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P.O. Drawer 7900
Incline Village, NV 89450
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Ferrari®

GRAND PRIX

By Donald A. Hill, Jr.

Formula One Racing Simulator For The Macintosh 512 and Plus

OWNER'S MANUAL



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Table of Contents

Introduction	3
Quick Instructions	4
The Menus	7
Advanced Training	10
Tips and Common Mistakes	20
Designing Courses	22
Designing Backgrounds	29
The Courses	30
About Ferrari Grand Prix	32

Introduction

Welcome to Ferrari Grand Prix, the program that captures the intense excitement of racing.

Ferrari Grand Prix allows you to realize the dream of becoming a race car driver, of driving one of the world's most exotic, and fastest automobiles, in the world's most popular and beloved racing class—Formula One.

Formula One is followed world wide. The world championship circuit competes in the United States, Canada, Monaco, Great Britain, France, Germany, Portugal, Austria, Australia, and Italy, among other countries.

Now you can strap yourself into an F1 Ferrari. Get ready, you will learn to "straighten out the curves" and "feel the groove". You'll take your Ferrari to the very limit of it's abilities, out-race your opponents and take the checkered flag.

But I'm sorry to say, you won't be a top notch driver the first time around the track. Nope, it takes hard work, long hours of practice, and pounds of salty sweat. Driving one of these high powered beasts takes a lot out of a guy (or gal). Your only consolation is that you will not be risking your life or wasting millions of dollars.

When you've mastered Ferrari Grand Prix, take your helmet off and pat yourself on the back, you will have earned it. Imagine driving your own car at 150 mph and you may realize the scope of the task you've taken on. (The speed you experience in Ferrari Grand Prix is a realistic representation of actual speed to scale.)

Remember: if you want to relax, go down to the gas station and watch the cars fill up. If you're looking for a thrill, for some tense excitement, if you're ready to concentrate on unbridled power, pull out Ferrari Grand Prix and go to it.

Enjoy.

Quick Instructions

Note: Ferrari Grand Prix will not work with Switcher nor can it be put on a hard disk. If you run Ferrari Grand Prix under HFS be sure to turn the Ram Cache option off. Ferrari Grand Prix will not operate properly with the Ram Cache. It is also touchy about other programs being in memory with it. Ferrari Grand Prix may bomb with any memory resident program.

The Program

Ferrari Grand Prix has two modes—pause mode and drive mode. The pause mode, where the program begins, allows you to use the mouse in the typical Mac way. (Select pull down menus and use desk accessories.) This mode is characterized by the standard arrow-type pointer.

In drive mode, the pointer changes to a black rectangle and cannot be moved up and down, only left and right. You'll also notice the steering wheel and tires will, at times, move corresponding to mouse movement. In this mode you cannot access any of the menus or do anything other than drive. The mouse button in this mode will center the steering wheel. You must "pause" to change options or to quit.

To enter the drive mode, click the mouse anywhere in the document window. If you have paused during a curve, you'll want to click the mouse at the approximate spot you had when you paused.

To exit the drive mode, press the Backspace or "Q" keys.

Driving your Ferrari

The following is a very brief description of how to drive Ferrari Grand Prix. Complete instructions can be found later in the manual.

Ferrari Grand Prix may seem difficult to steer at first. Here's how to steer: watch the road up near the horizon, just under the rectangular cursor box. Don't watch the steering wheel or your front tires. Keep the road centered in front of you. (Centered means above the steering wheel.) Steering is sensitive, so be gentle in your mouse movements. It doesn't take much to move the car on straights, it takes very slight, sometimes quick, movements. Remember, twisting the mouse doesn't work, move the mouse side to side. The cursor box actually shows to where you are currently steering. Use this box to help you steer and to train you where to look on the track. Look at the farthest point of the track you can see. This will keep you on the course and also you will see upcoming curves as soon as possible.

Try this technique of holding the mouse: put your wrist down on the table, just behind your mouse, holding your hand up. Now, lightly grab the mouse, keeping your wrist on the table. Keep your wrist on the table while you move the mouse. Notice how you can make very fine or very quick movements of the mouse. This is somewhat like strumming a guitar in that the wrist remains still, and the hand pivots at the wrist. The key here is keeping your wrist on the table. When you lift your wrist it imbalances your body and it's difficult to tell how far you've moved the mouse and where you were before you moved the mouse. Of course, you will need to lift the mouse, from time to time, to reposition it in the center of it's area.

Make sure your mouse is rolling well, an improperly operating mouse makes Ferrari Grand Prix impossible.

On curves, watch the white at the inside of the curve and keep it centered in front of you. Be ready to straighten out when the next straight arrives. After you drive awhile you might read the chapter entitled, "Tips and Common Mistakes". This chapter can quickly improve your driving skills. One tip here—steering at high speeds is more difficult than steering at low speeds. Learn to steer at low speeds before you try to go really fast.

In racing, you are either accelerating or braking, therefore, Ferrari Grand Prix does not have an accelerator pedal. It is assumed that when the car is in gear, it is floored. When you brake, the gas is off and the gearbox is in neutral.

See the callouts on page 16. This illustration explains each of the Ferrari's readouts.

Learning to Race

Racing consists of steering, shifting, braking, setting up for curves, passing and taking pit stops. It is advisable to take each step one at a time. Trying to put it all together from the first time you drive can not only be nerve-racking, but needlessly frustrating. Later in this manual, I will discuss each of these skills and how to master them. For now, try driving the course in 2nd gear. No shifting, no braking. Work on controlling your Ferrari and getting the feel of using the mouse as a steering wheel. If you feel comfortable in 2nd, try the course in 3rd. If the car goes completely off the course, the program shifts you into 1st gear. Drive back on the course and shift into second. (If the course completely disappears from the screen, you'll have to coast back to the track. Once you're completely back on the course, you can shift into first and continue racing.)

Go ahead and play with Ferrari Grand Prix for awhile, then come back to the instructions to become an accomplished race

car driver. To begin, click once in the window to enter the drive mode, then click again to center the steering wheel. The Ferrari is in neutral and you can hear it revving. Press "1" for first gear and you will start moving. When you hear the engine wind up, shift into 2nd gear by pressing "2".

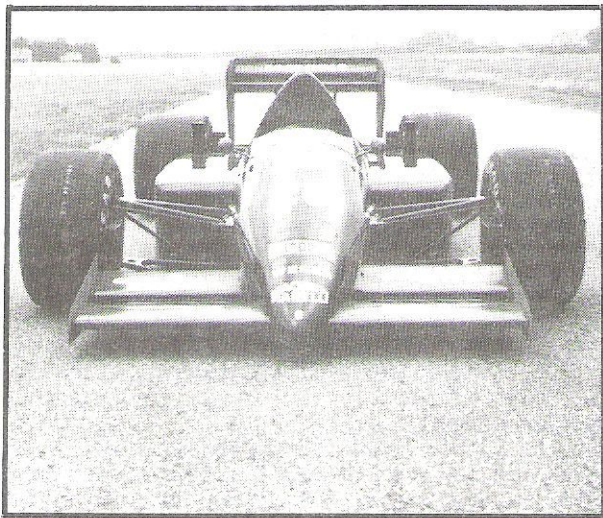


Photo courtesy of Ferrari, Italy

The Menus

There are six menu categories—the **Apple** menu, **File**, **Edit**, **Game**, **Opponents**, and **Famous Drivers**.

