NASCAR® Racing 3

Game Manual

SIERRA SPORTS

PAPYRUS

NASCAR® Racing 3

from

Papyrus Design Group, Inc.

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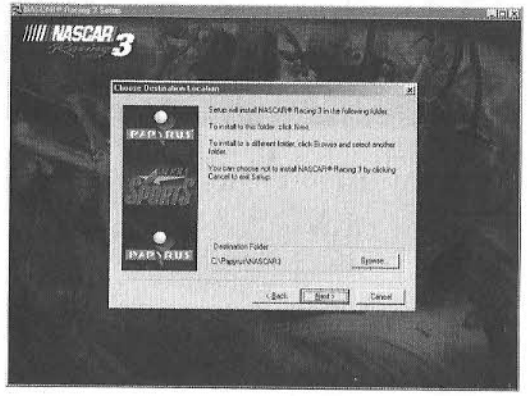
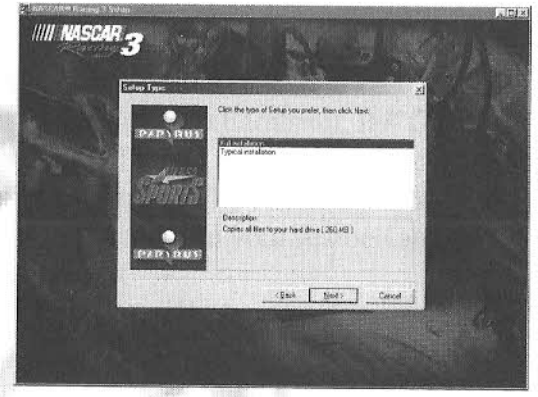
Installation

Close all other programs before you begin installing NASCAR Racing 3. Place the CD ROM disk in your drive. The installation process should begin immediately. If it does not, click on the START button and choose RUN. Type D:\SETUP (substitute "D:" with the drive letter of your CD ROM drive) and choose OK. The installation wizard will now begin.

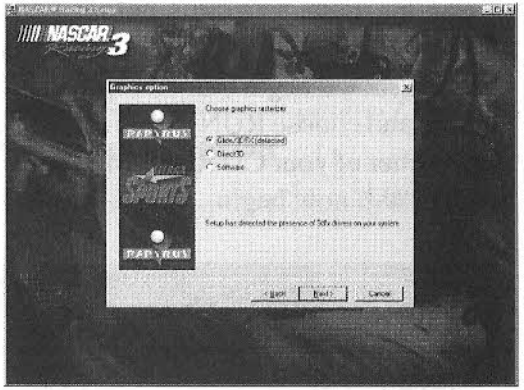


After a brief system test is performed by the installation program, choose the drive and directory (folder) that you'd like to place NASCAR Racing 3 in on your system. Use the default path, or click on the BROWSE button to create your own.

Choose the installation method you'd prefer. The Full installation requires approximately 260 megabytes of hard drive space. The Typical installation only consumes about 100 megabytes of drive space.



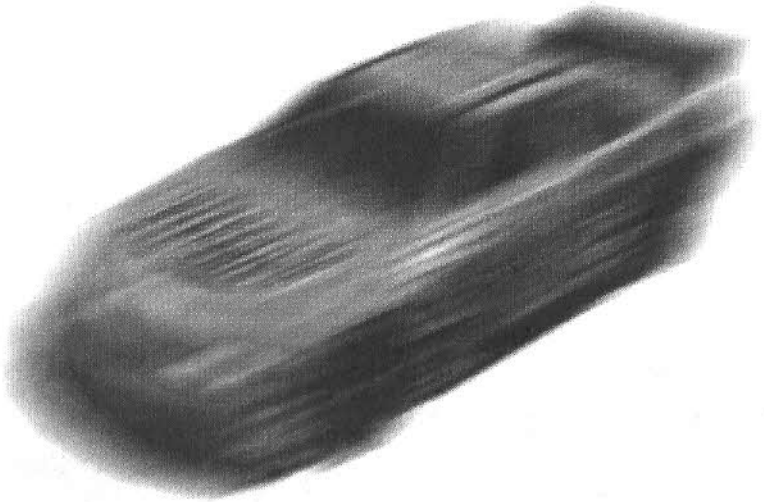
Installation- Continued



The installation program will guide you through the process of choosing which graphic acceleration card you'd like to use, and the quality of sound you'd prefer.

If you do not own a supported Voodoo or D3D graphics accelerator card, choose 'Software' as your acceleration method.

That's all there is to it!

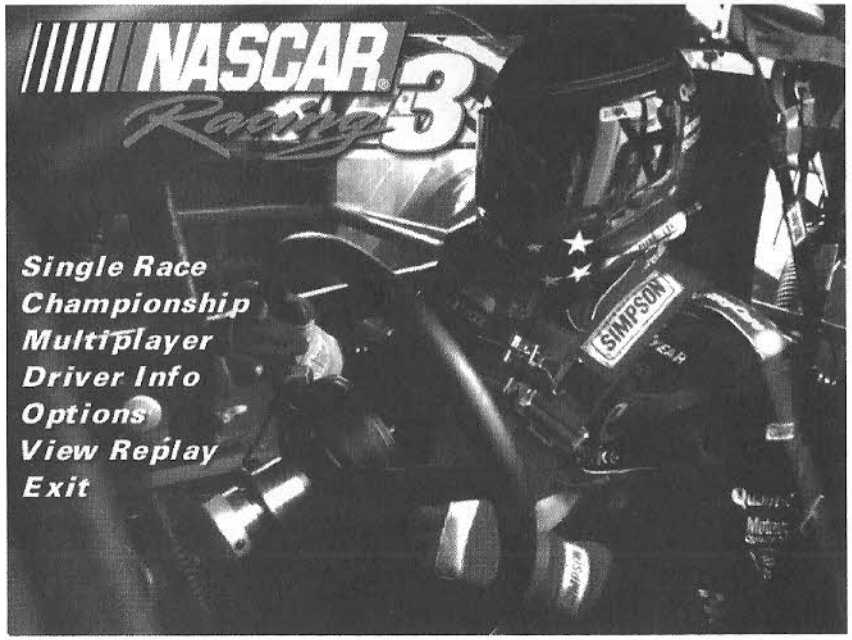


License To Thrill.

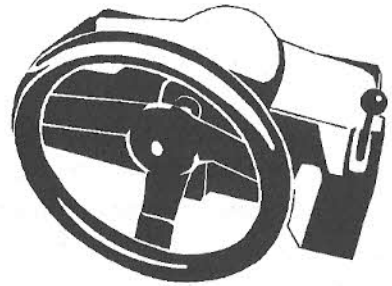
Have you ever thought about what it would be like to race a 700-horsepower stock car against the likes of Dale Earnhardt, Jeff Gordon or Bobby Labonte? Think you could take them? How about the tracks themselves...The Lady In Black, The Monster Mile, The Rock...are you excited yet? If so, then fasten your seatbelt and turn the page...it's going to be a wild ride!

About This Manual

We're pretty sure you'd prefer to just jump in the car and do some driving, referring back to this manual for assistance from time to time. Feel free to do so, this book was meant to be skimmed. Eventually you'll have questions: "How can I make NASCAR Racing 3 run smoother on my machine?" "How do the sway bars affect the way my car handles?" When you're ready to learn the answers to these and other questions concerning NASCAR Racing 3, we hope you will find this manual both helpful and informative. So, "Ladies and Gentlemen: "Calibrate your controllers and start your engines!"

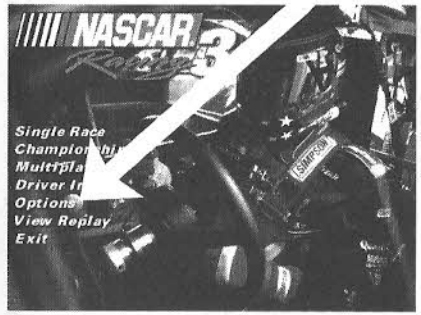


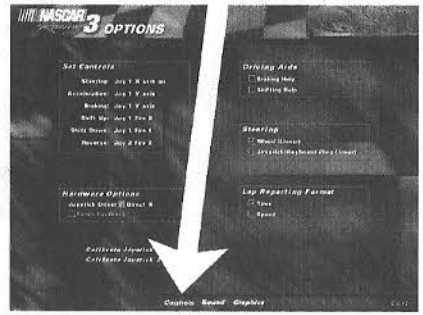
Setting Up Wheels, Joysticks And Other Controllers



Step One: Before you launch NASCAR Racing 3, plug your joystick, wheel, gamepad or other computer game controller into a game port on the back of your computer.

