

# Flag to Flag FAQ/Driving Guide Final

by Wolf Feather

Updated on Nov 16, 2002

FLAG TO FLAG: DRIVING GUIDE

by

Jamie Stafford/Wolf Feather

FEATHER7@IX.NETCOM.COM

Initial Version Completed: October 30, 2002

FINAL VERSION Completed: November 16, 2002

=====  
=====  
=====

ACCOLADES: The Flag to Flag: Driving Guide was deemed both Best Full Circle FAQ of the Day AND Best FAQ of the Day on the GameFAQs FAQ Contributors Board for October 31, 2002 :-)

JOIN THE FEATHERGUIDES E-MAIL LIST: To be the first to know when my new and updated guides are released, join the FeatherGuides E-mail List. Go to <http://www.coollist.com/group.cgi?l=featherguides> for information about the list and to subscribe for free.

=====  
=====  
=====

## CONTENTS

Spacing and Length

Permissions

Introduction

Arcade Mode

Championship Mode

Game Tips

Braking

Cornering

Rumble Strips

Drafting/Slipstreaming

Wet-weather Racing/Driving

Tuning

Flags and Boards

Round 1: Miami

Round 2: Motegi

round 3: Long Beach

Round 4: Nazareth

Round 5: Rio de Janeiro

Round 6: Gateway International

Round 7: Milwaukee Mile

Round 8: Detroit

Round 9: Portland

Round 10: Cleveland (Burke Lakefront Airport)

Round 11: Toronto

Round 12: Michigan

Round 13: Mid-Ohio  
Round 14: Road America  
Round 15: Vancouver  
Round 16: Laguna Seca  
Round 17: Houston  
Round 18: Gold Coast (Surfers' Paradise)  
Round 19: Fontana  
Diagrams  
Contact Information

=====  
=====  
=====

#### SPACING AND LENGTH

For optimum readability, this driving guide should be viewed/printed using a monowidth font, such as Courier. Check for font setting by making sure the numbers and letters below line up:

1234567890123456789012345678901234567890123456789012  
ABCDEFGHIJKLMNPOQRSTUVWXYZabcdefghijklmnopqrstuvwxy

This guide is more than 50 pages long in the Macintosh version of Microsoft Word 98 using single-spaced Courier 12 font. This means that it is likely NOT a good idea to print this guide in its entirety.

=====

#### PERMISSIONS

Permission is hereby granted for a user to download and/or print out a copy of this driving guide for personal use. However, due to the extreme length, printing this driving guide may not be such a good idea.

This driving guide may only be posted on: FeatherGuides, GameFAQs.com, flgamers.com, Games Domain, PSXCodez.com, Cheatcc.com, gamesover.com, Absolute-PlayStation.com, GameReactors.com, RedCoupe, InsidePS2Games.com, CheatPlanet.com, The Cheat Empire, a2zweblinks.com, Gameguru, CheatHeaven, IGN, cheatingplanet.com, RobsGaming.com, neoseeker.com, ps2fantasy.com, and vgstrategies.com. Please contact me for permission to post elsewhere on the Internet.

Should anyone wish to translate this game guide into other languages, please contact me for permission(s) and provide me with a copy when complete.

Remember: Plagiarism in ANY form is NOT tolerated!!!!

=====  
=====  
=====

#### INTRODUCTION

Flag to Flag is a DreamCast racing game based upon the 1998 CART season. It is perhaps ironic that CART's title sponsor in the 1998 season (and thus seen prominently in the game), FedEx, has recently announced (as of the initial writing of

this driving guide) that it will no longer be the title sponsor as of the 2003 CART season... and after this past weekend's fiasco at Surfer's Paradise in Australia, I can certainly understand why :-)

The main note that may scare away potential Flag to Flag players is that car control is available ONLY by using the analog stick above the D-pad >:-( This makes car control for aggressive drivers (such as myself) extremely difficult at best, especially on road courses (such as Road America or Burke Lakefront) or street courses (such as Toronto or Detroit). This issue is not quite as glaring when racing at the oval-style circuits (such as Miami homestead). Therefore, those unfamiliar with analog-stick driving who do not have a good amount of time to spend perfecting this driving skill should probably stay away from Flag to Flag. This game does support a racing wheel; I do not own one, but I suspect that car control will be MUCH easier for players using a racing wheel.

Please note that some of the information contained within this driving guide come from some of my other guides:

General Racing/Driving Guide  
Newman-Haas Racing: Driving Guide  
World-famous Racing Circuits Guide

=====  
ARCADE MODE

For those who simply want to start racing, this is the place to begin. Arcade Mode races are rather short, however - generally only three or four laps in length - so those looking for longer races should instead turn to Championship Mode (see below).

Arcade Mode supports both single-player and two-player capabilities. Once the number of players, driver(s), transmission(s), and race venue have all been selected, the appropriate data is loaded from the Flag to Flag game disc. There is a flyover of various areas of the chosen venue, then the rolling start begins with the player(s) in the last position(s). Since these races are rather short, the player(s) will have very little time to try to maneuver up through the field, which makes the analog-stick car control issue mentioned in the Introduction section all the more crucial to success. Interestingly, players are always kept apprised of the driver of the next car ahead on the circuit (regardless of whether there is a difference in consecutive position and/or laps completed), which will help in learning to recognize which drivers are in which cars (by colors, logos, etc.).

After the race has ended and any new records displayed, the option is given to Replay, Continue, or Exit. Of these, Continue is NOT self-explanatory; selecting Continue will instead restart the race.

=====

CHAMPIONSHIP MODE

This is a single-player mode with the goal of winning the CART Drivers Championship for the 1998 season using all of the nineteen 1998 race venues in the actual calendar order (note that Gold Coast is now more commonly known as Surfers' Paradise). For player reference, they are:

Round	Race Venue	Circuit Type
-----	-----	-----
1	Miami Homestead	Oval
2	Twin Ring Motegi (Japan)	Oval
3	Long Beach	Street Circuit
4	Nazareth	Trioval
5	Rio de Janeiro (Brazil)	Trapezoidal 'Oval'
6	Gateway International	Oval
7	Milwaukee Mile	Oval
8	Detroit	Street Circuit
9	Portland International	Road Course
10	Burke Lakefront	Airport (Road) Circuit
11	Toronto (Canada)	Street Circuit
12	Michigan	Oval
13	Mid-Ohio	Road Course
14	Road America	Road Course
15	Vancouver (Canada)	Street Circuit
16	Laguna Seca	Road Course
17	Houston	Street Circuit
18	Gold Coast	Street Circuit
19	Fontana	Oval

Some of the race venues in Flag to Flag are no longer used in CART racing (such as Rio de Janeiro), and others (such as Montreal, which makes use of the Circuit Gilles-Villeneuve, which will be VERY familiar to diehard fans of F1 racing) have been added in the years since the game was released. Also, some circuits have seen some redesigning in the intervening years; for example, the pylons have been removed from Surfers' Paradise, which has inherently dropped lap times as the Champ Cars go bounding over the edges of the chicanes.

For the Drivers Championship, points are awarded to the top twelve drivers at the end of each race; the driver with the most points at the end of the season is the winner of the Drivers Championship. Points are distributed in this manner:

Placing	Points
-----	-----
1	21
2	16
3	15
4	12
5	10
6	8
7	6
8	5
9	4
10	3
11	2
12	1
13-27	0

Obviously, consistency across all nineteen rounds of the (1998) CART season is key to winning the Drivers Championship. Fortunately, there are three difficulty levels for Championship Mode; selecting Easy at the beginning of the Championship Mode season will give the player a far better chance of attaining consistency (and wins) throughout the season.

Once a Championship Mode difficulty, driver, and player name (initials) have been selected, the season begins at Miami. In each round of the Championship Mode season, the player is first given the opportunity to Practice. Before practicing, the player can change the car's set-up in the garage area, then select Practice to go to the track and (starting from Pit Lane) test the set-up. When done practicing, the player returns to the Practice screen, then selects Start Qualify at the bottom of the screen.

Qualifying is done across two laps, with the player's best (fastest) lap counting in terms of where the player will start in the final race grid.

At last, it is time to race. The starting grid is shown, the final warm-up lap is shown (with the pace car leading the field), and the camera then changes to show where the player is positioned on the grid. The race then begins!!! Interestingly, players are always kept apprised of the driver of the next car ahead on the circuit (regardless of whether there is a difference in consecutive position and/or laps completed), which will help in learning to recognize which drivers are in which cars (by colors, logos, etc.).

At the end of the race, results are shown, and the player is given the opportunity to save game progress. This should always be done, in case some fool drives into a telephone pole and cuts the electricity to the area.

=====

#### GAME TIPS

First and foremost, STAY ON THE APPROVED RACING SURFACES!!! Dropping even ONE wheel onto grass or sand will INSTANTLY slow the car to only 50MPH (80KPH), so it is imperative to keep to the approved racing surfaces.