The **File** menu contains **New**, **Open**, **Save**, **Save As**, and **Quit**.

New restarts all cars at the beginning of the track and clears current lap, average lap, and elapsed times, also laps finished, laps to go, and average mph. These are all found on the screen.

Open, **Save**, **Save As**, and **Quit** are self explanatory.

One note about **Quit**, unless you just saved, you'll be asked if you want to quit without saving. If you quit without saving, you'll lose your best lap time and the top three best lap times. If you've designed a race course, you'll also lose that, unless you've saved it earlier.

The **Edit** menu has only one item initially active—**Show Track**. When this is selected the screen changes to the "design course" section of Ferrari Grand Prix. Once there, the rest of the items become active. You'll see **Cut**, **Copy**, **Paste**, **Clear**, **Undo**, and **Revert**. **Cut**, **Copy**, **Paste**, and **Clear** only work inside of Ferrari Grand Prix, you can't paste from or to another application. The "Designing Courses" chapter goes into great detail about this section of the program. To exit the design course section, click the close box. One more note, you can't open or save a course while in the design section.

The next menu heading is **Game**. This menu is organized into sections. The first section is **Load Background**, **Change Driver Name/Level**, and **Keyboard Assignments**. **Load Background** allows you to load a different background file. Backgrounds can be designed using MacPaint. All backgrounds must have the ".Bkg" ending on their names. More on drawing backgrounds can be found in "Designing Courses".

Change Driver Name/Level presents you with the same dialog message you see when the program is started. It allows you to change the name you've entered. This name is used in Famous Drivers. It also presents you with three game levels, Beginner, Intermediate, and Expert. These levels don't actually effect the play of the game, they only change where the cursor is displayed. Beginner puts the cursor box just above the track. The cursor shows you where your Ferrari will be down the course. It will make steering easier. When you select Intermediate, the cursor box moves up to the top of the window. You can still "see" where you're steering to, but now you can concentrate more on the course. Having the cursor high makes steering a little more difficult. Expert removes the cursor entirely. When you become a hot shot driver give this a try. You'll find it

a little more difficult than intermediate. In all three modes the point is to watch the track at the farthest visible point. This idea doesn't change, and you should always concentrate on looking at the "end" of the track.

The last item in the first group is **Keyboard Assignments**. This option allows you to change the keyboard assignments. The default keys are 1, 2, 3, 4, and 5, corresponding to the gears, the tilde, the key to the left of the "1" key will put the Ferrari into neutral, space bar will apply the brake, "Q" will enter pause mode, "S" will toggle the sound, and "C" will toggle the cursor between visible and nonvisible. (Making the cursor invisible is the same as selecting expert mode.) The program will always start up with these default settings. If you want the keyboard assignments to stay changed, remember to save your position when you quit. Then, next time you run Ferrari Grand Prix, simply load your file.

The next section under **Game** includes **Collision**, **No Collision**, and **Gearing**.

You'll see a check mark by **Collision** or **No Collision** depending on which is selected. Of course, **No Collision** means you can't collide with the other cars and **Collision** means you can. **Gearing** allows you to change the top speed of each gear. This is useful for fine tuning your Ferrari to a particular course.

The next two items are **Clear Best Lap Time**, and **Clear Opponents Best Times**. **Clear Best Lap Time** zeros your own best lap time that is displayed inside your Ferrari.

Clear Opponents Best Times allows you to clear one, the other, or both of the opponents best lap times.

Neither of these items will affect the **Course Best Laps** option in the **Famous Drivers** menu.

The last three options under **Game** are **Practice**, **Start Race**, and **Current Positions**.

Any time you're driving, you are either in **Practice** or **Race** mode. After you've practiced a course, you'll want to start a race. When you select **Start Race**, you'll be asked for the number of laps in the race and pit stop frequency. Number of laps can be 1 to 999. (Formula One races are designed to be close to, but not over two hours.)

Pit stop frequency is the number of laps before a pit stop is required. Enter zero for no pit stops. If you want pit stops, be sure to include the pit piece in any course you design.

The length of a pit stop depends a lot on your luck. Pit stops range from 6 or 7 seconds to 16 seconds or more. If you have a short race with a lot of pit stops, they can play a major role in who wins the race.

In either mode, practice or race, you can enter the pit area at any time. (See **Advanced Training** for how to enter the pit.) During a race you'll be prompted, by a flashing black arrow located in the upper right part of the screen, when a pit stop is necessary. You may be able to stretch a pit stop one or maybe two laps.

Upon completion of a race, you'll be alerted as to your finish position, the elapsed time of the winner, and the program will enter the practice mode.

The last item is **Current Positions**. This option shows which position each car is in, elapsed time, time off the pace, and current partial lap. Note: times in Ferrari Grand Prix are hundreds of seconds, seconds, minutes, and sometimes hours.

The second to the last menu is **Opponents**. In this menu are **Whistle McGee**, **Stockton Stockman**, and **Show Opponents Speed**.

Whistle McGee and **Stockton Stockman** are your two computer controlled opponents. Selecting either driver presents that driver's performance specifics, and optional limitations. This is where you can slow an opponent down to create a more competitive race. To make an opponent the slowest possible, select 2nd gear as his top gear, select **Good Driver**, which makes him drive slower in the curves, and say yes to the question, "This car shifts into first if you go off course".

Show Opponents Speed prints two small numbers inside and to the upper right part of the window. The first number is **Whistle McGee's** speed, in MPH, and the second number is **Stockton Stockman's** speed.

The last menu item is **Famous Drivers**. It has just two items—**Course Best Laps**, and **Clear Course Best Laps**.

Course Best Laps displays the top three lap times in minutes, seconds, and hundreds of seconds. The number after the lap time is the average MPH for that lap time. This information will be lost when you exit the program unless you do a **Save** or **Save As**.

Clear Course Best Laps will, obviously, clear the top three lap times.

These then are the menu items for Ferrari Grand Prix.

Advanced Training

So you've driven around awhile, handicapped the opponents, and won a few races. You've gotten pretty good at Ferrari Grand Prix. Now it's time to become a great driver.

Racing consists of steering, shifting, braking, setting up for curves, passing opponents, and taking pit stops. Practice these six items separately, and together, and you will become a great driver.