Step Two: Launch NASCAR Racing 3. From the Main Menu, click on Options. If the Controls tab is not already selected, click on it to reveal the Controls Menu (as indicated by arrows below).





Step Three: Choose a joystick driver. If your controller has been selected and configured in Windows 95/98, you can use the DirectX joystick driver. If your controller is not configured in Windows 95/98, choose the Papyrus joystick driver instead. This is a generic joystick driver; later on, you may want to experiment with both joystick drivers to find the one that gives you the best feel.

Step Four: Calibrate your controller(s) by first clicking on the Calibrate Joystick 1 button. Follow the prompts on the screen, moving your controller through all of its limits, then pressing the Enter key. If your control method requires the second joystick input, click on the Calibrate Joystick 2 button and repeat the calibration process.

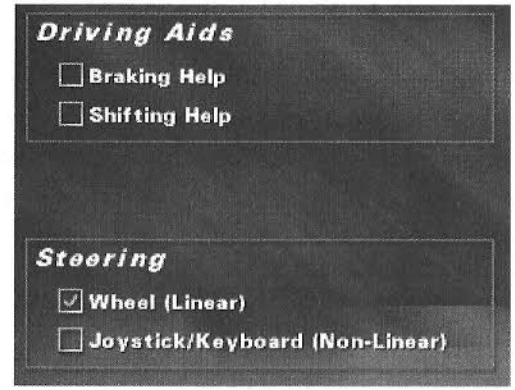
Step Five: Now that your controller is properly calibrated, you need to set each control. This is simply the process of telling NASCAR Racing 3 how you're going to control the stock car with your device: What keyboard keys/movements will shift gears, steer the front wheels, brake, etc. Beginning with the top control item, Steering, work your way down the list. Click to the right of the word Steering, and steer left first, then right. If you're using a wheel, this would mean you would turn your wheel left, then right. Joystick users would probably move the stick left, then right. Keyboard drivers (gulp!) would press a key to represent left steering, then choose a key to operate right steering.

Now, click on the next item, Acceleration. If you have a wheel/pedal set, step on the accelerator pedal to identify what you're going to use for a throttle. If you're using a joystick, press one of its buttons or push it forward (or make any other movement with it) to identify its movement as your accelerator. Planning to use the keyboard for your accelerator? No problem, just press the key you want to use as the accelerator.

NASCAR Racing 3

Continue down the list, item by item until you've told NASCAR Racing 3 how you want each control to work. Once you're finished, there's no need to do anything else- your selections will automatically be saved in a file, so next time you launch NASCAR Racing 3, your controls and preferences will still be set!

Now take a look at a few other items on the Controls Menu. **Braking Help** keeps you from driving too hard into the corners; as you approach each turn, the brakes will begin to engage on their own in order to prevent you from wiping out. With Braking Help turned on, your stopping distances will be much greater than those of a skilled driver who isn't using Braking Help.



Shifting Help allows you to decide whether you'll shift your own gears manually, or have the computer handle this task for you. With Shifting Help enabled, the computer will automatically upshift or downshift based on your rpms.

If you really want to be competitive at NASCAR Racing 3, you'll need to disable Braking and Shifting Help in due time. These aids are helpful for beginners, but can reduce your overall speeds.

How To Get NASCAR Racing 3 To Run Better On Your Computer

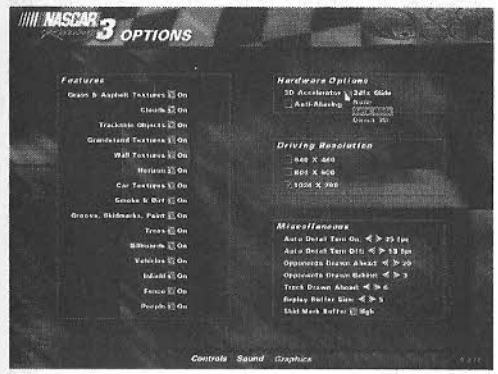
Framerate. Animation Speed. Smooth Graphics. No matter how you describe it, achieving optimal performance from your computer is essential in order to fully enjoy NASCAR Racing 3. You can't really capture the sensation of driving a stock car at over 190 mph if your computer is struggling to keep up the demands of its software.

So, the next few pages provide you with everything you need to know about running NASCAR Racing 3 with the best possible animation speed for your computer system.

Graphics Acceleration

Let's get right into it. The graphics in NASCAR Racing 3 are top notch, but without a graphics accelerator card in your computer, you may not be able to fully enjoy them. If you have one installed, enable it by choosing the appropriate accelerator on the Graphics Menu (choose Options from the Main Menu, then click on Graphics). "If I buy a Voodoo board or D3D card for my computer, will I see faster framerates?" This question is asked almost daily in computer

newsgroups on the Internet. The answer is, more than likely, yes. Accelerator boards have special memory set aside for the sole purpose of holding all of those pretty textures and graphics on your screen, so your basic video card and computer's motherboard aren't saddled with this chore. This leaves the computer free to process the all of the other things going on-sound effects playing back, files being opened, menu actions, and so on.

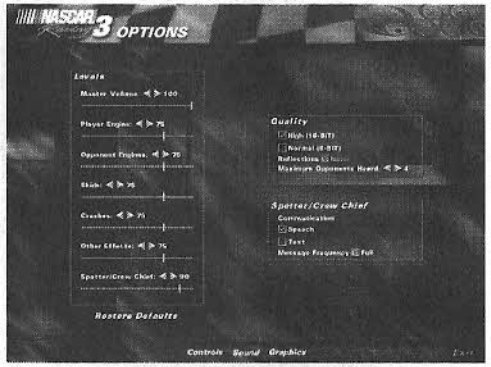


Go to the Controls Menu to set up your accelerator board. Under the Hardware Options area, choose the type of card you have installed, then restart NASCAR Racing 3. Now your accelerator board will be used, and its information will be saved in a file. You only need to do this the first time you set up your accelerator board.

"Will I notice a difference in graphic quality?" This question usually follows the first one, and the answer to it too, is yes. Definitely. These accelerator cards all bring new graphical features to the table, features you won't enjoy without a Voodoo or D3D board. Things like translucent smoke, anti-aliasing, and texture-smoothing are all handled by a high performance 3D accelerator board. They probably won't make your spreadsheets 'spread' any faster or prettier, but NASCAR Racing 3 and other entertainment titles will take full advantage of a 3D accelerator's horsepower.

3D Sound

NASCAR Racing 3 features three-dimensional, positional sound. If you have a 3D audio card that supports A3D 2.0, you can enjoy richer sound effects that include reflections (sounds that bounce off of other objects, such as how the noise of your engine would sound as it ricochets off of the wall next to the car). Without such an audio board, you may need to limit the number and quality of sounds that are playing back.



Use the Sound Menu (go to Options from the Main Menu, then click on the Sound button) to select the number of other cars you want to hear at any one time, and the overall quality of sounds. Remember, everything that the program has to do requires some computer power. If you're not enjoying fast, smooth animation, you may need to reduce the load on your system.

Framerate- How To Speed Things Up

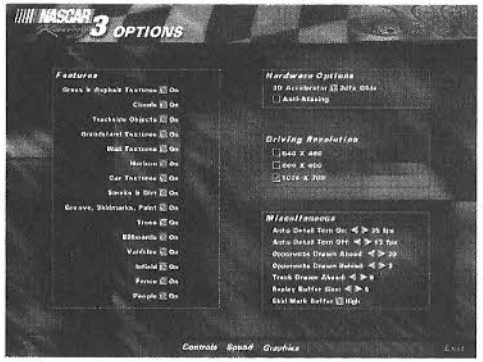
If your framerate is too slow when you play NASCAR Racing 3, here are some things to do to make sure you get the fastest possible animation speed:

1. Install a supported 3D graphics accelerator.

2. Install a supported 3D sound card.

3. Reduce sound quality, or number of sounds heard.

4. Reduce the graphic detail by turning off some texures. Start with the asphalt and crowd textures, they're the largest.



Use the Graphics Menu (from the Main Menu, click on Options, then Graphics) to turn off textures if your framerate isn't satisfactory. You can also set textures to 'Auto,' which gives the computer control over whether they show up or not. If the framerate gets too slow, they'll get turned off to compensate. If the framerate is running fine, they could be switched back on. The computer will constantly check textures that are set to Auto, and turn them on/off as necessary.