The best places to make passes are entering and exiting corners. Entering a corner is probably easier for making passes, as this simply requires outbraking another car (i.e., braking later but harder, thus resulting in faster deceleration). Passing on corner exit requires horsepower, which slower cars obviously do not have, but this may not work when attempting to pass any of the cars in the Top Five.

Drafting tactics are also extremely beneficial for passing on straightaways. See the Drafting/Slipstreaming section (see below) for more information.

=====

=====

## BRAKING

The first step in driving fast is knowing when, where, and how much to slow down (braking). In some games, a brake controller can be acquired or purchased, allowing the player to customize the brake strength by axle or by adjusting the bias of the brakes toward the front or the rear of the car.

The use of a brake controller will affect the braking zone, as will other factors. Specifically, the car's speed on approaching a corner, the amount of fuel in the car at a given moment, the drivetrain of the car, the weight of the car, and even the car's center of gravity can all affect the braking zone. Similarly, the driving conditions - sunny, overcast, damp, wet, icy, snowy etc. - will affect the braking zone for each corner (as well as the car's ability to attain high speeds).

Except for purely arcade-style games, the braking zone will differ somewhat for each car depending upon its strengths and weaknesses. It certainly helps for the player to try a Free Run or a Time Trial (if these modes exist in a given game) to learn the circuit(s) - including the braking zones.

When looking for braking zones, try to find a particular stationary object near the entry of each corner; it helps tremendously if this object is far enough away from the circuit that it will not be knocked over during a race. To begin, try using the brakes when the front of the car is parallel with the chosen stationary object. If this does not slow the car enough before corner entry or if the car slows too much before reaching the corner, pick another stationary object on the following lap and try again.

Whenever changes are made to the car - whether to the brake controller or to other aspects of tuning and/or parts - it would be a good idea to go back into Free Run mode and check that the braking zones still hold; if not, adjust as necessary using the method in the paragraph above.

For those races which include fuelloads, the car will become progressively lighter during a race. The lesser weight can often mean a slightly shorter braking zone; however, if tire wear is excessive (especially if there have been numerous off-course excursions), that might dictate a longer braking zone.

Cars with a higher horsepower output will inherently attain faster speeds, and will therefore require a longer braking zone than cars with a lower horsepower output. Try a Volkswagon New Beetle, a Mini Cooper, a Dodge Viper, a Panoz Esperante GT-1, a Corvette C5R, and an F-2002 (all in stock/base configuration) along the same area of a circuit and note how their braking zones differ.

A final note on braking: To the extent possible, ALWAYS brake in a straight line. If braking only occurs when cornering, the car will likely be carrying too much speed for the corner, resulting in the car sliding, spinning, and/or

flipping. (Some games purposely do not permit the car to flip, but a slide or spin can still mean the difference between winning and ending up in last position at the end of a race.)

If nothing else, players should strive to become of the 'breakers' they possibly can. This will essentially force a player to become a better racer/driver in general once the player has overcome the urge to constantly run at top speed at all times with no regard for damages to self or others. Also, slowing the car appropriately will make other aspects of racing/driving easier, especially in J-turns, hairpin corners, and chicanes.

=====

#### CORNERING

Ideally, the best way to approach a corner is from the outside of the turn, braking well before entering the corner. At the apex (the midpoint of the corner), the car should be right up against the edge of the pavement. On corner exit, the car drifts back to the outside of the pavement and speeds off down the straightaway. So, for a right-hand turn of about ninety degrees, enter the corner from the left, come to the right to hit the apex, and drift back to the left on corner exit. See the Diagrams section at the end of this guide for a sample standard corner.

For corners that are less than ninety degrees, it may be possible to just barely tap the brakes - if at all - and be able to clear such corners successfully. However, the same principles of cornering apply: approach from the outside of the turn, hit the apex, and drift back outside on corner exit.

For corners more than ninety degrees but well less than 180 degrees, braking will certainly be required. However, for these 'J-turns,' the apex of the corner is not the midpoint, but a point approximately two-thirds of the way around the corner. J-turns require great familiarity to know when to begin diving toward the inside of the corner and when to power to the outside on corner exit. See the Diagrams section at the end of this guide for a sample J-turn.

Hairpin corners are turns of approximately 180 degrees. Braking is certainly required before corner entry, and the cornering process is the same as for standard corners: Approach from the outside, drift inside to hit the apex (located at halfway around the corner, or after turning ninety degrees), and drifting back to the outside on corner exit. See the Diagrams section at the end of this guide for a sample hairpin corner.

If there are two corners of approximately ninety degrees each AND both corners turn in the same direction AND there is only a VERY brief straightaway between the two corners, they may be able to be treated like an extended hairpin corner. Sometimes, however, these 'U-turns' have a straightaway between the corners that is long enough to prohibit a hairpin-like treatment; in this case, drifting to the outside

on exiting the first of the two corners will automatically set up the approach to the next turn. See the Diagrams section at the end of this guide for a sample U-turn.

FIA (the governing body of F1 racing, World Rally Championship, and other forms of international motorsport) seems to love chicanes. One common type of chicane is essentially a 'quick-flick,' where the circuit quickly edges off in one direction then realigns itself in a path parallel to the original stretch of pavement, as in the examples in the Diagrams section at the end of this guide. Here, the object is to approach the first corner from the outside, hit BOTH apexes, and drift to the outside of the second turn.

FIA also seems to like the 'Bus Stop' chicane, which is essentially just a pair of quick-flicks, with the second forming the mirror image of the first, as shown in the Diagrams section at the end of this guide. Perhaps the most famous Bus Stop chicane is the chicane (which is actually called the 'Bus Stop Chicane') at Pit Entry at Spa-Francorchamps, the home of the annual Grand Prix of Belgium (F1 racing) and the host of The 24 Hours of Spa (for endurance racing).

Virtually every other type of corner or corner combination encountered in racing (primarily in road racing) combines elements of the corners presented above. These complex corners and chicanes can be challenging, such as the Ascari chicane at Monza. See the Diagrams section for an idea of the formation of Ascari.

However, in illegal street/highway racing, the positioning of traffic can 'create' the various corners and corner combinations mentioned here. For example, weaving in and out of traffic creates a virtual bus stop chicane (see the Diagrams section at the end of this guide). Slowing may be necessary - it often is - depending on the distance between the vehicles. See the Sample Circuit Using Some of the Above Corner Types Combines in the Diagrams section at the end of this guide; note that this is a diagram for a very technical circuit.

At some race venues, 'artificial chicanes' may be created by placing cones and/or (concrete) barriers in the middle of a straightaway. One such game which used this type of chicane is the original Formulal by Psygnosis, an F1-based PlayStation game from 1995, which used this at Circuit Gilles-Villeneuve along Casino Straight (shortly after passing the final grandstands at the exit of Casino Hairpin).

One thing which can change the approach to cornering is the available vision. Blind and semi-blind corners require ABSOLUTE knowledge of such corners. Here is where gamers have an advantage over real-world drivers: Gamers can (usually) change their viewpoint (camera position), which can sometimes provide a wider, clearer view of the circuit, which can be especially important when approaching semi-blind corners; real-world drivers are obviously inhibited by the design of their cars and racing helmets. Great examples of real-world blind and semi-blind corners would be Mulsanne



Hump at Le Mans, Turns 14 and 15 at Albert Park, and each of the first three corners at Al-Ring.

Also important to cornering - especially with long, extended corners - is the corner's radius. Most corners use an identical radius throughout their length. However, some are increasing-radius corners or decreasing-radius corners. These corners may require shifting the apex point of a corner, and almost always result in a change of speed. Decreasing-radius corners are perhaps the trickiest, because the angle of the corner becomes sharper, thus generally requiring more braking as well as more turning of the steering wheel. Increasing-radius corners are corners for which the angle becomes more and more gentle as the corner progresses; this means that drivers will generally accelerate more, harder, or faster, but such an extra burst of speed can backfire and require more braking. See the Diagrams section at the end of this guide for sample images of a decreasing-radius corner and an increasing-radius corner.

For traditional road racing circuits, increasing-radius and decreasing-radius corners may not be too much of a problem; after several laps around one of these circuits, a driver will know where the braking and acceleration points are as well as the shifted apex point (should a shift be required). However, for stage-based rally racing, where the roads are virtually unknown and the driver knows what is ahead only because of the navigator's instructions (which - based upon notes - may or may not be absolutely correct), the unknown can cause drivers to brake more often and/or more heavily. For rally-based games, such as the Need for Speed: V-Rally series (PlayStation/PSOne) or for World Rally Championship (PlayStation2), there is often specialized vocabulary used: 'tightens' generally designates that a corner has a decreasing radius, whereas 'widens' or 'opens' indicates that a corner has an increasing radius. This need for 'extra' braking is also tempered by the fact that in much of rally racing, corners are either blind or semi-blind, due to trees, buildings, cliffs, embankments, and other obstacles to clear vision all the way around a corner.