Steering

Steering can be hard or easy. The most important thing about steering, about racing in general, is to think a little bit ahead of your current position. Think a little bit ahead and steering can be easy (by easy, I mean as easy as it gets), get behind the car and steering is hard. Once you get a little bit behind, the situation invariably escalates. Here's a typical example—you're zipping down a straight at 200+ mph and your Ferrari is slowly drifting off the course. If you're thinking ahead, you'll correct the car before it drifts. By allowing the car to drift, you set yourself up for an oversteer back into the straight, followed by another oversteer, until you lose control and are off the course.

A great exercise for high speed steering is to set up a course that consists of straights only, use 20 or so. Accelerate to the speed you are having trouble at and practice changing lanes. Keep the cursor box over the end of the straight. Work all the way up to 5th gear and use the highest 5th gear ratio which will put you at over 200 mph. Driving at 200 mph is always a bit nerve-racking, but you'll find you can get a pretty good degree of control. Be sure to watch the farthest visible point of the course.

This practice will help your general control, passing opponents, and setting up for curves. The other steering technique is cornering. One way to get good at cornering is to design a simple oval course. Start with 1000 foot radius curves. An oval course is easy to memorize, and you'll be working only on left or right hand curves at a time. With 1000 foot radius curves, work all the way up to 5th gear. Once you feel comfortable with right hand curves, change the course to left hand curves. Next, try this approach on sharper curves. Curve speeds are—1000' radius=5th gear, 500' and 250' radius=4th gear, 125' radius=3rd gear, and 62' radius=2nd gear. These are guide line gears. For instance, you may not be able to take a 250' curve in 4th with the highest speed gear option. Also, you can

take a short curve faster than a long one. By long and short curve I'm referring to the number of degrees around a circle.

Notice that to take sharper curves at high speeds you must move the mouse quicker. If you are not making a curve at all (assuming it's physically possible at your current speed) then you are not moving the mouse quick enough, not moving it far enough, or moving it too late. These three items hold true for exiting a curve also, only you're straightening the car rather than turning it. If you find your car entering a skid, and perhaps eventually rolling, during a high speed curve, then you have reached the limit of the friction between the tires and the track. You can't turn that sharp, going that speed. Your only alternative is to SLOW DOWN. You can also enter a skid sometimes by jerking the steering wheel at a high speed.

You want to commit steering, as much as possible, to your subconscious. Try to make steering second nature. You may notice the first few times you try to brake, you forget to steer. It takes a little practice to put it all together.

Shifting

Shifting is basically a matter of working through the gears, to accelerate as fast as possible. Gear ratios will effect when you can shift gears. Experiment. You want to go as fast as possible on straights.

Ferrari Grand Prix will shift your car into first any time you go completely off the course. The time this takes can be costly during a race. The trick is to get back on the course as quickly as possible. As soon as one tire gets back on the track, slam your Ferrari into 2nd.

I find it comfortable to place my 3rd finger on the 3 key (which is the 3rd gear key) and my thumb on the space bar (which is the brake key). Get so you don't have to look down to shift.

Braking

The brake has four settings. The first time you press the brake (space bar) your Ferrari will go into neutral, and light braking will be applied. A second press of the space bar will apply medium braking, and the next press is hard braking. If you get too excited and press the brake one more time, you will lock the tires up and enter a skid. You know you're in a skid because the sound changes and the tires go white. To recover from a skid, you must press the neutral key (the key to the left of the "1" key), this insures you're in neutral, which takes the brake off. The tires will return to black if you stop skidding.

With shifting, you want optimum acceleration. Similarly, with

braking, you want maximum slowing. The idea in racing is to wait as long as possible before braking, then use maximum braking to slow for a curve.

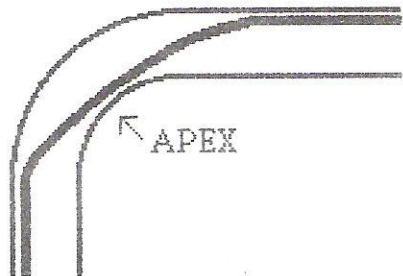
Shift into the proper gear once your Ferrari has slowed to the desired curve speed.

This can be tricky since you have to steer through the curve and know when to shift into gear. One way to know when to shift into gear is, obviously, to look at your MPH. A better way is to know when to begin braking, called the brake point, so that you hit the correct speed as you enter the curve. I don't want to sound like a broken record so this is the last time I'll say, "this takes practice". Go back to an oval course with long straights and work on recognizing brake points.

Setting up for curves

Listen to race car drivers and you'll hear them talk about hitting the best line through a curve.

The theory is to enter a curve from the outside of the course, then turn for the apex. When you reach the apex, accelerate out of the curve. The apex is that part of the curve where you reach the innermost part of the track. It's also the point when you switch from hard braking to acceleration. It looks like this:



Racers call this, "straightening out the curve".

As you accelerate out of the curve, you will wind up on the outside of the course. You may have to alter the exit line of the curve depending on what is coming up. For example, if a right hand curve is immediately followed by a left hand curve, you'll want to stay at the inside of the course longer to set up for the next curve.

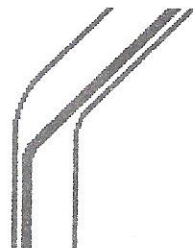
When you hit a curve just right, you'll "feel the groove" and

your Ferrari will almost feel like it's steering itself. It's great fun when you feel the groove. So the trick to setting up for a curve is to steer to the outside of the course when you see a curve coming. (Of course, if you memorize the course you can steer to the outside before you see the next curve.)

Remember that the faster you go, the quicker you'll have to move the mouse when you turn for the apex.

Little bends are a little bit different since you probably will not want to brake for them. Curves 1, 3, and 4 in the default course are what I consider little bends.

Again, set up by steering to the outside of the course. Then, just before the curve, make a quick turn to the inside of the bend. The "line" looks like this:



Driving bends are one of my favorite things about racing. Curves 3 and 4, on the default course, are probably the easiest place to "feel the groove".

The best way to set up for a curve is to have the course memorized. It can cause tension if you have to wait until you can see the direction of the next curve before you set up.

Conversely, if you already know which side of the course to be on, you can concentrate on other things, like where to brake or passing opponents.

Remember to watch the course at the farthest visible point. This will allow you to see an upcoming curve as early as possible. The telltale sign of a distance curve is a lot of bunched up road posts. If you memorize the course, you'll know what type of curve is coming up before it's visible.

Passing

Passing another car can be the straw that breaks the camel's back.

The first thing that happens when you try to pass is you look at the other car. When you do this, BAM, you're off the course.

You have to "see" the other car, but you must look at the next curve.

Also, remember to brake or accelerate. Your opponent won't wait for you, if you forget to shift.

Another thing to remember is you don't have to pass as soon as you catch up to a car. An exception to this is if the other car is heavily handicapped and you've got enough speed to easily overtake him.

In a competitive race, there are probably only three places to pass—in the pit, entering a curve, and exiting a curve.

The easiest place to pass is, of course, in the pit. It's not too tough when the opponent's tires are 6 inches off the ground.