5. Reduce the number of cars drawn ahead or behind you. By only having ten cars drawn ahead, for example, you may get a faster framerate than you would if the computer had to draw twenty cars ahead of you (especially when all twenty cars are tightly spaced together ahead).

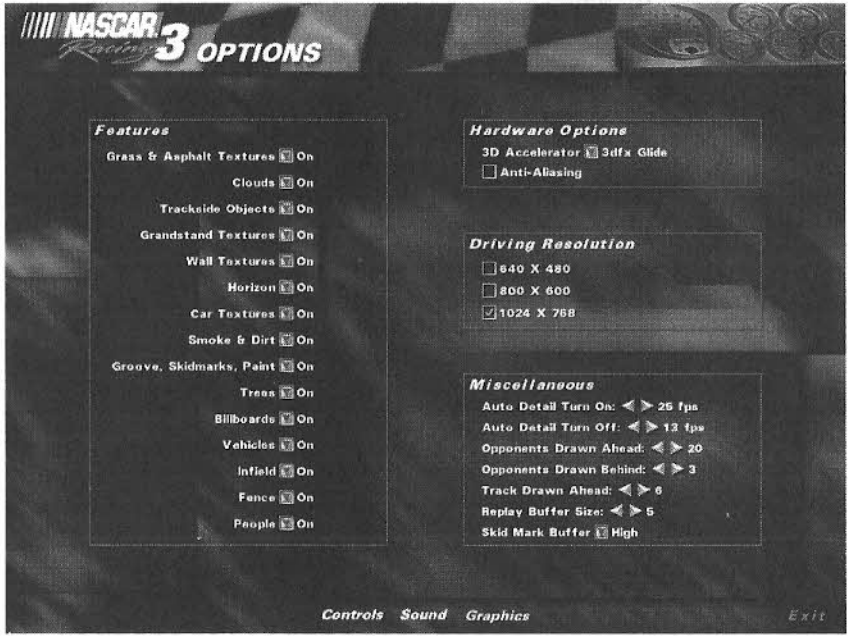
6. Reduce the screen resolution. Running in 1024 x 768 hi-res requires more strength from the computer than 640 x 480 does. If your system seems to still struggle, try lowering the resolution.

7. Reduce the 'Track Drawn Ahead' setting. **This will probably have the biggest single impact on framerate.** A value of 1 means that details on things like grandstands will not appear until you are very close to them. A higher value, such as 6 means that you'll see

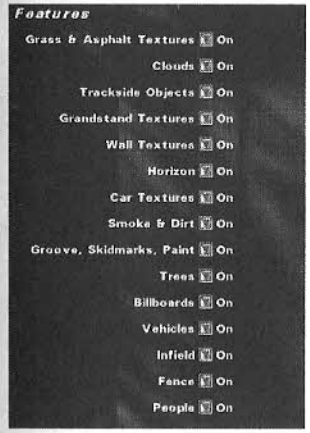
much finer detail even from great distances. Reducing this value can help a slower computer produce a better framerate.

8. Drop the Skid Mark Buffer to a lower setting. Skid marks that occur as you race are stored in a buffer (in other words, an area of memory set aside just for them). When this buffer fills up, the oldest skid marks are removed from memory as new ones are added. Using a smaller amount of memory for the skid mark buffer can help improve framerates, especially if you notice a slowdown in performance everytime you come across some skid marks on the track.

Choosing Graphics Options

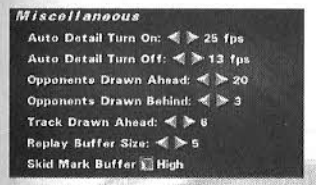


Using the Graphics Menu shown on the previous page (from the Main Menu, choose Options, then graphics) you can adjust the graphic detail to suit your liking. Turn some of the details off if your computer is struggling...but crank up the graphics if your computer can handle it!



There is a gold button beside each item shown. This button allows you to set each texture to On, Off or Auto. Setting a texture to 'On' will force it to be on *all the time*, while turning textures 'Off' will cause them to never appear. Use the Auto setting if you'd like to let the computer decide what it can handle.

Textures that are set to 'Auto' will disappear if the framerate gets too low, and they'll reappear if the framerate improves to a specific speed. You can decide the limits of when these textures turn on/off by adjusting the 'Auto Detail Turn On and Off' rates. In the picture below, the Auto Detail Turn On rate is set to 25 fps. The Turn Off rate is set to 13 fps. That means that if NASCAR Racing 3 begins to run slower than 13 frames-per-second, textures set to Auto will turn off in an effort to get the animation speed to improve. Using our sample screen settings shown here, once the animation speed (also known as framerate) gets back up to 25 frames-per-second, textures set to Auto will reappear.

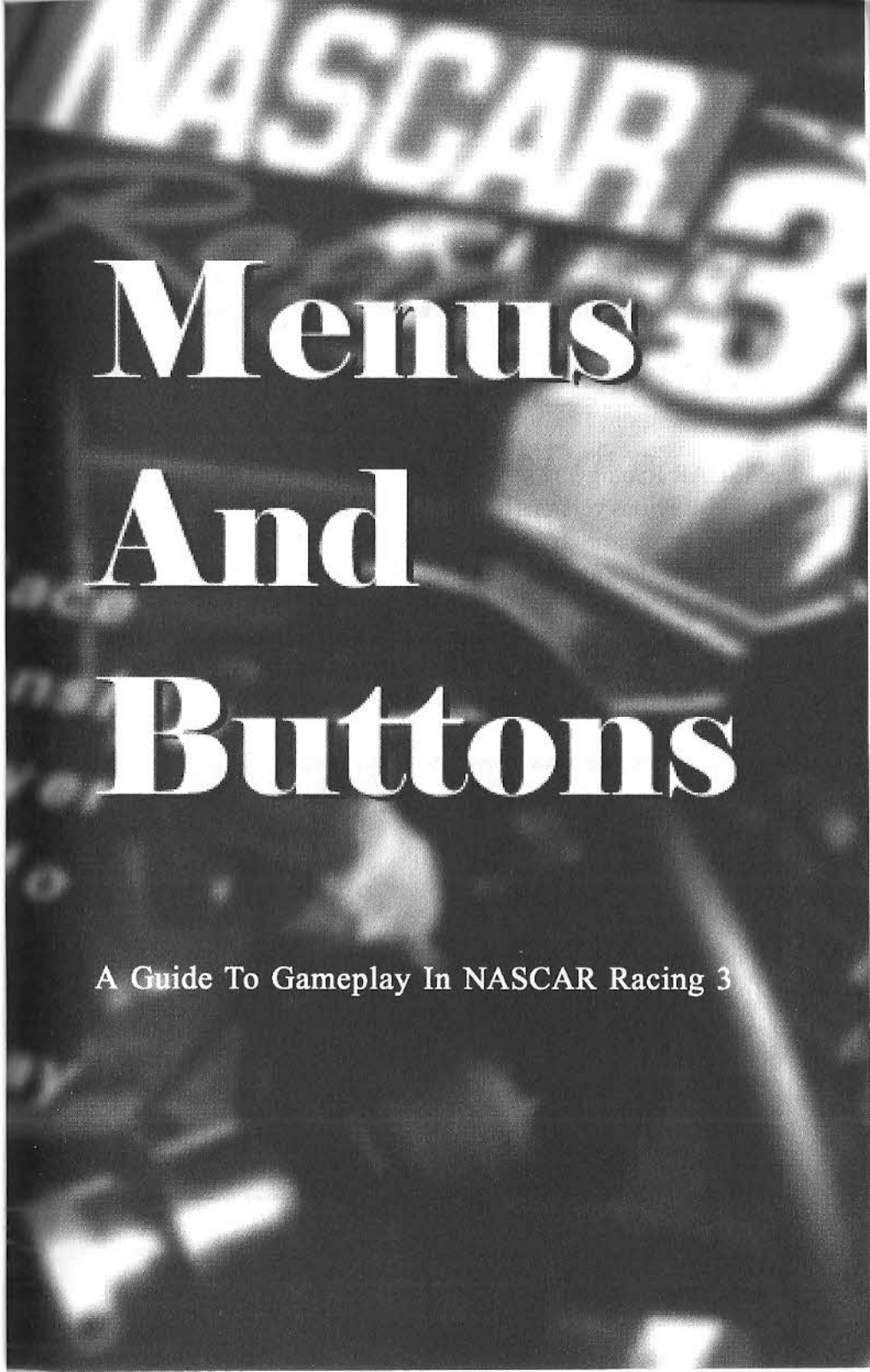


Keyboard Shortcuts For Graphics

You can also turn textures on or off using quick keystrokes as you drive. The keyboard keys for each graphic texture are shown below:

1	Grass, Asphalt, Concrete	on/off
2	Clouds	on/off
3	Trackside Objects	on/off/none
4	Grandstands	on/off
5	Walls	on/off
6	Horizon	on/off
7	Car Textures	on/off
8	Smoke/Dirt	on/off
9	Skid Marks/Racing Groove/Lines	on/off
0	Trees/Poles/Light Towers/Scaffolds	on/off
Ctrl B	Trackside Billboards	on/off/none
Ctrl T	Trackside Vehicles (campers, haulers)	on/off/none
Ctrl I	Infield	on/off
Ctrl F	Fencing	on/off
Ctrl P	People	on/off

Each key or key combination listed above 'cycles' through. For instance, if you press the '3' key on your keyboard, the features on certain trackside objects will disappear. Press '3' again, and the entire objects will disappear. Press '3' a third time and the objects and textures will return. You can keep repeatedly pressing the keys above to turn textures and objects on or off to your liking. Certain gameplay elements, such as the animated flagman, brake markers and blinking trackside caution lights may not be turned off.