One particularly interesting aspect of cornering is one which I honestly do not know if it works in reality (I am not a real-world racer, although I would certainly LOVE the chance to attend a racing school!!!), but which works in numerous racing/driving games I have played over the years. This aspect is to use the accelerator to help with quickly and safely navigating sharp corners. This works by first BRAKING AS USUAL IN ADVANCE OF THE CORNER, then - once in the corner itself - rapidly pumping the brakes for the duration of the corner (or at least until well past the apex of the corner). The action of rapidly pumping the accelerator appears to cause the drive wheels to catch the pavement just enough to help stop or slow a sliding car, causing the non-drive wheels to continue slipping and the entire car to turn just a little faster. Using this rapid-pumping technique with the accelerator does take a little practice initially, and seems to work best with FR cars; however, once perfected, this technique can pay dividends, especially with REALLY sharp hairpin corners, such as at Sebring International Raceway.

=====

## RUMBLE STRIPS

Depending on car set-up and weather conditions, rumble strips (sometimes also called 'alligators') can be either useful or dangerous. The purpose of rumble strips is to provide a few extra centimeters of semi-racing surface to help keep cars from dropping wheels off the pavement, which can slow cars and throw grass and other debris onto the racing surface (which makes racing a little more dangerous for all involved, especially in corners). Generally, rumble strips are found on the outside of a corner at corner entry and corner exit, and also at the apex of a corner - these locations provide a slightly better racing line overall.

If a car is set with a very stiff suspension (i.e., there is not much room for the suspension to move as the car passes over bumps and other irregularities in the racing surface), hitting rumble strips can cause the car to jump. Even if airborne for only a few milliseconds, at speed, it could be just enough so that the driver loses control of the car. Obviously, if one or more wheels are not in contact with the ground, the car is losing speed, which could be just enough of a mistake for other cars to pass by, and the lack of contact with the ground could result in excessive wheelspin which risks to flat-spot the tire(s) when contact is regained with the ground.

When the racetrack is damp or wet, however, it is generally best to avoid using the rumble strips. Since rumble strips are painted (usually red and white), ANY amount of moisture will make the rumble strips extremely slick as the water beads on the paint, so that hitting a rumble strip in the process of cornering (especially at the apex of a corner) will cause the tire(s) to lose traction and often send the car spinning.

=====

## DRAFTING/SLIPSTREAMING

One very useful racing technique is drafting, also known as slipstreaming. In some forms of motorsport, especially in oval track racing such as NASCAR and IRL, drafting is essential to making passes; NASCAR even raises drafting to an art form at its restrictor plate races by forcing cars to draft off each other simply to stay in contact with the leaders.

Drafting works because of the aerodynamic vacuum which occurs behind a vehicle moving at a high rate of speed. As air flows around Car A, there is an area around which the air is forced as it flows off Car A's rear end. If Car B can get close enough to Car A, its front end can get into this vacuum area. Since vacuums prefer to fill their void with anything possible, Car B is drawn closer and closer to Car A. If the driver of Car B does not do anything or does not react fast enough, then Car B will eventually crash in to the back of Car A. However, once sufficient vacuum-assisted momentum has been gained, Car B can pull out to the side, exiting the

vacuum with added momentum/speed, and rocket past Car A.

By using Car A's natural high-speed vacuum in this manner, Car B will emerge from the draft with a major advantage in terms of speed without ever pressing harder on the accelerator. Often, drafting results in an additional 5MPH/8KPH over Car A; while this may not seem like a lot of extra speed, it is often enough to make a successful pass.

Drafting is a great tactic for oval and tri-oval courses. However, its effectiveness at road racing venues is essentially limited to just long straightaways. In this case, it is highly important that Car B safely make the drafting pass well before the braking zone for the next corner, as the added speed will require earlier and/or stronger braking. Also, cars with variable downforce - especially cars with wings, such as CART and F1 cars - seem better able to make use of the draft.

Specific to F1 2002, there is a draft/slipstream meter on the right side of the screen during races and other events (such as challenges) in the game. This can be useful, with the meter lighting up from bottom to top as Car B approaches the rear end of Car A. When the meter is fully lit, the player should quickly pull out of the draft/slipstream or risk an accident.

=====

#### WET-WEATHER RACING/DRIVING

Almost everything written to this point in the guide focuses solely upon dry-weather racing/driving conditions. In fact, most racing/driving games deal ONLY with dry-weather conditions. However, simulation-based games will include at least a few wet-conditions situations. This can range from Gran Turismo 3 - which uses two circuits (hosting a total of eight races between Simulation Mode and Arcade Mode) where the roadway has A LOT of standing water, as if the races take place just following a major prolonged downpour - to F1 2002 - where in most situations, players can purposely select the desired weather conditions for a given race.

In wet-weather racing/driving conditions, it is IMPERATIVE to use tires designed for wet-conditions usage. For example, in F1 2002, in a full 53-lap race at Monza, I purposely tried running as long as I could with Dry Tires, then switched to Rain Tires when I could no longer handle the car's inherent sliding about... and my lap times instantly dropped by more than five seconds.

In games which offer Intermediate Tires, such as Le Mans 24 Hours, the period when the racing circuit is simply damp (at the start of a period of rain, or when the circuit is drying after a period of rain) can be tricky in terms of tires. Intermediate Tires are certainly best for these racing conditions, but the time in Pit Lane spent changing to Intermediate Tires can mean losing numerous race positions, especially if the weather conditions change again a short time later and require another trip to Pit Lane to change tires yet again.

Tires aside, simulation-style games simply will not allow a player to drive a circuit the same way in wet-weather conditions as in dry-weather conditions. The braking zone for all but the gentlest of corners will need to be extended, or else the car risks to hydroplane itself off the pavement.

Throttle management is also key in wet-conditions racing. Due to the water on the circuit, there is inherently less tire grip, so strong acceleration is more likely to cause undue wheelspin - which could in turn spin the car and create a collision. If a car has gone off the pavement, then the sand and/or grass which collect on the tires provide absolutely NO traction at all, so just the act of getting back to the pavement will likely result in numerous spins.

In general, cornering is more difficult in wet conditions than in dry conditions. To help ease this difficulty in cornering, simulation-style games will sometimes allow the player to change the car's tuning during a race (if not, the player will be forced to try to survive using the tuning set-up chosen before the beginning of the race). Tuning is covered in more detail in another section below, but the main aspect to change for wet-weather conditions is to raise the downforce at the front and/or rear of the car; this will help improve cornering ability, but will result in slower top-end speed and slower acceleration. If the car's brake strength can be adjusted, it should be lowered, as strong braking will raise the likelihood of hydroplaning off the pavement; lowering brake strength will also mean an additional lengthening of the braking zone for all but the gentlest corners of a given circuit.

When the circuit is damp or wet, rumble strips and concrete extensions (which are usually painted) should be avoided as much as possible. The water tends to bead on the paint used for rumble strips and concrete extensions, making them incredibly slippery, especially if a drive wheel is on a rumble strip or concrete extension while the player is in the process of turning the car; this will cause undue wheelspin in that particular drive wheel, usually resulting in the car spinning.

=====

#### TUNING

Many racing games (primarily arcade-heavy games such as CART Fury, or arcade favorites such as Pole Position and Pole Position II, and Outrun and Turbo Outrun) can be played with absolutely no concerns about car set-ups; other racing games (such as Le Mans 24 Hours or Sports Car GT) have so few set-up options that changing anything really does not have much effect, especially at lower levels of difficulty. However, games such as F1 2002 and Gran Turismo 3 present a number of set-up options, and the novice can easily become lost in trying to discern how to change the set-up options to induce or correct certain handling characteristics of a given car. While I am certainly NOT a car expert (in a real car, I can just barely find the accelerator and the radio buttons), I can present some of the basics of various parts to help

tuning novices.

Note that often, when one part's setting has been changed, at least one other part's setting will also need to be changed to maintain some semblance of handling. For example, if the gearbox is changed to use long gear ratios, the aerodynamics settings will likely need to be lowered to make use of the long gear ratios (otherwise, the car will have difficulty climbing into its highest gear at the appropriate speed). For another example, if the tire pressure is increased, the car will likely require soft tires to help to keep the car on the pavement when cornering (especially at high speeds).

**Aerodynamics (Wings)** The wings are important for downforce, the use of airflow over the front and rear of the car to keep cars from taking off like an airplane and doing a backflip like the Mazda at Le Mans. A low downforce/wing setting can produce faster speeds but decreases cornering ability, while a high setting will help tremendously with cornering at the sacrifice of straight-line speed.

## Brakes

**Brake Bias** Brake bias controls the percentage of braking power going toward the front and rear of the car. A setting of 50 will provide equal braking power to the front and rear of the vehicle. A setting lower than 50 will progressively favor the front of the car in braking ability; a setting higher than 50 will progressively favor the rear of the car in braking ability. In general, brake bias should be kept within the range of 40-60.