Just about every pass in Formula One racing (at least when the leaders are concerned) happens entering a curve. The idea is to "out-brake" the opponent. It's a test of nerves because you wait until the other guy brakes before you hit the brakes. This way you'll nudge into the curve before he does, and he'll give way. (He'd better give way or you'll both be in trouble.) Passing while in the curve is dangerous and only a very desperate, or reckless, driver will attempt it.

The last place you can get around an opponent is coming out of a curve. If you can get on the gas a split second before the other guy does, and still make the rest of the curve, you'll reach top speed down the straight a little before he does. You'll be able to whiz past him. But don't forget about the next curve, brake too soon and he'll pass you back, brake too late, and it's curtains.

To get used to driving in traffic, set both opponents' top gears to 2nd. (You can use 3rd if you'd rather.) Let them get just in front of you, then follow them around the course a few times. This will teach you to watch the course instead of the competition. Try accelerating past them, then let them pass you.

Since the opponents don't brake on the default course when driving in 2nd or 3rd, you won't get a chance to practice the real passing technique outlined above. You don't get a chance to try "out-braking" the opponents until you're an accomplished racer, going flat out around the course.

But at least when the time comes, you'll already have learned to watch the course and you can concentrate on what you're doing.

As I mentioned before, it's best not to try to pass immediately, when you first come up on an opponent. Pick a spot on the course you feel comfortable passing on, and wait to make your move.

If you're coming up on an opponent, but not ready to pass,

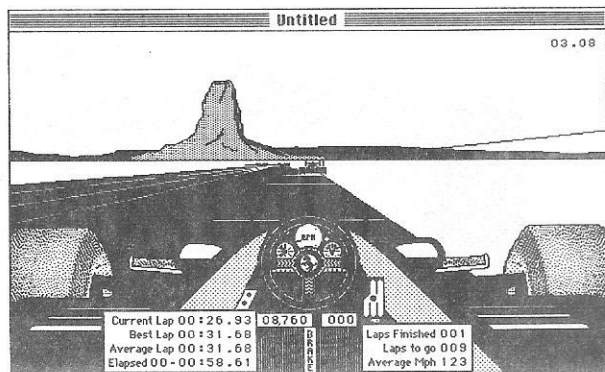
slip your Ferrari into neutral. This is analogous to letting up on the gas pedal.

If you're approaching another car and a collision is imminent, try light or medium braking. Be sure to enter a gear or neutral as soon as the collision has been avoided.

Pit Stops

The first pit stop is reserved for you. Entering the pit takes a little practice. Slow to about 40 mph at the start of the pit and steer down the pit lane. As you get close to the pit stop area, slow to 15 mph. Brake to a stop when you drive across the first white line. You must be pretty well centered in the pit area and, of course, you must stop in your own pit stop.

It looks like this:



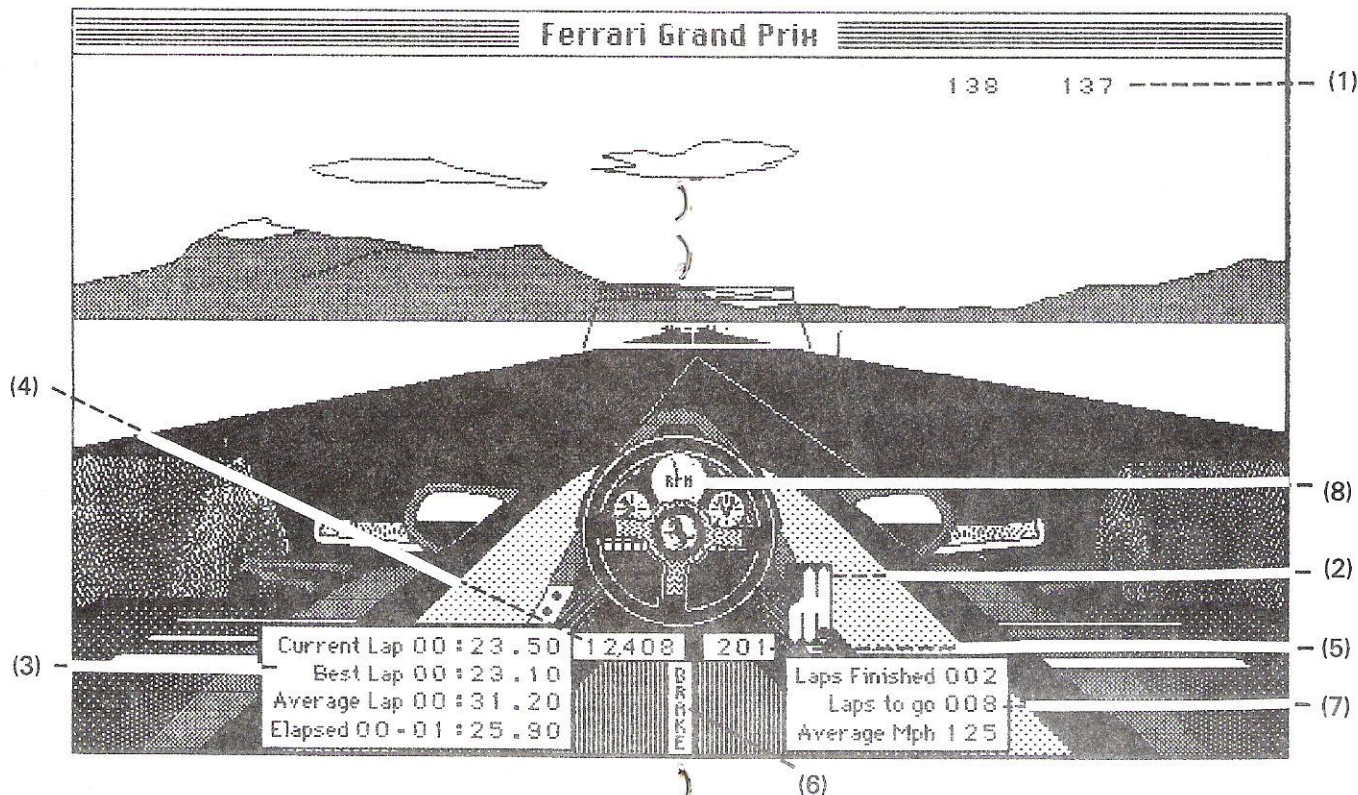
If you stop in the proper pit and are centered correctly you'll be put up on jacks, and a stop watch will clock the length of the pit. As soon as the Ferrari is let down, slam it into first and exit the pit. When you exit the pit be sure to check your rear view mirror for traffic.

Practice braking later and later as you enter the pit zone. The faster you can enter and exit the pit, the more competitive you'll be.

Gearing

After you've pretty well mastered a course, you can probably shave off a bit more time by adjusting the gear ratios. Setting up the gear ratios is a matter of experience. It all depends on the type of course and your particular driving style.