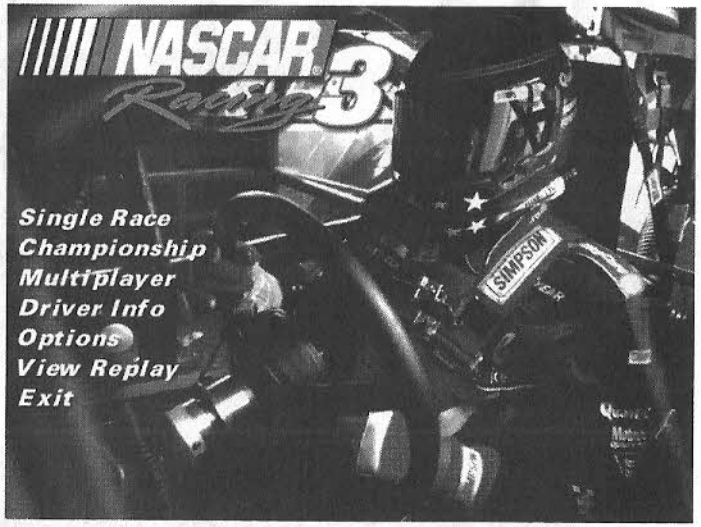


Menus And Buttons

A Guide To Gameplay In NASCAR Racing 3

Menus: How NASCAR Racing 3 Works

NASCAR Racing 3 features an easy-to-use Main Menu. If you've owned previous versions of Papyrus Racing simulations, this screen will be very familiar to you. If this is your first Papyrus Racing simulation, don't sweat it- the Main Menu is very basic and allows you complete access to all of the features such as gameplay options and types of races. We'll cover them all in this section, starting with the most important feature of them all: driving a stock car! Turn the page to take your first test drive of NASCAR Racing 3...



Simple Navigation

Each time you press the ESCape key you back up to the previous menu. You can always return to the Main Menu by continuously pressing ESC, backing up one screen at a time.

When driving, press the Pause key on your keyboard to freeze the action. Press the Pause key again to resume driving.

Taking Your First Test Drive

There are several styles of racing in NASCAR Racing 3, and you can customize each one in a myriad of ways. You can select which style of racing you'd like to do by clicking on one of the first three items found on the Main Menu: Single Race, Championship, or Multiplayer.

Single Races allow you to test your mettle against computer-controlled cars that represent real NASCAR drivers, such as Dale Earnhardt and Jeff Gordon. Click on Single Race, pick a track, choose your race settings and prepare to qualify!

By clicking on Championship, you can experience an entire season's worth of NASCAR racing- from Rockingham to Homestead. In your quest for the coveted NASCAR Championship, you'll need to drive skillfully on each type of track as you accrue vital points according to each finish.

When you choose Multiplayer, NASCAR Racing 3 takes on a whole new dimension- that of battling it out with fellow human drivers around the world using the Internet, or with friends on your own home LAN (Local Area Network).

To drive, click on the Single Race button...

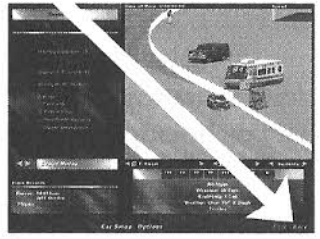
Choose a track and adjust the race settings...

Click on the Testing Session or Go To Track buttons found in the lower right corner...

Let's do some driving! For this example, we'll start at the Main Menu and click on Single Race, then choose Michigan Speedway. You can select tracks easily in NASCAR Racing 3 by clicking on the left/right arrows in the upper left hand corner of the screen. These arrow buttons allow you to cycle through all of the tracks in alphabetical order. You can also click on the drop-down button next to the track name to open an alphabetic list of all of the tracks. This feature lets you instantly select the track of your choice, without having to scroll through the tracks one at a time.

Got Michigan selected yet? Good! One last order of business before we take to the track: look at the race settings, near the middle of your screen to make sure that Damage is turned off. This will allow you to get out there and bang the car around some without worrying about who's going to have to fix it!

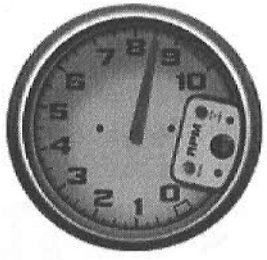
Now we're ready to roll. Click on the Testing Session button located in the bottom left area of the screen. Bang! We're now at Michigan Speedway, a wide, two-mile surface that provides a perfect training ground...plenty of room, with some high speed thrown in. Your car is now sitting on pit road, its engine running and in first gear (there is no neutral gear in this simulation). Click on the Race button found in the lower right corner of the screen- now you should be actually inside your stock car. If you see an external view of your car instead, press the F10 key until the view switches inside the car.



Click on the Race button located in the lower right corner to take your car out onto the track..

A Quick Word About Gears

In this simulation, you have the choice of letting the computer shift for you or handling the duties of changing gears yourself. It is strongly recommended that you perform your own gear shifting, rather than leave it up to the computer. You will discover that your laps will be smoother, faster and more consistent overall if you shift gears manually.

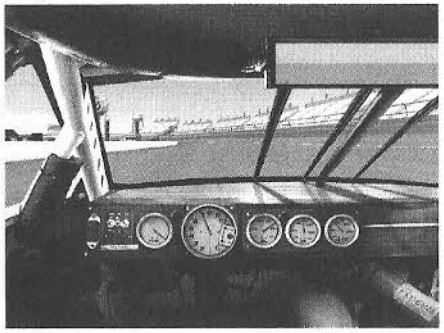


If you're going to handle your own gears (highly recommended), you'll need to know when to shift. When the tachometer needle reaches between 8-9,000 rpms, it's time to shift up.

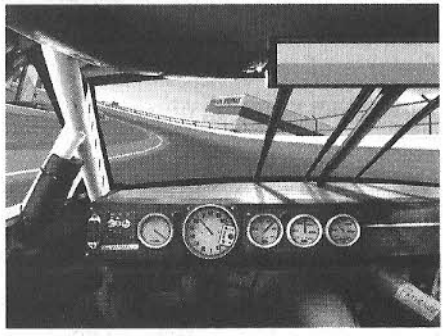
Once you reach fourth gear, you may find that most tracks demand no other shifting at all- you can keep the transmission in fourth gear lap after lap. Road courses generally do require some shifting to accomodate the

various corners, but the bulk of the tracks can be driven while remaining in fourth gear. For the sake of this demonstration, it really doesn't matter which method of shifting you've selected- once the car reaches top gear, keep it there.

Check your rearview mirror, gradually apply some throttle and steer the car to the far-right of pit road. Give the car too much throttle and the rear wheels will spin; the car will fishtail uncontrollably as you fight to regain control. Remember, there's no hurry here- this is practice. Be smooth, take your time and drive a steady line.



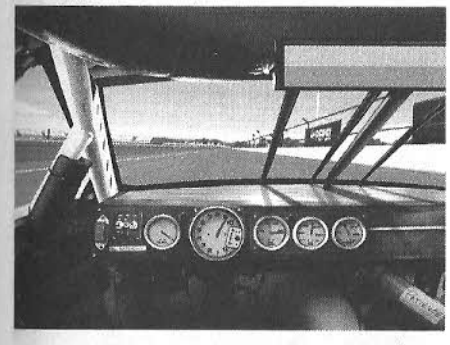
As the car moves down the pit lane, keep the throttle at somewhere near the 7,500 rpm mark on the tachometer. This serves two purposes: First, the car will not jerk out of control when it rides up onto the steep banking at the pit exit, and second, each track has a specific pit road speed limit that is strictly enforced during races (this is a real-life rule which cannot be disabled within NASCAR Racing 3, so you might as well establish the habit now of obeying pit road speed limits).