**Brake Controller** Unlike brake bias, the brake controller will allow for the customization of brake strength by axle. If a brake controller is available, then brake bias and brake strength are not needed.

**Brake Strength** Independent of brake bias, brake strength controls the response of the brakes relative to the amount of pressure applied to the brake button. A low setting produces little (slow) response, while a high setting produces great (fast) response. Therefore, assuming that equal pressure is always applied to the brake button, a low setting requires that braking begin earlier than the same car and corner using a high setting in the exact same racing conditions.

## Gearbox

Some games allow players to customize gear settings, or they provide three preset gear ratios: short, medium, and long. A short gear ratio provides impressive acceleration while sacrificing top-end speed. A long gear ratio provides excellent top-end speed (especially in a straight line), but far slower acceleration. A medium gear ratio provides the best of both extremes.

Note that for racing games with a standing start, a short gear ratio will allow a car to get off the line very quickly, allowing for the player to immediately gain one or more race positions. Conversely, a high gear ratio will almost certainly cause the player to lose one or more positions at the start of a race due to the slow acceleration inherent to long gear ratios.

## Suspension

### Ride Height

Like aerodynamics, ride height can help or hinder a car's performance through airflow. A low ride height setting allows less air underneath the vehicle, resulting in less aerodynamic friction to slow the car. Conversely, a high ride height setting allows more air to pass underneath the car, thus increasing air friction and slowing the car (which assists in cornering).

However, car performance is NOT the only consideration when setting ride height. If ride height is set too low, the car may bottom out, especially at the top or bottom of hills or when rolling over rumble strips. For short races (4-8 laps), bottoming out may not be a significant concern. However, in longer races (especially at 32+ laps), bottoming out the car could cause mechanical problems.

### Bump Stop

The bump stop indicates the point at which the suspension will stop its vertical travel as the car speeds around the circuit. Rumble strips, debris, and generally bumpy sections of pavement will inherently cause the car's suspension to move as the vehicle passes across non-even surfaces and obstructions.

If bump stop settings are identical, the car will have no vertical movement of the suspension, meaning that any required vertical movement for

different surfaces will cause the entire car to rise as the tires pass over the obstruction(s).

#### Spring Rate

A high spring rate setting will make the springs stiffer, assisting in cornering; however, if set too high, the car is likely to jump when running over rumble strips. A lower setting will keep the car from jumping, but the vehicle will have trouble when cornering.

#### Anti-roll Bar

The anti-roll bar can be stiffened to keep the car from flipping, but this will make cornering more difficult. The setting can be lowered to accommodate cornering ability, but the car will then be easier to flip in an accident.

#### Tires

##### Type

See the Tires section above for specific information on the types and compounds of tires often seen in racing/driving games.

##### Pressure

High tire pressures result in more-rounded tires, meaning that less tire surface will actually be touching the pavement, thus inherently reducing the amount of available pavement grip (regardless of the type or compound of tire used) and producing a slightly faster car due to less friction. Low tire pressures create 'flattened' tires, putting more rubber on the pavement and creating far more friction to slow the car and assist in cornering.

=====

#### FLAGS AND BOARDS

Auto racing presents a number of flags and boards to quickly convey information to drivers as they speed around a circuit. Many of these flags are shown by corner workers, track-side personnel who display the various flags to warn drivers if there is potential trouble ahead or behind them. Boards are generally shown only at the Start/Finish Line.

#### Boards

Safety Car (SC): What is called the Safety Car in many countries is better known as the Pace Car in American motorsports. When this board is displayed at the Start/Finish Line (the board is painted white with the letters 'SC' painted in large black font), there is a significant incident somewhere on the circuit warranting that all cars at all areas of the circuit must slow down and follow the Safety Car. The main reason a Safety Car may be used is

to allow safety personnel to get to areas of the track which are otherwise not easily accessible when cars pass at full speed; this situation usually means that there has been a collision or mechanical problem which has left one or more cars sitting idle in a vulnerable situation. The Safety Car board may also be displayed in the event that the weather does not permit full-speed racing.

## Flags

- Black Flag:** Generally shown only at the Start/Finish Line, a driver is shown this flag when her or his car has suffered severe damage which the race marshals deem **MUST** be repaired immediately, or when a driver has committed an infraction of the racing rules. Depending on the form of motorsport, a Black Flag may also mean automatic disqualification from the event, especially if it is being displayed due to an infraction of the racing rules.
- Blue Flag:** The Blue Flag is generally displayed by the corner workers to indicate that a slower car must pull aside to allow a faster car to pass. This generally means that the slower car is not on the lead lap, as many forms of auto racing allow for drivers to fight to remain on the lead lap, especially in oval-track racing.
- Checkered Flag:** This flag looks like a checker board in small black and white squares. This signals the end of a race.
- Green Flag:** The Green Flag means that full racing conditions are in effect. If a driver is coming out of a Yellow Flag area of a track, this flag indicates that the car can at least be brought back to full racing speed.
- Mechanical Flag:** This is a black flag with a small orange circle at its center. Accompanied by a car number, this flag indicates that the race marshals are ordering the driver to go to Pit Lane as quickly as possible to repair one or more mechanical problems. However, a smart driver will **ALWAYS** recognize when there is a problem with the car and return to Pit Lane without any prompting from the race marshals.
- Oil Flag:** This flag is characterized by numerous vertical red and yellow stripes. While this often is known as the 'Oil Flag,' it really designates that the next section of the circuit is slippery; oil is usually the cause of slippery track conditions, but other fluids (coolant, gasoline/fuel, etc.) may also cause the circuit to become slippery.



Red Flag: Generally shown only at the Start/Finish Line, the Red Flag indicates that a race has been suspended temporarily. The rules regarding what can take place during a Red Flag period vary by the form of motorsport in question. For example, NASCAR parks all cars behind the Safety Car/Pace Car on the track and all drivers must remain in their cars unless NASCAR officials (usually at Race Control) grant drivers permission to leave the vehicles (this usually only occurs in inclement weather). In F1 racing, if a race is Red Flagged, the race essentially begins again once the condition creating the Red Flag situation has passed or has been remedied.

Unsportsman-like Flag: This is a flag bisected diagonally with the uppermost triangle black and the lowermost triangle white. A driver is shown this flag for engaging in dangerous or rule-breaking behavior, such as purposely knocking a competitor into a barrier or off the circuit (which will usually result in accidents).

White Flag: Shown at the Start/Finish Line, the White Flag indicates that there is only one more lap remaining in a race. Not all forms of motorsport use the White Flag. In some endurance races, the white flag is displayed when it is calculated that the official race duration (in terms of time) will expire by the time the lead car completes one more lap of the circuit.

Yellow Flag: A Yellow Flag means that drivers must slow due to a potentially-dangerous situation. On oval tracks, a Yellow Flag covers the entire circuit, although some forms of oval-track racing (such as NASCAR) permit drivers to race back to the Start/Finish Line to 'take' the Yellow Flag there. On road courses, the Yellow Flag usually only applies to a specific section of the circuit, which allows for full-speed racing elsewhere; should a full-course Yellow Flag situation be warranted, a Safety Car or Pace Car will be used to collect all the competitors and lead them slowly around the race venue.

One of the STRANGEST Yellow Flag situations took place in 2000 at the F1 Grand Prix of Germany at the high-speed Hockenheim circuit. A local Yellow Flag was issued for one of the long, insanely-fast straightaways (where cars can easily achieve 180MPH... or more) because a spectator somehow made his way out of the grandstands and onto the track

itself. Fortunately, this EXTREMELY dangerous situation did not result in any injuries or accidents, and the imbecile was quickly grabbed, hauled off the track, and arrested.

=====  
ROUND 1: MIAMI

This is a symmetrical oval circuit with six-degree banking.

=====  
ROUND 2: MOTEGI

Set in Japan, the Twin Ring Motegi oval circuit has been used in recent years (under the name Super Speedway) in the Gran Turismo series on PlayStation/PSOne and PlayStation2. This is NOT a symmetrical circuit; the Turn 1/2 complex is longer and wider than the Turn 3/4 complex. Like the configuration in Gran Turismo 2 (on PlayStation/PSOne), the Pit Entry and Pit Exit are both along the Pit Straight; in Gran Turismo 3 (on PlayStation2), the Pit Entry and Pit Exit are both along the back stretch.

=====  
ROUND 3: LONG BEACH

The Long Beach circuit has seen a facelift since the time that Newman-Haas Racing was released; specifically, the front straightaway has been lengthened and cars make a large circle (more or less) before returning to the 'old' part of the circuit on the back side of the venue. As a street circuit, this is fairly wide, with three-wide racing quite possible on the straightaways (but really not recommended).

Pit Straight: This is not straight at all. Roughly halfway along its length, there is a significant full-throttle bend to the right, with the Start/Finish Line approximately located well before the apex of the bend.