You get fastest acceleration with the lowest gear speed. If the



- (1) Whistle McGee and Stockton Stockman's current speed in MPH.
 (2) Gear shifter display. (Currently shows Ferrari in 5th gear.)
 (3) These four items are all clock times: in hundreds of seconds, seconds, minutes, and in the case of elapsed, hours.
 (4) Digital RPM indicator. The Ferrari lugs below 4,000 rpms and the top safe rpm is around 12,400.
 (5) Digital MPH indicator.
 (6) Brake setting indicator. This bar will invert and flash when the brake is applied. If the entire bar is flashing, the tires lock up and the car skids.
 (7) This block is self explanatory. Laps to go will read 000 during practice.
 (8) Analog RPM indicator.

Keyboard Assignments (Enter one key per box)			
Neutral =		4th Gear =	
1st Gear =		5th Gear =	
2nd Gear =		Brake Pedal =	
3rd Gear =		Pause Race =	
Sound Toggle =		Cursor Toggle =	
OK		Cancel	

course involves a lot of shifting, you might try using the lowest gear speeds. If a course consists of a lot of third gear racing, try using the fastest top end in third, or maybe the slowest 4th gear speed.

To check a gear ratio change, first write down your best lap time. Then, make your gear ratio change and drive 4 or 5 laps. If the best lap clock has changed, the new gear ratio is good, otherwise, put back the old gear ratio, and try something else.

How good are you?

The default course is a good track to learn on. Wide curves make it easier to steer and there aren't any long straights to build up too much speed.

When you first start driving this course, a 2 minute lap is a good time. As you get the hang of Ferrari Grand Prix, you should be able to get the time under 1 minute. In fact, driving the course in 3rd with no braking, and assuming you stay on the course, will give you a time well under 1 minute. With the default gearing, it's possible to drive the entire course in 4th with no braking. This will give you an expert time of under 30 seconds. Because of the way this course is designed, you will also win races by driving in 4th. I expect it will take some time before you can drive this course in 4th, but when you do, consider yourself well along to mastering Ferrari Grand Prix.

You can go faster.

There are several places along this course where you can get into 5th. Of course, you'll have to brake for the curves, but probably not for the bends. If you can get your lap time under 25 seconds, you are a master Ferrari Grand Prix driver. (My best lap time on the default course, as of this writing, is 22.80. I'm sure that can be improved upon, although not sustained. Don't expect to drive a 23 second lap the first few sittings.)

Now having just read this, don't go out and try to drive the course in 4th without braking. You won't be able to do it. You might not be able to do it in 3rd either. That's okay, don't rush it. Handicap the opponents and have a competitive race at your current skill level. If you find yourself beating the opponents every time, let them drive a little faster.

To know how fast you should be able to drive a course, let the opponents drive a few laps flat out. Then check their best lap times. These guys are fast, but they can be beat, although you will not be able to go much faster than their best lap times.

The Opponents

Your opponents are great at thinking ahead and braking for

curves. This makes them very strong on courses with lots of curves. If you're a great driver, this is the type of course you want to design.

They do, however, have a weakness. They brake for little bends. This is why the default course is "easy" to win. If you want a course where you can make up time against the opponents, design a course that includes a long straight with a couple of bends in it. The opponents will slow down and you can whiz past them.

Going off the course

If both tires go off the course, the program will shift you into first gear. You must get one tire back on the course before you can shift into 2nd.

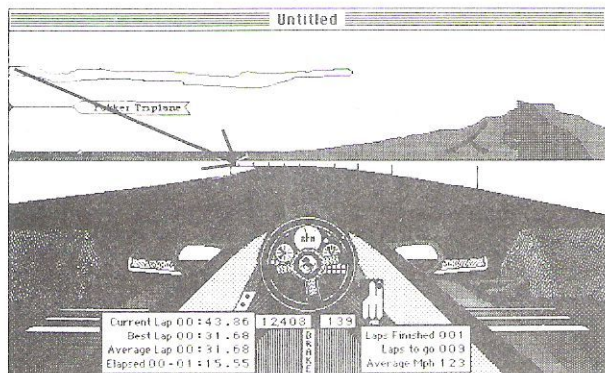
If the course disappears completely from the screen, your Ferrari will be put in neutral and you have to coast back to the course. If you don't make it back to the course, your Ferrari is considered damaged by going off the course and the race is over.

If you go off the course and head back (or if you simply turn 180 degrees on the track) you'll see that the course ends! This is because the program never displays that part of the course that is usually unseen, namely, the course that is typically behind you. Don't get worried. This will help you notice which way to drive when reentering the course. (You can't drive the wrong way because the program will not display track pieces that are behind you when going the proper direction.) If the program tried to display the entire course, it would be hopelessly slow.

Tips and Common Mistakes

Ferrari Grand Prix may seem a little difficult at first. It's like riding a bicycle, get up on a bike when you don't know how and you fall right over. Then, once you learn, you can't remember what it was like not to know how. Here are a few tips to keep in mind:

- Watch the course at the farthest visible point. This will help you stay ahead of the Ferrari.
- Keep the course in front of you. If you start drifting off the course, make a correction, don't wait.
- In curves, watch the white at the inside of the curve. Keep this white centered in front of you.



- Try to memorize each course. This will help you set up for each curve.
- Start slow on a course and learn each curve. If you design a new course and try driving it at top speed—you're gonna get in trouble.
- Be gentle, be smooth. If you set up for each curve, you'll find the Ferrari will almost steer itself. See "Advanced Training" for a complete discussion on setting up for the curves.
- It is physically impossible to take a sharp curve at a high speed. The answer is to slow down!

Some Common Mistakes

- Trying to go too fast. Start slow, learn your brake points, work on one curve at a time. If a certain sequence is giving you trouble, design a course with just that sequence and practice it.

● Entering a curve from the inside of the track. If you enter from the inside, there will be no margin for error. You'll have to jerk the wheel to make the curve and you'll probably over-steer. This will force you to steer out of the curve. When this happens you'll be lucky not to fly off the outside of the curve!

● Exiting a curve late. As soon as you get "entering a curve" mastered, you'll probably notice you're having trouble exiting a curve. Remember to watch the course at the farthest visible point so you can see when the curve ends. Try to smoothly straighten the wheel, drifting to the outside or middle of the track.

● Watching the other cars. It's important to know where the other cars are and to steer around them. It's more important to see the next curve.

● Getting impatient. There is a fine balance between driving on the edge, and being patient. When you make a mistake and one of the other cars makes a pass, the first impulse is to drive like a maniac to quickly pass him back. But you can't just snap your fingers and be in front of him. Be aggressive. Be patient.

● Forcing it. Racing consists of steering, shifting, braking, setting up for curves, passing and taking pits. Learning each skill separately takes time. Putting them all together takes more time. Have fun learning, relax and take it easy, it'll come. The chapter, "Advanced Training" will take you through each part of racing, step by step.