As you exit pit road, gently blend the car up onto the banking and begin to

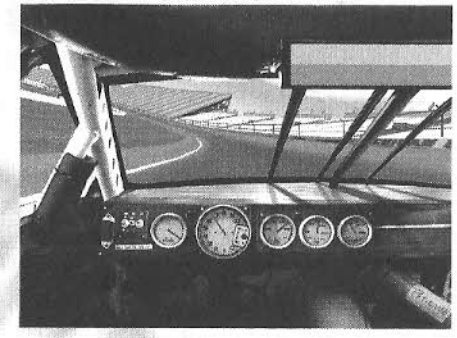
accelerate. If you're already set up to shift your own gears, remember to shift up at somewhere between 8-9,000 rpms on the tachometer. If you're letting the computer shift for you initially, don't worry about the tranny- you'll notice the gears automatically being shifted whenever appropriate.

Maintain a safe enough speed to stay in control as you round Turn Two. If you hear the sound of rubber squealing, you're going too fast (Remember, your tires are still cold. Tires grip much better as they get warmer).



When you reach the back straightaway, give the car as much gas as you want. It's a wide track, so there should be plenty of room for the other cars to get around you- just let them. You're not racing yet, the purpose of these laps is to give you a feel for the car, the track and its surroundings.

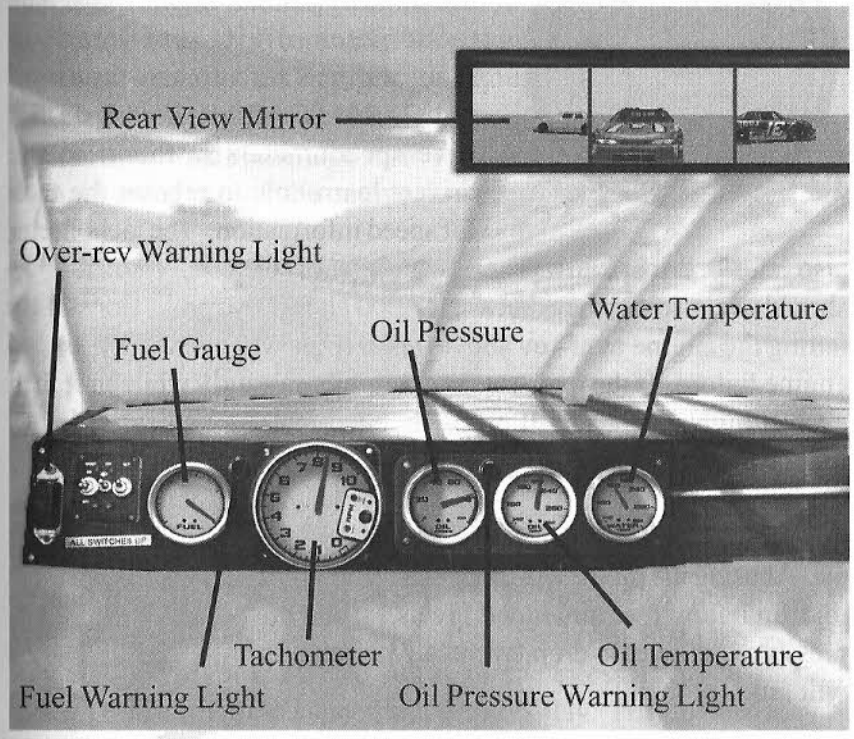
At the end of the straightaway you'll need to lift off the accelerator and apply some moderate braking. Try to get the rpms down to around 7,000 in fourth gear. Let the car coast around the turn and only re-apply the throttle when you see the entrance to the pit lane



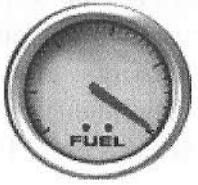
begin to appear into view at Turn Four's exit. Once you cross the start/finish line, repeat the process- lift and brake into Turn One, accelerate off of Two and settle in. Run some more laps, get comfortable and then we'll introduce some keyboard controls you can use while driving the car. See you back in the pits!

In-Car Displays And Controls

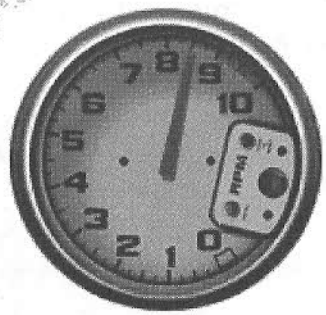
Now that you've got a few laps under your belt, let's cover the basics about the cockpit of your stock car, from its instrumentation to the in-car radio. We'll start with the dashboard itself:



Fuel Gauge: The needle on this gauge indicates how much fuel your car has remaining. When the needle points all the way to the right (about 4 o'clock) the tank is completely filled (22 U.S. gallons). The Fuel Warning Light will begin



blinking when there are about three gallons of fuel left in the tank. Your spotter will try to help remind you of low fuel, and how many laps you've got left before the tank runs dry.



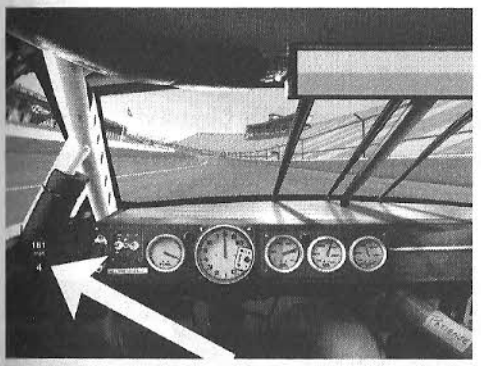
Tachometer: The largest, most important instrument on the dash. This dial indicates current engine rpms. The tachometer digits are read in thousandths (zero to ten-thousand rpms). NASCAR stock cars do not have speedometers in them, so the drivers learn how to rely on the tach for speed information. The tachometer also lets the driver know when to shift gears. Generally, shifting up should occur somewhere between 7,000 and 9,000 rpms. Constantly letting the engine over-rev above 9,000 rpms will eventually lead to engine failure. If the over-rev light blinks constantly while in fourth gear at high speed, you'll probably need to readjust gear ratios to reduce the stress on the engine.

Oil Pressure: Normal operating pressure is 80 psi. Abusing the motor will cause the oil pressure to drop below recommended levels. If the oil pressure continues to drop, eventually the engine will fail.

Oil Temperature: This gauge shows you the current temperature of the engine oil. Normal readings are in the 200 degree range (Fahrenheit), as indicated in the picture on the previous page. If the engine undergoes too much

stress, eventually the oil in the motor will become too hot. You'll have to slow down or readjust gear ratios to compensate.

Water Temperature: Normal water temperature readings are in the 175-200 degree range (Fahrenheit). Water temperature can rise when the engine suffers abuse, or if too much grille tape is used. Eventually, the engine may overheat because it's not getting enough air flowing through the grille to keep it cool. Have the crew remove some tape from the car's grille during the next pit stop, in order to cool the engine down.

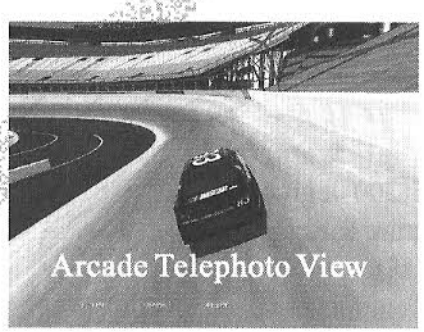


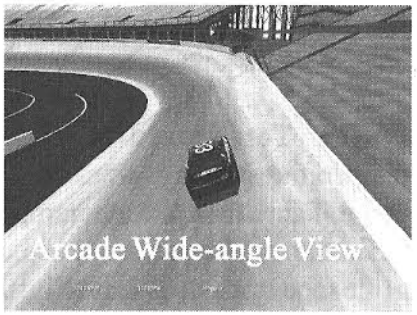
Speed And Gear Indicator

S

You can toggle a display on or off that shows your current speed and gear (as indicated by the arrow to the left). Just press the 'S' key on your keyboard while you're on the track. Press 'S' again if you want to turn off the speed and gear display. This feature may be especially useful as you attempt to drive into or out of the pits. After all, you don't want to be caught speeding on pit road, and this'll help you keep an eye on that speed!