Turns 1-2: On approach, look for the small pull-off area on the left side of the track, and use this to judge your braking zone. Turn 1 will require moderate or heavy braking for this right-hand corner; this is followed immediately by the left-hand Turn 2, which can be taken at full acceleration if slowed enough from braking entering Turn 1. This is a tricky chicane nonetheless, especially in traffic. The inside of Turn 2 is grassy, so shortcutting the corner will likely result in loss of car control.

Turn 3: Shortly after the initial chicane, this right-hand perpendicular corner can be shortcut somewhat, as the barriers are set back from the actual corner itself. Light or moderate braking is needed here to safely clear the corner. Swing wide to the outside on corner exit to prepare for Turn 4.

Turn 4: This is similar to Turn 3, and shortcutting is again possible (although the barriers are not set nearly as far back here). With an approach from the very far left side of

the course on corner entry, it is possible to speed through Turn 4 without braking, but this should probably only be attempted by experts.

Turn 5: Almost immediately after Turn 4, the circuit bends to the left. This can be taken at full acceleration, although the barrier to the left makes this a semi-blind corner from driver view.

Turn 6: Almost immediately after Turn 5, the circuit bends to the right. This can also be taken at full acceleration.

Straightaway: This is the other long straightaway of the circuit, running down Seaside Way. There are small pull-off areas on the right and the left; use the one on the left to judge the braking zone for Turn 7.

Turn 7 (Firestone Turn): This hard right-hand corner is very difficult to see on approach. It can be shortcut somewhat, but moderate braking will still be required. Even after clearing Firestone Turn, be prepared to brake even more. There is extremely little recovery room for those who miss the corner altogether, resulting in broken front wings.

Turn 8: This long 130-degree left-hand decreasing-radius J-turn is very tricky, which can fool newcomers to the Long Beach venue. Carrying a lot of speed in this narrow section of the circuit will result in the car sliding into a barrier or the back end spinning; either scenario can quickly end any chances of placing high on the final roster at the end of a race here.

Turn 9 (Auto Club Hairpin): This tight right-hand hairpin requires moderate braking in addition to the constant slowing through the previous J-turn. There is some swing-out room, but not much, so expect traffic to bunch up here, especially if there are cars off the lead lap.

Pit Entry: Almost immediately upon exiting Auto Club Hairpin, Pit Entry is to the right. Pit Entry itself is a tight right-left chicane, so when exiting Turn 9, be especially wary of VERY slow cars preparing to enter Pit Lane.

=====

#### ROUND 4: NAZARETH

This is a trioval circuit, although Pit Lane essentially forms an oval with the back stretch (Pit Entry and Pit Exit are both from/to the back stretch).

=====

#### ROUND 5: RIO DE JANEIRO

This is a trapezoidal circuit, with the back straight shorter than the Pit Straight. Strong braking is needed into Turn 1 because of the length of the Pit Straight.

=====

#### ROUND 6: GATEWAY INTERNATIONAL

This is an elongates oval circuit.

=====

ROUND 7: MILWAUKEE MILE

This famous racing venue, first used in 1933, is a very popular, high-speed oval circuit.

=====

ROUND 8: DETROIT

The Pit Straight is of moderate length, with a dogleg to the right at about its midpoint and the Start/Finish Line located near its end. It is important to begin braking for the first corner WELL before the Start/Finish Line. It is also important to NOT focus on the beautiful scenery to either side of the circuit.

Turns 1 and 2: This right-left complex comes at the very end of Pit Straight... whose Start/Finish Line is practically at its end. There will be plenty of traffic jams here on the opening laps until the traffic can space itself out. Heavy braking will be required for Turn 1, with barely any acceleration for Turn 2 until its exit due to all the anticipated traffic. Turn 2, which is a longer-duration corner than Turn 1, opens onto a long straightaway.

Turn 3 is a right-hand perpendicular corner. Because of the length of the preceding straightaway, this corner requires a long braking zone.

Turns 4-6: Following a brief straightaway, Turn 4 is a moderate right-hand corner. The raceway snakes to the left at Turn 5, then sharply to the right (nearly a J-turn) at Turn 6. Moderate braking is required for all corners.

Straightaway: This next straightaway is fairly long and contains fades to the right and to the left. The fade to the left is more of a dogleg than a fade, so some minor tapping of the brakes may be warranted here. However, this dogleg is a good marker for the braking zone for Turn 7.

Turns 7-10: This right-hand corner is nearly a double-apex corner, making it somewhat lengthy; moderate braking is needed here. Turns 8 and 9 are moderate-braking left-hand corners, with Turn 9 fairly lengthy in comparison with Turn 8. Turn 10 is a tight, sharp right-hand J-turn requiring heavy braking.

Turns 11-12: This is a pair of right-hand corners connected by a very brief straightaway. Moderate braking is needed for both, but strong power is required out of Turn 12 to set up passing opportunities along Pit Straight.

=====

ROUND 9: PORTLAND

A look at a track map reveals a few slow corners and two high-speed runs at Portland Raceway. However, a typical track map will NOT show the elevation changes, which are what

make a given lap at Portland so tricky. The elevation changes create many blind corners, especially those corners just beyond the crest of a hill. Intimate knowledge of this venue is a requirement for success... or else the corner workers will be scraping the car off the barriers.

Pit Straight: Pit Straight is fairly long, and has somewhat of an uphill climb, significant enough to make Turn 1 extremely dangerous and unexpected. The Start/Finish Line is approximately located at Pit Exit.

Turns 1-3 (Festival Curves): This nasty chicane is practically unsighted on approach, with Turn 1 just beyond the crest of Pit Straight. The chicane itself is located in a natural dip, which makes hard braking even more of a requirement to keep from banging the barrier blocking a shortcut of Festival Curves. This right-left-right chicane will require braking through Turns 1 and 2, but Turn 3 can be taken at full throttle due to the slow speed required for the first two corners. The course returns uphill exiting Turn 2.

Turns 4-5: This is a long sweeping right-hand hairpin-plus corner (at a little more than 180 degrees in total angle). While really just one corner, this is given two corner numbers in the same fashion as the banked turns of oval tracks. Light braking should be used for Turn 4, but a little beyond the first ninety degrees of the corner, the radius suddenly decreases, requiring moderate braking to keep the car on the track and out of the kitty litter.

Turn 6: This left-hand 135-degree J-turn quickly follows Turn 5 and renews the circuit's uphill climb, making the corner a little trickier than it appears. The hill crests at the exit of Turn 6, but those who begin braking for Turn 7 AT the crest will likely overshoot the next corner.

Turn 7: This right-hand corner immediately follows the crest at the exit of Turn 6. As such, this corner is truly only seen (especially from driver view) when it is too late to brake properly for the turn. Turn 7 is also the valley between two hills.

Straightaway/Turns 8-9: Not straight at all, this long, gentle uphill climb includes a fade to the left almost immediately after Turn 7. There are two other gentle fades, this time to the right, and both of these are indicated as official corners on the course map. Along much of this straightaway/Turns 8-9, the right-side barrier rests directly or almost directly against the pavement, so it is important to not get squeezed here on the right side while trying to make passes, especially in the area of Turns 8 and 9. This high-speed section of the circuit crests around Turn 9 and dips again, with another uphill segment beginning at the left-hand fade before Turn 10.

Turn 10: The slope of the climb lessens in this right-hand corner, making light or moderate braking very important.

Turn 11: Almost immediately upon exiting Turn 10, the course returns downhill for the final time, making light or (more

likely) moderate braking key to staying on the track as the pavement turns right again.

Turn 12: This is really non-existent, but the official course map indicates that there IS a right-hand corner here. It is so slight that it is not even a fade. Pit Entry is on the right on corner exit, with both Pit Straight and Pit Lane heading up the long hill climb toward the Start/Finish Line.

=====

#### ROUND 10: CLEVELAND (BURKE LAKEFRONT AIRPORT)

Burke Lakefront Airport, located on the southern shore of Lake Erie in Cleveland, Ohio, USA, is one of the few world-famous airport circuits. While not quite as popular overall as Silverstone in the United Kingdom, Burke Lakefront Airport is actually more challenging, especially due to its incredible bumpiness. When not in use, this is an actual working Airport servicing Cleveland and extreme northern Ohio.

Turn 1: This is by far the most difficult corner of the circuit. This is a right-hand J-turn of MORE THAN 135 DEGREES!!! This requires severe braking and a wide approach from the far-left of the Pit Straight. This also means that cars exiting Pit Lane have a FAR better approach angle or racing line for Turn 1, since the angle of the corner for them is only approximately fifty degrees (which inherently means that the potential for collisions with cars exiting Pit Lane is rather great here).

Turn 2: This is really a dogleg to the right onto one of the wider runways at Burke Lakefront Airport.