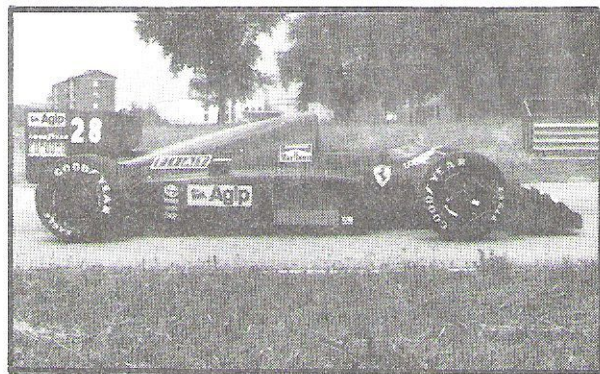


Photo courtesy of Ferrari, Italy

Designing Courses

This chapter will discuss how to design a race course. The best way to learn how to design a course is to be seated at your Mac while you read this.

Let's get right to it. Launch Ferrari Grand Prix and, after entering your name, select Show Track from the Edit menu. This is the portion of the program where you can alter or design a track. The track you're looking at is the default course and is also saved on the disk with the name, "Ferrari Startup Course".

At the upper left you'll see "Zoom Level" and five button choices. Clicking these buttons changes the scale of the track being displayed. If the course becomes too big for the window, the scroll bars become active. Go ahead and click each size. You can use the smaller sizes to see an entire large course. The largest size is best to use while designing a course.

Under Zoom Level are Cut, Copy, and Paste. These act the same as Cut, Copy, and Paste on the Edit menu and are repeated here for convenience. More on how to use them later.

Next, moving down is Track Length. The number here is in feet.

Below Track Length is Insert Piece. This is used to put the selected piece at the insertion box. (Keep reading, it will all become clear.)

The next block of items are 14 pieces and a curve direction changer.

The nine curve pieces begin as right curves. Click the curve direction changer now, and notice how the curves change. They now turn to the left. Click it again and they return to right hand turns. I'll explain each of the pieces a little later.

Moving down again you'll see "Curve Radius" and five button choices. Above the five button choices are x10-->, 100', 50', 25', 12', and 6.2'. The x10--> means multiply the rest of the numbers by 10. So the numbers stand for 1000 feet, 500 feet, 250 feet, 120 feet, and 62 feet. A curve with a 62 foot radius is very sharp, 1000 feet radius is a gentle curve.

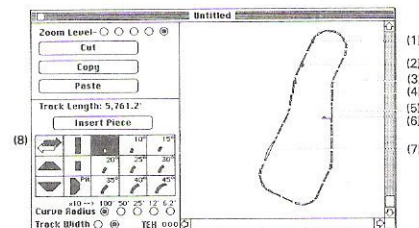
At the bottom of the screen is Track Width. There are two track widths available, two lanes wide or three lanes wide. I'll refer to the two widths as wide and narrow. The default course is mostly wide pieces. The first button selects narrow, the second is wide.

The last item on this part of the screen is three letters, "TEH" and three numbers, "000". TEH stands for Track End Heading and the number is the actual compass heading of the last piece

in the course. One restriction on designing a course is that it must end facing north, or straight up, which is 000 degrees.

Okay, make sure you have the largest zoom level selected. Look at the course and you'll see the start/finish symbol.

This lets you know the direction of the course. Also notice that you can see individual pieces when the largest zoom level is selected. You should also be able to notice narrow and wide pieces.



- (1) This box shows the current position of Stockton Stockman.
- (2) This box shows the current position of Whistle McGee.
- (3) This is the insertion box. Upon entry to Show Track, it displays your Ferrari's current position. During editing, it shows where you are working.
- (4) This is a wide piece. Most of this course is made with wide pieces.
- (5) This is the Start/Finish piece. It also happens to be a narrow piece.
- (6) This is the direction arrow. It shows which way the cars race.
- (7) This is the pit piece. Be sure to include one if you want to pit.
- (8) This is the curve direction changer.

There is also a small black box on one of the pieces. This is the insertion box. Click along the course at different spots and you'll notice the box will go wherever you click. The box actually draws at the beginning of a piece.

That was a brief description of all the tools and items used in designing a course. Now it's time to use these tools to create a new course. First thing to do is go to the **Edit Menu** and select **Clear**. The program will ask, "Clear course from memory?", say yes.

The course you'll design will be a simple oval. To begin, click the long straight, which will make it invert. You will find the long straight to the right of the curve direction changer. When a piece inverts, it means that piece has been selected and will be used when "Insert Piece" is clicked. Go ahead and click Insert Piece.

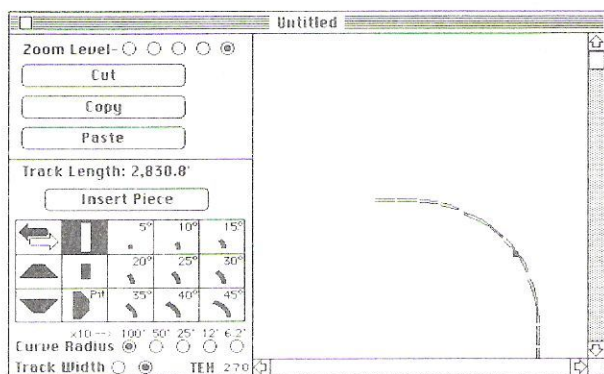
Notice that a wide straight has been added to the course. Add three more straights by clicking Insert Piece three more times.

Make sure the black arrow on the curve changer is pointing to the left, then click the 45 degree curve piece. 45 degrees means this curve selection will produce a curve that will go around a

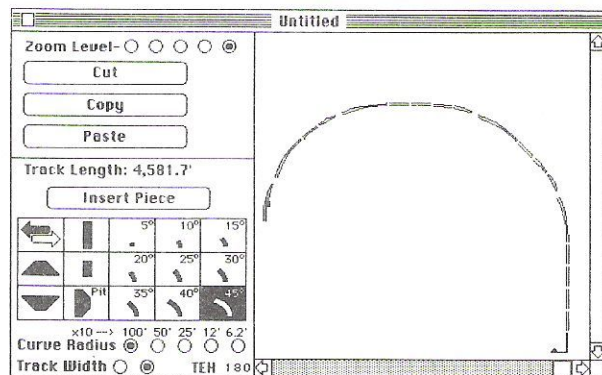
circle 45 degrees. There are three factors that make a particular curve; the degrees, which I just described, the track width, which is wide or narrow, and the radius, which decides how sharp a curve is.

Click Insert Piece. Oops, the track went off the top of the window. Click the largest zoom size (which is already selected, but click it anyway). This re-draws the course putting the insertion box at the middle of the track window. You could also have moved the course down using the scroll bar. Another thing to notice is that the 45 degree piece actually consists of three pieces. There are really only three degree pieces, 5, 10, and 25 degrees. The 45 degree piece is made up of a 25 degree piece and two 10 degree pieces. I've included all the other sizes for convenience. It's best to always use the largest degree size for a particular need. For example, if you want to put a 40 degree curve in a course, use the 40 degree piece rather than eight 5 degree pieces. When you select a curve that is made up of more than one piece the program will put the best-looking combination in the course.