You'll find the speed and gear indicator also useful during practice sessions, when you need to know how fast you're cornering.

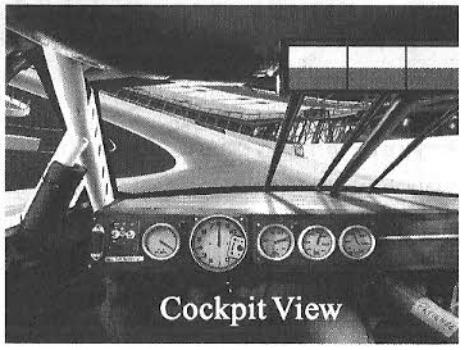

Arcade Telephoto View


Arcade Wide-angle View

Arcade Driving Views

F10

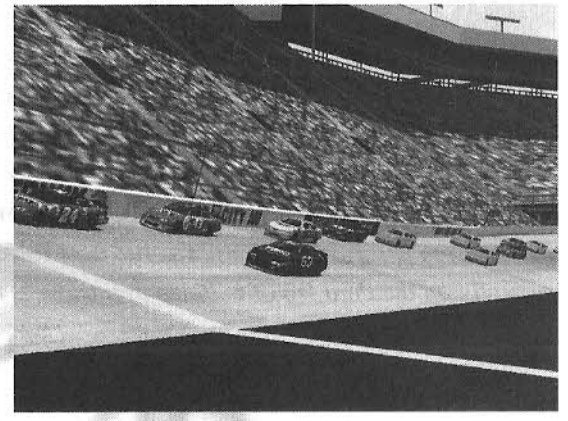
Press the F10 key while on the track to switch views of your car. There are three available to use while driving: Cockpit, Arcade Telephoto, and Arcade Wide-angle. Each press of the F10 key cycles through these views, so it's simple to return to the view of your choice as you drive. Be advised that when you use an external arcade view of the car, some of the information available in the cockpit is superimposed near the bottom of the screen. Some secondary information, such as water temperature, is not available when using an external view.


Cockpit View

The In-Car Radio

Your car is equipped with an in-car radio. This radio is accessed by pressing the appropriate function key to carry out specific tasks. While the last four functions relate to pit stops and the overall "well-being" of the car, the first four provide you with timely information about the race, your position and gas/rubber consumption- good stuff to know if you plan on winning any races. Of these first four radio items, the first two in particular stand out: Pit Board and Current Standings. More than likely, you'll view one of these two displays constantly as you drive.

The next few pages of this section give you an overview of each of these features, as well as the keystrokes required to carry out each task. In addition, you'll probably need to read the garage chapter in this manual to find out more about the various changes you can have the pit crew make to your car, such as tire pressure and cross weight adjustments.



Lap Information

F1

While in the cockpit, you can view the pit board by simply pressing the F1 key. Press the F1 key once to display the pit board; view it as long as you'd like. Press the F1 key a second time to remove the pit board from your screen. The pit board is a common item to have constantly displayed, because it contains the number of laps completed/remaining as well as the speed of your previous lap.

In the example above, car #5 is one second ahead. Our last lap was just over 159 mph, and car #122 is 1.4 seconds behind us. We're currently on the third lap of a 36-lap event.

You can choose to have the pit board show you the speed of the previous lap in either ***time*** or ***mph***. From the Main Menu, choose Options, then click on the tab labeled Controls. The Controls Menu is the same screen you used earlier to configure your control device. On the Controls Menu, notice the area labeled 'Lap Reporting Format.' Choose either Speed or Time here.

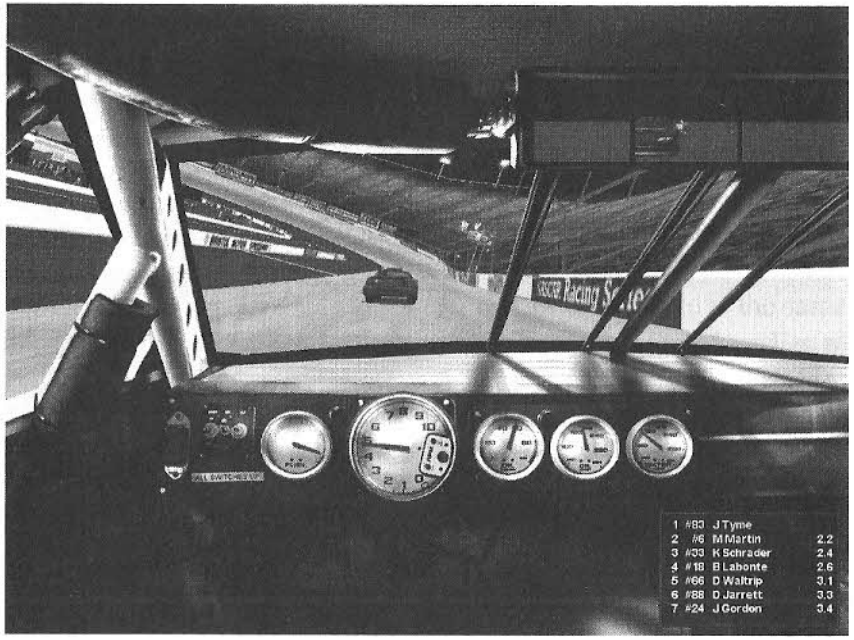
Your Crew Chief will also call out lap times to you as your car crosses the start/finish line, if you wish. To enable this option, press the "O" key (the letter O, not the number zero). As you cross the stripe, the Crew Chief will give you the time (in minutes and seconds) of the lap. To have the Crew Chief cease calling out lap times, press the "O" key again. Toggle this feature on and off at your preference. Most drivers will find it useful to have the Crew Chief call out times while using the pit board display to show speeds- this offers the best of both worlds.

O

Current Standings

F2

By pressing the F2 key, you can display the current race standings which are constantly updated. Press F2 a second time to toggle the current standings off. Each time you press F2 and enable the current standings display, you'll notice that your name is highlighted in yellow.



By default, the standings display only gets updated once per lap, as each car crosses the start/finish line. You can, however, have the standings display update constantly, on the fly if you wish. While viewing the standings display, press the Enter key once. Now you'll notice that each interval is dynamic, rapidly updating. Something else has changed as well- car positions are no longer based on running order (1st place, 2nd place, etc.) but rather on track position. The car directly ahead of you will now be shown above your name along with the time interval between it and your car. It doesn't matter whether that car is ahead of you in position or not, the standings display has been toggled to show location instead. Think of it this way- there are two ways to view the standings display, by *position* or *location.*

The Enter key toggles the standings between 'live updates' and 'once per lap updates.'

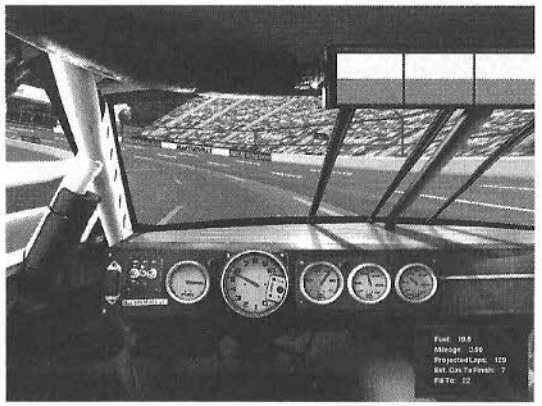
The Greater Than and Less Than key allow you to scroll up or down through the standings, so you'll know who's where.

You can use the greater than and less than keys (< >) to scroll up and down the standings list as you drive (just don't try it while running three-wide in a corner). These keys will scroll the display up/down for you, regardless of which mode you're viewing (position or location). Remember, if you scroll too far away from your own name while driving there's an easy way to retrieve it: simply press F2 to remove the standings display, then press F2 once again to turn it back on. Your name will now appear on the screen, still highlighted.

Fuel Economy

F3

What kind of gas mileage are you getting? Will you be able to finish the race on the gas remaining in your car's tank, or do you need to make a quick stop on pit road for a splash of fuel? By pressing the F3 key, you can get immediate answers to these questions.



Although the fuel display gives you the current miles-per-gallon and fuel remaining in the tank, the critical value here is the number of estimated laps remaining before you run out of gas. In general, experienced sim drivers will periodically flip to this display (usually when pit strategies start to unfold), view it briefly, then press F1 or F2 again to display pit board or current standings info.