Turns 3 and 4: This is a glorified right-left chicane onto another runway. These are perpendicular corners requiring moderate or heavy braking. Turn 3 especially will require heavy braking, since a lot of speed can be gained on the run from Turn 1.

Turns 5 and 6: after a moderate straightaway, this is a glorified left-right chicane back onto the previous widened runway. These are perpendicular corners requiring moderate or heavy braking. Turn 5 especially will require heavy braking, since a lot of speed can be gained on the run from Turn 4.

Turn 7: After a short straightaway, this is a perpendicular turn to the right.

Turn 8: After a short straightaway, this is a perpendicular turn to the right leading onto the single longest straightaway of this race venue.

Turns 9 and 10: The final two corners of the Burke Lakefront circuit form a tight right-left chicane. Due to the intense speeds gained coming down the long straightaway from Turn 8, VERY HEAVY braking is required for Turn 9. However, it is important to not overcommit at Turn 9, as Turn 10 follows immediately. Adding to the difficulty of Turn 9 is that Pit

Entry continues running straight ahead beyond the actual chicane, so there may well be VERY slow cars on the left side of the straightaway on approach clogging the optimal racing line.

=====

#### ROUND 11: TORONTO

Toronto is a narrow street circuit - narrow enough that two-wide racing is difficult, thus passing is generally quite difficult. Granted, passing here is far easier than at Monaco, but it is still very important to qualify at the front of the grid here and then have patience in passing cars (especially slow backmarkers). The circuit is generally three lanes wide, but the high speeds and tight corners make passing tough nonetheless.

**Pit Straight:** A moderate straightaway, those able to carry good speed out of the final corner and NOT hit the outside barrier protecting Pit Lane can create good passing opportunities. Pit Exit is just beyond the Start/Finish Line.

**Turn 1:** This right-hand right-angle corner requires moderate braking on entry, then powerful acceleration on exit, as the brakes should not be used again until Dodge Corner.

**Turn 2:** Shortly after Turn 1, the course makes a wide right-hand sweep onto the back straightaway. Braking is not needed here unless an accident occurs ahead. This makes the area between Turn 1 and Turn 3 (Dodge Corner) the fastest and longest sustained acceleration zone of the Toronto venue.

**Straightaway:** There is a quick fade to the right about halfway along the straightaway. Cars can reach close to 200MPH before braking for Dodge Corner.

**Turn 3 (Dodge Corner):** This nasty right-hand 135-degree J-turn requires moderate or even heavy braking after such a long sustained acceleration zone.

**Turn 4:** Shortly after Dodge Corner, the circuit curves gently to the left. No braking should be needed here.

**Turn 5:** Moderate braking is needed for this tight left-hand corner. The ensuing straightaway is just long enough to pass ONE car if it is going really slow.

**Turn 6:** Only experts completely clear of traffic can power through the double-apex right-hand Turn 6 at full speed. Otherwise, light braking will be needed to keep off the barriers, as the turns here are just sharp enough to render full-throttle driving quite dangerous.

**Turn 7:** This is really a high-speed right-hand kink; no braking is needed.

**Turn 8:** Entering the trickiest section of the circuit, this right-hand corner requires moderate braking and single-file driving.

Turn 9: Almost immediately following Turn 8, the course makes a left-hand right-angle turn which again requires single-file driving.

Turn 10: This is almost a mirror image of Turn 8, with Pit Entry to the right at the entry of Turn 10.

Turn 11: This is almost a mirror image of Turn 9, but slightly higher speeds can be carried here with little trouble. Powerful acceleration out of Turn 11 can pay dividends in terms of passing opportunities along Pit Straight.

=====

ROUND 12: MICHIGAN

This is another oval circuit, with the Pit Straight bending slightly in trioval-style fashion.

=====

ROUND 13: MID-OHIO

This world-famous racing venue hosts numerous forms of motorsport, from CART to Speed World Challenge to various motorcycle events. The track design is somewhat weird, especially since Pit Straight is one of the shortest straightaways at Mid-Ohio. Many corners have off-color strips of pavement, so these can help to mark corners on approach.

Pit Straight: Pit Straight is actually rather brief; however, strong acceleration out of the final corner and drafting along Pit Straight can create great passing opportunities entering and exiting Turn 1, especially if no braking is needed.

Turn 1: This semi-gentle left-hand corner can possibly be taken at full speed, especially if making use of the Pit Exit pavement as Pit Lane rejoins the main circuit. If at all possible, remain heavy on the throttle throughout Turn 1, as this will create great speed (especially if combined with drafting tactics) along the ensuing straightaway.

Straightaway: This is the second-longest straightaway at Mid-Ohio. If no braking was required in Turn 1, then slower cars can be passed with ease along this straightaway. Near its end, look for the chicane pavement on the right; while it is not used, this comes directly at the end of the straightaway, so this is an excellent means to mark the braking zone for Turn 2.

Turn 2: This second-gear right-hand hairpin can be trickier than the standard hairpin in part due to the tremendous speeds coming off the previous straightaway. Similarly, it is also a very important corner because it empties out onto the single longest straightaway at Mid-Ohio; therefore, it is necessary to carry as much speed as possible in the hairpin without sliding or spinning the car (and this is a difficult feat to accomplish) combined with powerful acceleration



exiting the hairpin.

Straightaway: This is the single longest straightaway at Mid-Ohio, so powerful acceleration out of Turn 2 is required to set up the best passing opportunities. This straightaway is about 1-2/5 times as long as the previous straightaway, with a very gentle fade to the right roughly halfway along its length.

Turn 3: After the high speeds attained on the prior straightaway, this right-hand heavy-braking corner will be even trickier due to the excessive speeds (upward of 200MPH) on the previous straightaway.

Turn 4: Almost immediately after Turn 3, the left-hand Turn 4 will require at least light braking to keep off the too-near barrier. There is a brief straightaway between Turns 4 and 5 which can afford some passing opportunities, so powerful acceleration out of Turn 4 is needed.

Turn 5: This right-hand corner needs moderate braking to keep to the pavement.

Turn 6: Almost immediately after Turn 5, this left-hand corner requires at least light braking to keep out of the kitty litter.

Turns 7-8: This fast right-hand double-apex complex requires light braking to stay on the pavement.

Straightaway: Not really straight at all, the course takes an uphill climb on a long right-hand fade.

Turn 9: Continuing the uphill climb, this left-hand corner requires moderate braking to keep to the pavement. The course crests on corner exit, making Turn 10 even trickier.

Turn 10: Just beyond the crest of the circuit, this moderate right-hand hairpin requires moderate braking to keep on the pavement. Pit Entry is a straight run after the first ninety degrees of the corner; the main course makes a full 180-degree turn.

Turn 11: Just beyond Turn 10, this final left-hand corner can be taken at full speed with enough slowing through the previous hairpin. Powerful acceleration is required coming out of Turn 11, as experts will not need to brake again until Turn 2 (the tight hairpin).

=====

#### ROUND 14: ROAD AMERICA

This popular racing venue is both insanely fast and insanely tricky, making car set-ups rather difficult to achieve the right balance between speed and cornering.

Pit Straight: This is by far the longest straightaway of the circuit, leading down into a TIGHT Turn 1. Drafting tactics are extremely beneficial here to achieving low lap times and gaining valuable race positions. Pit Straight crests about

halfway alongside Pit Lane, with the Start/Finish Line near the end of Pit Lane.

Turn 1: This right-hand near-perpendicular corner will require moderate or (most likely) heavy braking after reaching close to 200MPH on Pit Straight.

Turn 2: There really is not even a corner here, but more of a VERY slight bend to the right, but this is listed in Road America's official brochure as a corner. This actually runs over Briggs & Stratton Tunnel, which allows teams to get to and from the Paddock areas.

Turn 3: After a short straightaway, this right-hand J-turn leads onto another significant straightaway. Moderate braking will likely be required for Turn 3, but powerful acceleration on exit provides for good drafting/passing opportunities along the ensuing straightaway.

Straightaway (Turns 3A and 4): At approximately 85% of the length of Pit Straight, this straightaway provides invaluable opportunities for drafting and passing numerous cars. There are extremely gentle fades to the right and the left, officially marked as Turn 3A and Turn 4, respectively.

Turn 5: This nasty left-hand J-turn requires moderate or (most likely) heavy braking after achieving close to 200MPH on the previous straightaway. This is the entrance to the technical portion of the circuit, where cars with high-downforce set-ups will likely benefit greatly.

Turn 6: After a brief straightaway, this left-hand perpendicular corner immediately follows Toyota Bridge. Moderate braking is needed to keep to the pavement here.

Turn 7 (Hurry Downs): After another brief straightaway, the course makes about a fifty-degree right-hand turn here. Light braking - if any - is used here; the key is to keep up as much speed as possible to pass slower cars on exit.

Turn 8: After a slightly longer straightaway, this left-hand perpendicular corner requires moderate braking. This is a prime place to pass on braking, especially if using a high-downforce set-up.