Right, let's put another 45 degree piece in the course, click Insert Piece. Notice TEH now reads 270 which means the last piece in the course is facing west. If you want to see the complete course, click a smaller size zoom level. Return to the largest zoom size and add two straights. (Click the long straight piece and click Insert Piece twice.) Now let's put a straight in the middle of the curve. Here's what to do: first, move the insertion box by pointing at the beginning of the third curve piece, and clicking. The screen should look like this:



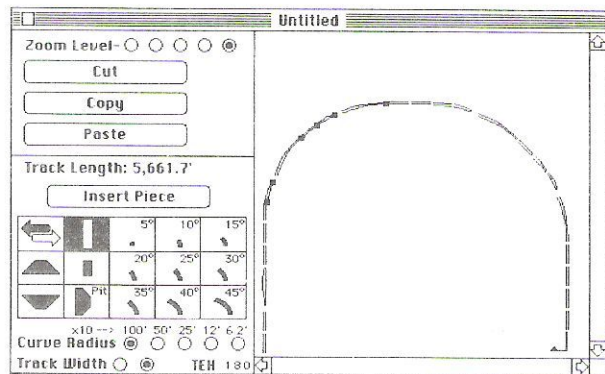
Make sure the straight is selected and click Insert Piece. Now click on the last piece and put two more 45 degree pieces in. Click the largest zoom level again to bring the end of the course back into the screen. Click on the bottom scroll bar to make the entire course visible.



Add a couple straights, the pit piece, and a couple more straights. (I'm not going to tell you exactly how, you know by now how to do this.)

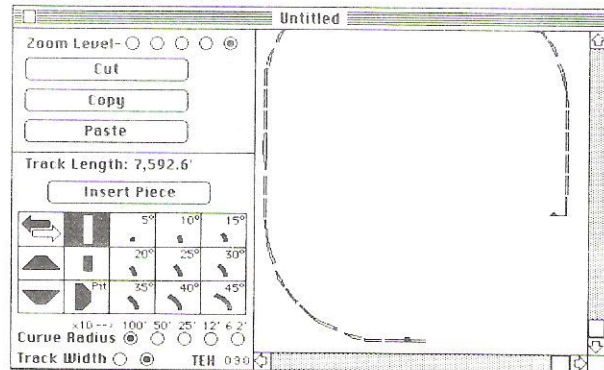
Sometimes it becomes confusing which direction curve to use. Looking at the course now, it would appear that the curve direction would need to be changed in order to turn toward the start/finish piece. On the contrary, begin at the start/finish and trace along the course until the end, visualizing the direction you would be facing. In this case, you're facing down or south. To turn toward the start/finish you would turn left, correct? So even though a left hand curve looks wrong, it's actually correct.

Now let's try out the copy and paste features. We'll copy and paste the second curve we designed. First, we'll select the entire curve. Here's how: click on the first curve piece and drag, holding the mouse button down, over the entire curve, which is six pieces long. It looks like this:



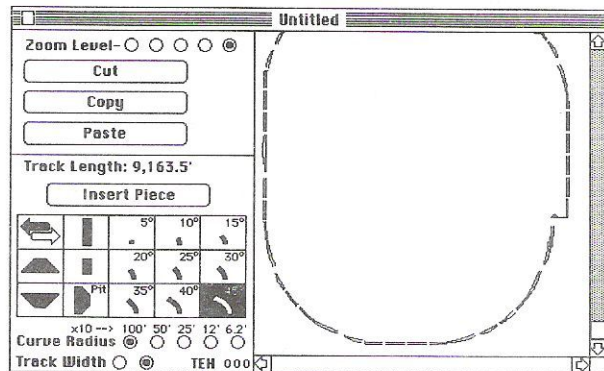
Now click copy. This copies the selected pieces into memory, and doesn't effect the course. Now move the insertion box to the end of the course by clicking on the last piece of the course. Next, click paste. (Also click the largest zoom level button to bring the new work into the window.) This takes whatever was copied (or cut) last and adds it at the insertion box. I've just decided that wasn't such a great thing to do. To take back your last action, use the undo option on the Edit menu. Try it. You've still got those pieces in memory so now click paste again, to put'em back in the course. Note: you cannot undo an undo command.

Put a couple more straights in the course and click the scroll bar. It now looks like this:



The cut option will take out the currently selected piece, or pieces. Try it now. Cut takes the piece(s) out of the course and puts it in a buffer, just like copy. Clicking paste will put whatever was cut back into the course. You would use this option to take an area of track out of a course and possibly put it back in at another spot.

Add a couple more 45 degree pieces. The track now looks like this:



You're almost done now. You just need to line up the start and end. Actually, the program doesn't really care if the start and end line up as long as "TEH" is 000, which it is. But for the sake of esthetics, try putting in short or long straights to align the start and finish.

Now you've completed your first course. Click the close box to exit and drive your new course. I'll wait...

Not too exciting is it? Well, that's okay, you've just learned how to use all the course designing tools, go to work and create something great!

Notes on the Show Track option and on designing courses.

Upon selecting Show Track, the insertion box will be positioned on the piece where your Ferrari currently is. So, if during a race you get confused about where on the course you are, take a quick look at Show Track and you can see exactly where you are.

- Don't change the course, even slightly, during a race. Any time the course is changed your current position, and the positions of the opponents, is lost. You'll all be restarted.

● When you select Show Track, the course is copied into memory. If you change the course, and before you exit, decide you want the original course back, select revert. This will return the track to the way it was when you selected Show Track. If you decide you didn't mean to revert, you can select undo. (You can still revert, then undo, revert, undo...) Even if you select revert, current car positions are lost. (See above.)

● You can force a width change by inserting the wide to narrow or narrow to wide pieces.

Or simply click the track width button to change widths. The program will automatically insert the proper wide to narrow or narrow to wide pieces when you exit Show Track.

● If you accidentally insert a piece you didn't want, use Undo to get rid of it, instead of cut.

● Changing the curve radius within a curve is very difficult to drive. (This is either a suggestion or a warning, depending on what you're after.)

● Shorter courses are generally more fun to drive, at least while learning.

● Curve speeds are basically 5th gear for 1000 foot radius, 4th gear for 500 and 250 foot radius, 3rd gear for 120 foot radius, and 2nd for 62 foot radius curves.

● You can't "Save" while designing a course. This can be inconvenient. (Sorry about that.) In order to save a course, you must first exit the Show Track option. You can't exit Show Track unless the last piece is facing north. This is okay if you've finished a course, but if you have to stop half way through, it's trouble. Here's what to do, look at the "REH" number and use "Insert Piece" to enter a curve that will make the TEH equal 000. (If TEH is 015 insert a left 15 degree curve.) Now you can click the close box and save the course you're working on. When you return, load your course and cut out the curve you added to make TEH equal 000. Now you can continue where you left off.

