon
- Check in the list of network components installed, to ensure that an IPX/SPX compatible protocol has been installed.

Then if the protocol is missing:
- Press Add.
- Choose Microsoft in the list on the left.
- Choose IPX/SPX in the list on the right.
- Press OK several times.
- Press YES to re-start your computer.

1.4 Graphics cards

The DirectX(TM) drivers may not be compatible with your video card, thus preventing you from correctly re-starting Windows 95(TM) after installing the game.

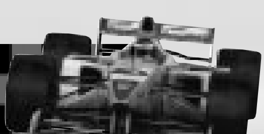
To correct this problem, you need to re-install the drivers installed with your video card. If you do not know how to do this, follow the instructions below:

- Re-start Windows 95(TM) in the SAFE mode.
(If this is not offered automatically, press the F8 key when the message "Windows 95 startup" appears and select the SAFE mode.)
- Select START / SETTINGS / CONTROL PANEL.
- Double-click on the DISPLAY icon.
- Select the option SETTINGS.
- Click on ADVANCED PROPERTIES.
- Press CHANGE.
- Select the driver for your original video card and follow the instructions.
- Re-start Windows 95(TM).

1.5 Hot lines and assistance on-line.

If you have followed the instructions in the documentation and yet you still cannot get the game to run properly, our technical support teams are ready to help you.

http://www.monacoracing.com



Canada and the USA

Telephone 1-800-UBI-SOFT
(514) 490-0887
E-mail tech-support@ubisoft.com

For a quick response, please have the following information ready:

1. category and key word in the error message encountered.
2. technical specifications of your hardware:
   manufacturer, video card, RAM, hard disk space, speed of CD-ROM drive, type of sound card, type of network, type of modem.

Of course, if possible, stay near your computer.

2. CREDITS

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