Turns 9-10 (The Carousel): This is essentially one long seemingly-never-ending hairpin corner. Light braking is almost certainly required on entry, and likely throughout The Carousel; however, a good amount of speed can usually be carried here. Take care in passing slower cars on the racing line, as such passes require using the outside line, and The Carousel is just long enough to trick drivers into believing that they can carry more speed here than the laws of physics are willing to allow. Carrying strong speed out of The Carousel is key, as it is possible to power down to Canada Corner without ever tapping the brakes. Especially here in The Carousel, it is very important to remember that if the tires start squealing and producing whitish-grey smoke, the car is cornering too quickly and loss of control is quite likely if speed is not quickly reduced.

Turn 11 (The Kink): This obtuse-angle right-hand corner can generally be carried at full throttle, unless there are several slower cars blocking the pavement as they race each other for position. Mind the racing line here, however, so as to not drop a wheel off the circuit.

Straightaway (Kettle Bottoms, Turns 11A and 11B): This straightaway contains a few gentle fades, officially labeled as Turn 11A and Turn 11B, respectively. This is a good section of the course for drafting as the course slowly rises in elevation.

Turn 12 (Canada Corner): This right-hand near-perpendicular turn requires moderate braking on entry. After the long high-speed run from The Carousel through The Kink and Kettle Bottoms, Canada Corner can be a great place to pass on braking on corner entry.

Turn 13: Just beyond Canada Corner, the circuit fades to the right. While braking is not required here, the official Road America brochure lists this as a corner.

Turn 13A: This IS a corner, a left-hand turn requiring light braking to keep to the optimum racing line.

Turn 14: The final corner of the circuit, this right-hand J-turn leads onto the super-long Pit Straight. Strong acceleration out of Turn 14 is required as cars climb the hill toward the Start/Finish Line to pass and keep from being passed.

=====

#### ROUND 15: VANCOUVER

This is a highly-challenging street circuit in Vancouver, British Columbia, Canada. The corners are tight and difficult, and the straightaways are generally fairly long and fast.

Turns 1-3: Following the Pit Straight, Turn 1 is a nasty right-hand perpendicular corner requiring heavy braking. After virtually no straightaway at all (in which Pit Exit rejoins the main circuit), the tight right-hand Turn 2 follows, followed instantly by the left-hand Turn 3. The opening laps will see A LOT of blocked traffic here until the cars can spread out.

Turn 4: This is a nasty right-hand 135-degree J-turn. The corner itself fortunately is a bit wider than the straightaways leading up to and away from it, but that can trick drivers into overcommitting and then banging the outside barrier on corner exit. The corner itself is instantly followed by a quick fade to the left.

Straightaway: Turn 4 leads onto a long straightaway which actually curves gently to the right.

Turns 5 and 6: This is a nasty right-left triangle-shaped chicane designed to slow the cars. Moderate braking is needed on entry, and perhaps heavy braking will be needed for

Turn 6 depending on the amount of speed carried through Turn 5. The exit of the chicane instantly fades to the right, completing the triangular nature of the chicane. This opens onto the single longest straightaway at Vancouver... and it really is not very long in the overall scheme of things :-)

Turn 7: This is a nasty right-hand perpendicular corner requiring moderate or heavy braking.

Turns 8 and 9: This is a pair of right-angle right-hand corners requiring moderate braking. By using a VERY wide racing line and coming just millimeters from the outside barriers, these two corners can essentially be treated as one wide, extended hairpin corner.

Turn 10: Here, the circuit turns to the left. Moderate braking is still needed here, although it is not nearly as tight as the preceding corners.

Turns 11 and 12: This is another triangular chicane, this time left-right. A dogleg to the left instantly follows the chicane. Moderate braking will be needed throughout.

Turns 13 and 14: Finally, the circuit heads back to the left to rejoin Pit Straight. This is a pair of left-hand doglegs which essentially form a single double-apex corner. Slight braking may be warranted in either or each of these doglegs.

=====

#### ROUND 16: LAGUNA SECA

Located in Monterey, California, USA, Laguna Seca Raceway hosts many events every year, including the Grand Prix of Monterey featuring the Shell 300 (part of the CART/FedEx Championship Series), the International Superbike Classic (SBK/AMA Superbike Series), Rolex Monterey Historic Races, and Monterey Sports Car Championships (the American Le Mans Series). In terms of aesthetics, Laguna Seca is itself not a really beautiful circuit. There is generally ample recovery room along both sides of the pavement. However, there is a lot of sand just along the pavement around much of the circuit, so dropping the right-side or left-side wheels off the pavement can both slow the car, and kick up a lot of dust to obscure the vision of trailing vehicles. Without question, the most famous and most difficult section of the circuit is the Corkscrew, a moderate left-right chicane on a nasty downhill mini-mountain just meters beyond the crest of the circuit. Also difficult is the final corner, a tight left-hand perpendicular corner with a concrete barrier almost flush up against the pavement to block any attempts at shortcutting the corner.

Turn 1: This is actually just a slight 'kink' to the left just underneath the pedestrian bridge at the Start/Finish Line. On exiting this 'corner,' Pit Exit rejoins the main circuit from the left. From here, the circuit slopes gently downhill to Andretti Hairpin.

Turn 2 (Andretti Hairpin): This hairpin is actually a little more than the standard 180 degrees. Moderate or heavy

braking will be required on approach, especially for cars with an extremely high horsepower output (700+ HP). The best racing line is to approach from far-right, roll the left-side tires on the rumble strip at the apex, then drift back to the right on exit. The cones here block the old Pit Exit, which used to rejoin the main circuit at the exit of Andretti Hairpin. Cars which overshoot Andretti Hairpin will find themselves beached in the vast expanse of kitty litter to the outside of the hairpin.

Turn 3: This right-hand corner will require moderate braking for most vehicles in the game. Beware of sliding outward on exit, as the barrier is not very far off the pavement.

Turn 4: Another right-hand corner, this turn can be taken with either slight braking for high-power vehicles, or flat-out by all other cars; both alternatives depend upon a solid racing line. Again, beware of drifting off the pavement on exit, as the barrier is not very far off the pavement.

Straightaway: About two-thirds of the way along this straightaway (just past the end of the grandstands), the circuit bends very gently to the right. This can be a good place to judge the braking zone for Turn 5.

Turn 5: Moderate braking will definitely be required here for this left-hand corner, unless you really want to slide out into the sand on the outside of the corner and into the nearby concrete and tires.

Turn 6: A bridge marks the entry of Turn 6, which is a good reference point in case the distance-to-corner markers are knocked down or out of position during a race. Except for the highest-power vehicles, the left-hand Turn 6 can be taken flat out by experts by using the rumble strips at the apex and exit, IF a pristine racing line can be held at full throttle. On both sides of the pavement on exit, sand awaits those who slide off the circuit or misjudge this corner. A long uphill climb begins here.

Turn 7: Literally a few meters from the highest point of the circuit, this extremely gentle right-hand 'kink' could be taken flat-out if not for the upcoming Corkscrew. For most cars, braking must begin no later than Turn 7 to avoid colliding with the barrier entering the Corkscrew.

Turns 8 and 8A (Corkscrew): This is the world-famous Corkscrew, one of the trickiest sections of racetrack on the planet. There is little run-off room through the Corkscrew, which is a moderate left-right chicane on a steep downhill mini-mountain which takes cars from the highest to the lowest point on the circuit. Cars with moderate or high horsepower output are likely to have plenty of trouble here, whereas low-power cars will not have the speed to cheat gravity (without even trying). If the tires are worn, expect plenty of trouble here.

Turn 9 (Rainey Curve): This left-hand corner at first appears to be only a perpendicular corner, but continues on beyond the pedestrian bridge, making this corner trickier than one

might assume. A solid racing line is key here, but may be hard to set up at high speeds coming off the Corkscrew. Those who overrun Rainey Curve will be in the grass, but the barrier is not very far away.

Turn 10: After a brief straightaway, this right-hand turn is bounded by a barrier, obscuring a clear view of traffic around the corner and blocking any shortcutting. Moderate braking is required here for most cars, although plenty of sand-infested recovery room is available to the outside of the pavement. If heading to Pit Lane, it is possible to keep up a rather fast speed to Pit Entry by purposely swinging out into the sand and passing slower cars keeping to the pavement.

Turn 11: This 125-degree left-hand corner is bounded on the inside by a concrete barrier. Those who overshoot this tight turn will be in the sand to the outside of the corner, then banging the barrier beyond. Strong acceleration out of Turn 11 will allow for good passing opportunities along Pit Straight and down to the entry of Andretti Hairpin.

Pit Entry: This begins to the left just before the entry to Turn 11. However, there is virtually no deceleration room before Pit Entry has its own nasty tight left-hand corner, so adequate deceleration is a MUST while still on the main circuit or else the vehicle WILL ram the barrier in Pit Lane.