A Word On Fueling

Official NASCAR rules mandate that your car must be completely

"topped off" with fluids during qualifying. So, you won't be able to reduce the amount of fuel in the tank in an effort to lighten the car *before Qualifying or Racing*. However, you can pit during races and specify the amount of fuel you'd like added, though it's not necessary. Each time you pit the crew will automatically fill the tank completely, unless there aren't enough laps remaining in the race to require a full tank. In the waning moments of a race, your Crew Chief will calculate the amount of fuel needed to complete the race and fill your tank accordingly. This saves you the hassle of having to try this feat yourself-you've already got enough to think about at 190 mph! However, if you'd like to specify the amount yourself, use the Greater Than/Less Than keys (< >) to set the desired fuel level.

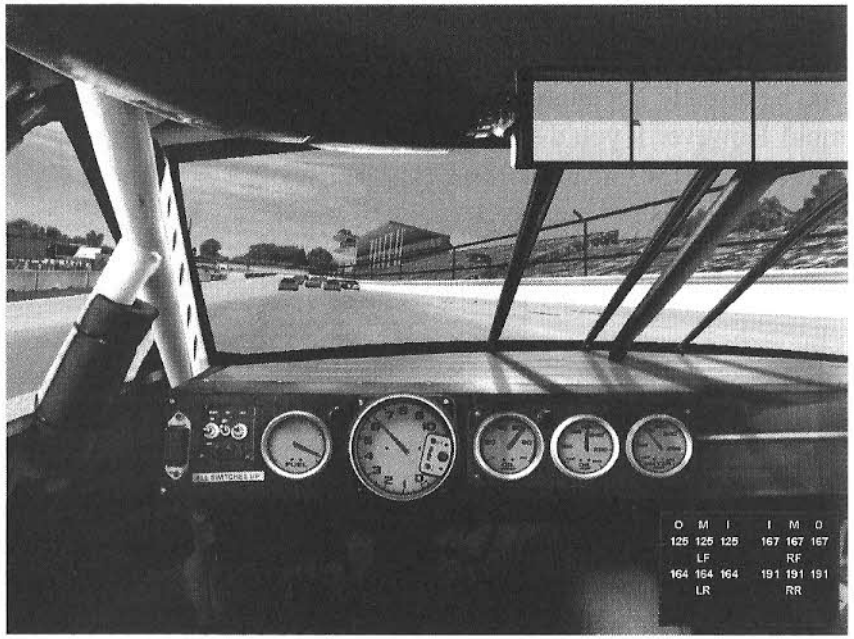
< >

Use the Greater Than or Less Than key to adjust the amount of fuel you want added to the car during your next pit stop.

Tire Temperatures

F4

It's often been said that "Tires mean everything when you're racing." Well the fact is, truer words were never spoken. Protect that rubber, baby those tires and make them your friend. Tires don't need hugs, they don't need kisses, they just need to be used at optimum



temperatures. To find out how much compassion or abuse you're putting your tires through, press the F4 key as you drive.

The temperatures of your tires are always changing as you drive. With the F4 tire temp display enabled, you can watch these changes as they occur. The display shows you a "top down" diagram of your tires. Outer temperatures face the outsides of the display, inner temps are shown on the inside of the display. Your left front tire is shown in the upper left corner, the right rear tire in the lower right corner, and so on. Each tire has three separate temperatures- the temperature of its outer edge, the tire's middle, and its inner edge.

Check your tire temps in testing, practice and warmup sessions. White numbers mean that a particular tire's temperature is within optimum ranges, or possibly too cold. Yellow numbers indicate that the temperature is slightly above ideal. Red numbers tell you that the tire is getting too much heat and will not offer maximum road wear.

Tire Wear/Changes

F5

The first four function keys mentioned in this section relate to data, that is, information about your car's health and its position. The next few function keys, F5-F9 allow you to communicate with your pit crew and specify changes to the car. This is akin to "radioing ahead" before you pit, so that you can focus on the race and let the crew worry about the car. The first of these, the F5 key, is what you'll use to tell the crew what tire changes (if any) you'd like them to make during your next pit stop. This display also shows you, in bar graph form, the amount of tire life remaining at a given moment.

Turn on the F5 display. Like the F4 tire temp display, the diagram represents a "top down" view of the car- left front tire in the upper left corner, left rear in the lower rear corner, etc. The number inside each rectangle indicates individual pressures of each tire. See that green bar above each rectangle? That's your tire wear indicator. Each new tire starts out with a full green bar; as the green bar gets shorter, rubber is wearing away. When the tire loses a significant portion of its grip, the bar will change from green to yellow. Eventually, the yellow bar will become so short that it changes color again, this time to red. Once a tire reaches this point (red) it must be replaced very soon. Let the bar expire completely, and so does that tire.

Jack 'Em Up

To select tire changes, turn on the F5 display. By default, all four tires will be selected for changing. That means that if you never specify changes using the radio function keys, you'll always get all four tires changed when you pit. To tell your crew to only replace

In the example above, both front tires are worn; the right front tire is starting to run dangerously low on rubber. Since all four tires have a check mark next to them, they'll all get changed by the crew. Use the Enter key to specify left or right side tire changes only. Use the Spacebar to highlight individual tires in order to change pressure. In our shot here, if you'd like to raise the right front pressure to 53 psi during the next pit stop, press the Spacebar repeatedly until the right front tire is highlighted in yellow. Then use the Greater Than/Less Than (< >) keys to adjust the pressure itself.

Selects tires to be changed. The Enter key acts as a toggle to add or remove check marks, indicating which tires will be changed.

the left or right sides, use the Enter key to select the tires you want changed. Notice how the "check marks" next to each tire toggle on/off as you hit the Enter key. Here's the pattern it follows: all tires are selected for changing. Press Enter once to order the crew not to change any tires. Press Enter once more to only turn check marks on for the left side tires. This indicates that only the left sides will be replaced. Press Enter once more to have just the right side tires selected for replacement. Finally, press Enter again to tell the crew to replace all four tires after all. You can endlessly toggle through these choices until you've got it right. Eventually, you'll be able to perform this quickly and easily.

Selects which tire to change pressure of.

Pressure Points

By now you may have noticed that the F5 display also shows you the current tire pressure settings for each wheel. To have your crew change tire pressures during the next pit stop, use the spacebar to select a tire. Each press of the spacebar highlights a different tire in yellow. You can then set the pressure of whichever tire is highlighted by using the greater than and less than keys (< >) to raise or lower the pressure. For example, press the spacebar until the left front tire is highlighted in yellow. Now use the greater than/less than keys to adjust the left front pressure to 46 psi. Your crew will put 46 psi in the left front tire during your next pit stop.

Raise and lower pressure in the selected tire. The newly selected pressure will be adjusted by the crew during your next stop.

Wedge (Cross Weight)

With the F6 key, you can call ahead for changes in the cross weight of your chassis. This is a quick adjustment that can easily be made by your crew in the pits. Press the F6 key to display the Wedge window. In it, you'll see the current setting of your car's cross weight, as well as an "adjust to xx" value. Using the greater than or less than key, move the cross weight to the new value you'd like for it to be. During your next pit stop, the crew will make the change accordingly.

Use the Greater Than or Less Than key to change the amount of cross weight you want adjusted during the next pit stop.

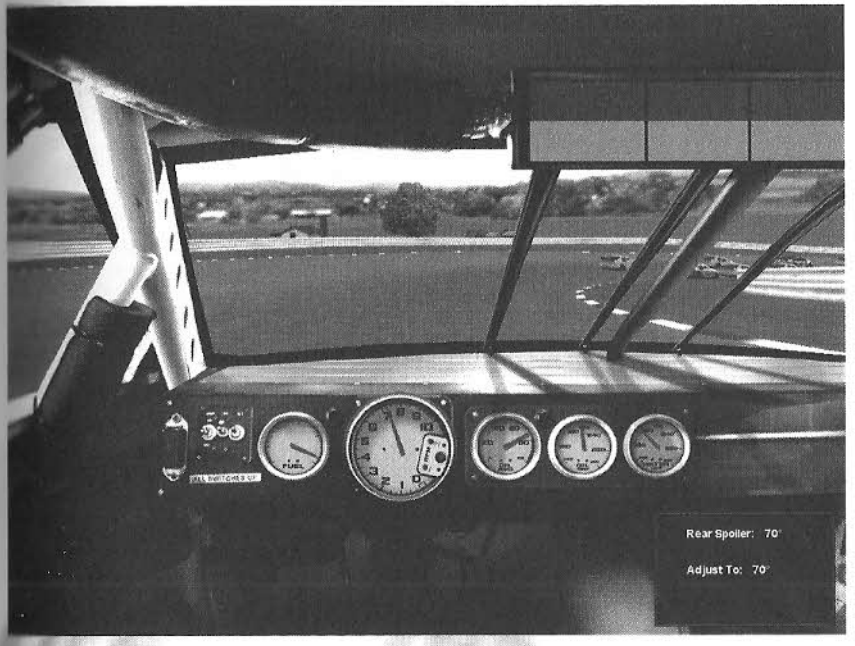
Lets talk about cross weight (also known as wedge) from a strategical standpoint for a moment. Notice that cross weight is adjustable in five-pound increments only. Each five-pounds represents a "round-" that is, a complete revolution of the wrench used to make the adjustment. When you hear a person say, "We took two rounds of wedge out," that means they turned the wrench two full revolutions to reduce the amount of cross weight.