● A course must be at least nine pieces long. If you design a course that is less than 9 pieces, the program performs a revert upon exit of Show Track.

● You can't cut the start/finish piece and you can't put more than one pit piece in a course.

● For best results, put the pit piece at least 5 pieces away from either side of the start/finish piece. Also, courses should be at least 20 pieces long.

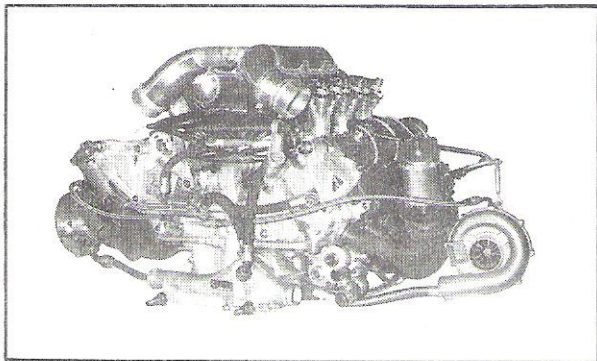
Designing Backgrounds

The mountains in the background can be easily changed to anything you can imagine. Here's how: first duplicate the file called, "Original.Bkg". You can do this from the Finder. Next run MacPaint and load, "Copy of Original.Bkg". You'll see 4 rectangles of background scenery. Draw anything you like, but be sure to stay inside the rectangles.

Also, don't forget to align the right side of the first rectangle with the left side of the next. Continue aligning the right of one rectangle to the left of the next one down, until the last one which aligns with the left of the first rectangle.

The only restriction on the name of a background is that it end with the extension, ".Bkg".

To load a background, select "Load Background" from the Game menu in Ferrari Grand Prix. That's it, give it a try.



The Courses

There are five courses included with Ferrari Grand Prix. They are: Ferrari Startup Course, Fast Course, Portuguese Grand Prix, Italian Grand Prix, and Back and Forth.

Whenever you load a track, you might want to select "Show Track" to take a quick look at it.

Ferrari Startup Course

This is the default course that comes up when you launch Ferrari Grand Prix. This course is all wide pieces for ease of steering. All curves can be taken in 4th gear. The two main straights both have bends in them which slows the opponents down. This course is fairly easy to win.

Fast Course

This course is basically an oval, with a 180 degree curve added in the back stretch. The four main curves are 5th gear curves. The curves in the back stretch are 4th gear curves. The entire course is made up of narrow pieces.

The only place to make up ground on the opponents is in the 4th gear curves. Try to brake later and accelerate earlier at these curves.

This course is difficult to win if you make even one mistake.

Portuguese Grand Prix

This course has lots of straights and curves. You must memorize this course to do well.

This course also requires a lot of braking and shifting. You'll use gears 3, 4, and 5.

You can't be lazy in some of these curves because they're radius changes during the curve. This course is hard, but winable.

Italian Grand Prix

This course is deceiving because it looks like long straights and gentle curves. If you look closely, you'll see three devilish chicanes in the straights. These are 2nd and 3rd gear curves, and you have to brake early to slow down for them. Once you master these chicanes, this course is easy to win.

The last curve on this course is a sucker curve. It starts out as a 4th gear curve, then changes to a 5th gear curve with one more 4th gear piece thrown in. It's very easy (and embarrassing) to go off the inside of this curve. Watch out.

With a good gear set up, cautious, mistake-free driving, and a

good attitude, you can beat the opponents by 2 seconds each lap. With a little pushing, you can do a lot better.

Hint: the third chicane is quite a bit easier (and therefore faster) than the first two chicanes. This is a great place to bury the opponents.

Back and Forth

This course is obviously frivolous. It is good practice for high speed racing, with a few tricks thrown in.

On the second half of the course, just drive flat out and stay on the course. You can't make up much time here, just try not to lose any.

You can go a lot faster than the opponents in the back and forth straights by braking later and accelerating earlier.

- High speed courses force you to drive flawlessly. There are two reasons for this. One, if you go off the course and get put into first, you'll be going 15 mph and the opponents are probably doing 200+ mph. You lose a lot of ground when this happens. Two, catching up is nearly impossible because both you and the opponents are traveling at the top speed most of the time.

- Slower courses are more forgiving. You don't lose much ground if you get forced into 1st when your opponents are going 40 mph. Also, a course with a lot of curves gives you a chance to out-brake your opponents, and therefore, make up ground.

About Ferrari Grand Prix

Ferrari Grand Prix represents my second effort on the Mac. (My first Mac program is Fokker Triplane Flight Simulator.) I began the project thinking Grand Prix might take me about 2 months to write. Alas, 10 months later, I'm scrambling to finish it before the Christmas season arrives.

The hardest thing on this program was keeping the two opponent cars on the course. (Doesn't sound hard, does it?)

It was quite frustrating to see Whistle McGee cutting a curve and whizzing past me during testing. Two weeks of day and night toil and not a few coffee mugs later, I put a stop to it.

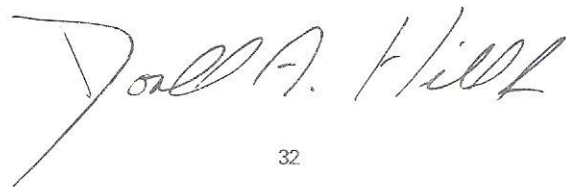
A word about testing: since there is nearly an unlimited number of courses that can be designed, it is impossible to fully test the program. I've tried to test as many "worst-case" situations as I could think of, but I'm sure there are some anomalies waiting to be discovered.

You might remember a strange train in the "Gumby" television series from many years ago. This train had the special knack of picking up a piece of track it had just driven over and put another piece down in front of itself. Thus, it could drive anywhere. That idea is roughly analogous to the situation in Ferrari Grand Prix. This individual track piece approach for the courses was decided on early, and is the backbone of Grand Prix. The program is only concerned with, and only draws, the four pieces immediately in front of your current position. Most of the time this works quite well because four pieces reaches far enough away to look realistic. However, if you use a couple of 5 degree 62' radius pieces you'll see a rather shocking sight—a dead end.

The Ferrari can nearly reach the farthest piece before the program has a chance to put more pieces in front of your position. Of course, this is a worst case situation, and can be worked around. Use 10 or 25 degree pieces instead of individual 5 degree pieces.

I don't encourage you to drive faster out on the freeway or around town, just because you get good at Ferrari Grand Prix.

Enjoy Ferrari Grand Prix. It is about a year of my life. I hope you'll send me any comments or suggestions you have.

A handwritten signature in dark ink, reading "Donald A. Hill". The signature is fluid and cursive, with a large, sweeping initial "D".