=====

#### ROUND 17: HOUSTON

Set in Houston, Texas, this venue features mostly perpendicular corners - not surprising for a circuit set within a city. The back straight is the longest straightaway of the circuit, lasting for a full seven city blocks. Most corners have rumble strips and paved mini-recovery areas, but some apexes have only unforgiving barriers, so make sure the first laps at this venue are nice and slow to become familiar with where one can and cannot clip the inside rumble strips.

Turn 1: This is a left-hand perpendicular corner, with shortcutting possibilities by crossing the rumble strips. Immediately after the corner itself, the road fades to the left.

Turn 2: Immediately after the fade, the course turns sharply to the right in a J-turn. Moderate braking is needed here, although light braking can be used if shortcutting the corner.

Turn 3: This left-hand perpendicular corner does not have shortcutting possibilities, so moderate or heavy braking AND a solid racing line are required to safely clear this corner.

Turn 4: Two city blocks beyond Turn 3, Turn 4 is a shortcuttable left-hand perpendicular corner. Light or moderate braking can be used here.

Straightaway: This is the longest straightaway of the Houston circuit, covering a total of seven city blocks. Speeds

approaching 200MPH are quite possible here, even without drafting.

Turn 5: After the long back straightaway, moderate or even heavy braking will be required here to keep from banging the barriers on this left-hand perpendicular corner. Shortcutting is possible here.

Turn 6: Very quickly after Turn 5, this left-hand right-angle turn requires light braking. Shortcutting is possible.

Turn 7: Moderate braking is needed for this right-angle right-hand corner; shortcutting is possible.

Turn 8: Immediately after Turn 7, the course makes a right-hand bend. Braking should not be needed here.

Turn 9: This left-hand perpendicular corner required moderate braking and does not have the possibility of shortcutting.

Turn 10: Light braking should be used for this final left-hand corner, also a right-angle corner with shortcutting possibilities.

=====  
ROUND 18: GOLD COAST (SURFERS' PARADISE)

This Australian race venue is very scenic, located very near the Pacific Ocean; television coverage always includes plenty of shots of people swimming, surfing, or tanning on the beach. However, the circuit itself is by far the trickiest on the CART circuit. A very interesting arcade-style version of Surfers Paradise appears in the PlayStation2 game CART Fury; however, the real venue and most other game renditions are far less fun to drive.

Pit Straight: Like the Long Beach venue, Pit Straight is a long gentle curve to the right, this time running along Gold Coast Highway (which does not actually run along the coast). Powerful acceleration out of Turn 11 is important to set up passing opportunities along Pit Straight. Pit Straight twice passes over Nerang River, with the actual Paddock and Main Grandstands located on Macintosh Island.

Turn 1 (Honda Chicane): This tight moderate-braking left-right-left chicane is literally created in the middle of Gold Coast Highway by rumble strips surrounding patches of grass. In other words, the width of the available pavement narrows significantly from three lanes to one here; single-file is the ONLY way cars can pass through this area, so extremely care must be taken here at the start of a race and on restarts. Smart drivers WILL NOT attempt to pass on braking entering Honda Chicane.

Turn 2: This is another chicane, similar to Honda Chicane, but only light braking is required. Also, the chicane itself is two lanes wide, although two-wide racing through this chicane will almost certainly result in an accident.

Straightaway: The circuit continues its long gentle right-

hand fade. This is a great passing zone for cars able to keep up good speed through the Turn 2 chicane.

Turn 3 (Cellular One): This tight left-hand J-turn leads the cars toward the Pacific Ocean and Surfers Paradise Beach. Moderate braking is key here.

Turn 4: This left-hand perpendicular corner can likely be taken with light braking only. It is important to carry as much speed as possible through Turn 4 and onto the back straightaway to set up the best possible passing opportunities.

Straightaway: To the right is Surfers Paradise Beach and the Pacific Ocean... but the barriers block any views of bikini-clad sunbathers :-( The straightaway is three lanes wide, allowing for ample racing room.

Turns 5-6 (Worldcom Beach Esses): This left-right chicane narrows to two lanes, and is more or less constructed within the straightaway with imported grass and rumble strips. Generally, only light braking should be needed here, unless encumbered by traffic.

Straightaway: The circuit eases gently back to the right (at an angle) toward Surfers Paradise Beach again. Those able to keep good speed through the Worldcom Beach Esses can benefit in terms of passing opportunities.

Turn 7 (Fosters Chicane): This is a NASTY one-lane set of consecutive chicanes built within the confines of the straightaway with imported grass and rumble strips. Moderate or heavy braking will be required to enter this segment, and only precision technical driving will allow drivers to safely clear Fosters Chicane. It may be best to treat Fosters Chicane like a slalom, such as the slalom license tests in Gran Turismo 2; in fact, the slalom tests from GT2 can provide great benefits here for those able to keep up enough speed to score a Gold Medal in one or both of those slalom tests.

Straightaway: The course returns to three lanes here, so faster cars exiting Fosters Chicane should be able to quickly move around cars unable to keep up much speed in the tricky slalom-like section. Prepare for Turn 8 (Falken Tyres) when entering the area with the skyscrapers at the end of the straightaway.

Turn 8 (Falken Tyres): This left-hand corner can be tricky, requiring moderate braking. It is easy to miss seeing this corner until it is too late to avoid the barriers due to the color of the barriers all seemingly running together, so take care on approach. The exit of Turn 8 enters a section of two-lane racetrack, so passing will be more difficult from here to Pit Straight.

Turn 9: This left-hand turn onto Serisier Avenue requires moderate braking. Use the pedestrian bridge on approach to judge the braking zone.



Turn 10: Turning right onto Hill Pde, moderate braking will be needed. The circuit is still just two lanes wide here, yet high speeds can be attained, so take extreme care in passing.

Turn 11 (Honda Hairpin and Hill): There is a nasty kink to the right immediately before entering this left-hand double-apex 'hairpin' corner. Moderate braking will be needed before the nasty kink, and full acceleration is best delayed until at the second apex. Powerful acceleration is required to rocket out of Turn 11 and attain excellent passing opportunities all the way along Pit Straight to Turn 1 (Honda Chicane).

=====

#### ROUND 19: FONTANA

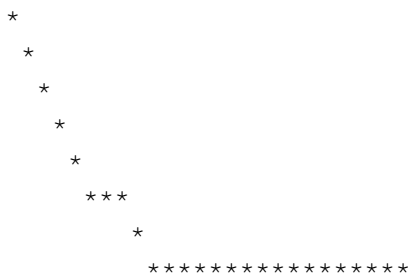
The 1998 CART season ends at an oval circuit specifically designed to somewhat mimic Michigan.

=====

#### DIAGRAMS

This section contains the diagrams referred to earlier in the guide.

##### Ascari Chicane (at Monza):



##### Bus Stop Chicane (Variant I - Wide Chicane):



##### Bus Stop Chicane (Variant II - Narrow Chicane):



##### Decreasing-radius Corner:



##### Hairpin Corner:



<-\*\*\*\*\*

Increasing-radius Corner:

->\*\*\*\*\*

\*
\*
\*
\*
\*

<-\*\*\*\*\*

J-turn

\*\*\*\*\*

\*
\*
\*
\*

Quick-flicks (Variant I - Wide Chicane):

\*\*\*\*\*

\*
\*\*\*\*\*

Quick-flicks (Variant II - Narrow Chicane):

\*\*\*\*\*

\*\*\*\*\*

Sample Circuit Using Some of the Above Corner Types Combined:

\*\*\*\*\*|\*\*\*\*\* \*\*\*\*\*
\* |-> \* \* \*
\* \*\* \*\*\* \*
\* \* \*\* \*
\* \* \* \* \*
\* \* \* \* \*
\* \*\* \* \* \*
\* \* \* \* \*
\*\*\*\*\* \*
\*\*\*\*\*

Standard Corner:

\*\*\*\*\*

\*
\*
\*
\*
\*
\*
\*
\*

U-turn:

->\*\*\*\*\*

\*
\*
\*

<-\*\*\*\*\*

Virtual Bus Stop Chicane:

+++++

Car #1 ->->->->-> Car #3

Player Path: -->-->-->-->-->--> Car #2 -->-->-->-->-->-->  
+++++

=====  
=====  
=====

CONTACT INFORMATION

For questions, rants, raves, comments of appreciation, etc., or to be added to my e-mail list for updates to this driving guide, please contact me at: FEATHER7@IX.NETCOM.COM; also, if you have enjoyed this guide and feel that it has been helpful to you, I would certainly appreciate a small donation via PayPal (<http://www.paypal.com/>) using the above e-mail address.

To find the latest version of this and all my other PSX/PS2/DC/Mac game guides, visit FeatherGuides at <http://feathersites.angelcities.com/>

=====  
=====  
=====

This document is copyright Wolf Feather and hosted by VGM with permission.