Subtle cross weight adjustments can have a dramatic affect on how fast your car turns laps. Try to avoid the temptation of having the pit crew add or remove cross weight in huge chunks; stick with small changes instead.

When should you have the crew adjust cross weight? If the car definitely feels too tight (car doesn't turn sharp enough), you may want to take five or ten pounds out during the next pit stop. If it's too loose (back end fishtails as rear wheels spin excessively) put some cross weight in. Also, if you only get the right side tires changed in the pits, you may want to add some cross weight to compensate for having worn left side tires.

Spoiler

Use your radio to call ahead for changes to the rear spoiler by pressing the F7 key. Like some of the other function keys, the F7 spoiler adjustment key works in conjunction with the greater than/less than keys. Press the F7 key to pop up the spoiler adjustment window; you'll notice that the current spoiler setting is displayed, as well as an "adjust to xx" value (just like the cross weight window).



The Greater Than and Less Than keys allow you to set a new angle for the spoiler. The new setting will be implemented by your pit crew during your next stop.

Use the greater than/less than keys (< >) to change the spoiler value, in one-degree increments. Once you've got it set, the crew will carry out the spoiler adjustment during your next pit stop.

Keep in mind that spoiler adjustments may have an affect on both your tire wear and engine performance. Take a look at the garage section for more information on how the spoiler setting affects your car's performance, and remember: stick to smaller, subtle adjustments, don't go overboard.

Grille Tape

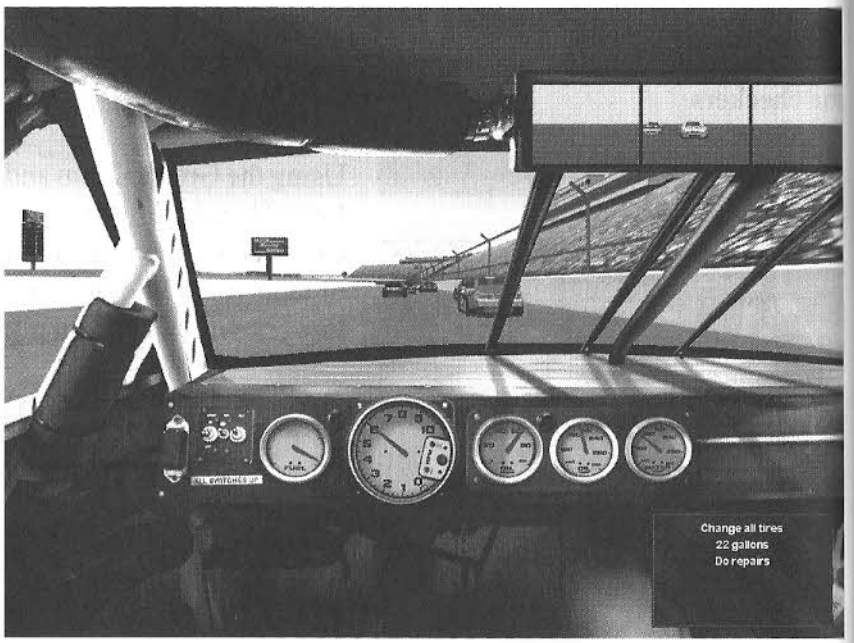
By pressing F8, you can display the Grille Tape window, which allows you to radio ahead any changes you'd like the crew to make concerning the amount of tape on the nose of your car. If your water temperature is getting too hot, remove some tape during the next pit stop. During the final laps of a race, you may elect to add some grille tape to try to achieve extra downforce during the stretch run to the checkers.

Using the Greater Than and Less Than keys (< >), you can specify a new amount of tape you'd like the crew to work with when you pit.

Status/Damage

F9

Use the F9 key to display all of the changes that are going to be made during the next pit stop. This makes it easy to confirm all of



the adjustments you want done, before you start heading for pit road. If you have spotter audio set to full speech (from the options menu/ sound setttings but we'll explain this a bit later) you'll hear your Crew Chief confirm your changes.

Use the Enter key to instruct the crew to repair or avoid repairing any damage. They will automatically attempt to repair damage during your next pit stop, unless you press the Enter key, which tells them not to. This key acts as a toggle, repeatedly cycling repairs on/ off.

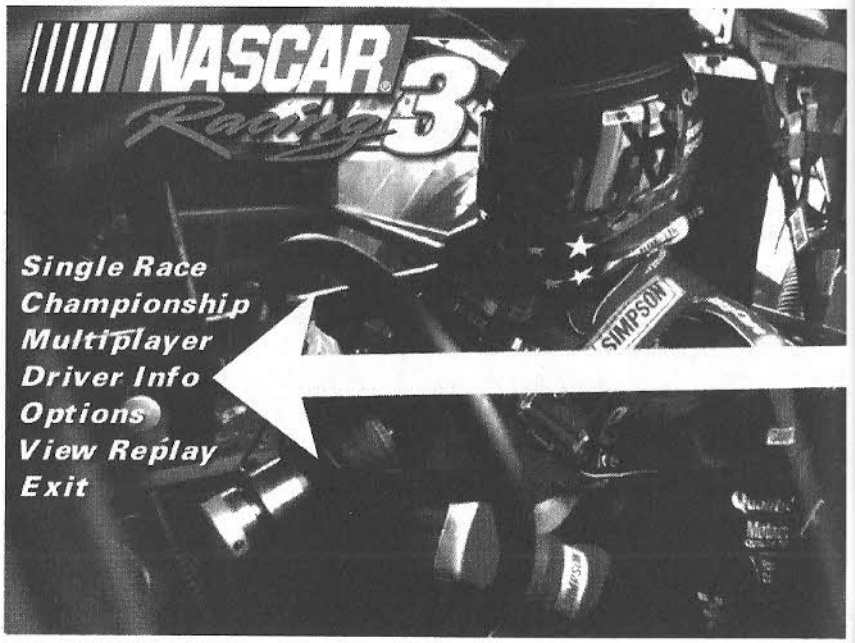
With the F9 status window displayed, you can also see whether your car is damaged, and decide if you want the crew to repair it or not. Repairs generally consume precious time on pit road- time you can't always afford to spend. Under a yellow flag it may be wise to get some or all of the damage fixed, but getting repairs during a green flag stretch may cost you too much time to be able to remain competitive. Press the Enter key to toggle repairs on or off. By default, the repairs will automatically be enabled when you incur damage. Press Enter to prevent repairs. If you change your mind, you can always press Enter again to reinstate repairs.

Sometimes, when you're in the pits getting the car fixed you might find it necessary to halt repairs and get back on the track quickly. In these instances, have the F9 display toggled on and just press the Enter key. The crew will stop working on the car as soon as possible, drop the jack and let you return to the action.

Personalizing NASCAR Racing 3

Now that we've spent some time covering the basic controls and features of the *inside* of your car, let's talk about the *outside*. There are several ways to put your own stamp on NASCAR Racing 3 (all wrecks aside). You can type your name and biographical information in and save it. That way, your own name (or nickname) will appear in the race standings and results, instead the generic "The Player" moniker. You can also use the NASCAR Racing 3 Paint Shop (included) to put your own graphical touches on your car, but we'll cover the details of that later.

For now, get to the Main Menu and click on the Driver Info button.

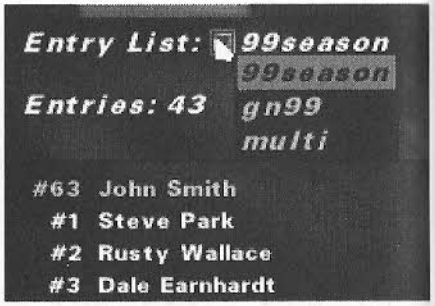


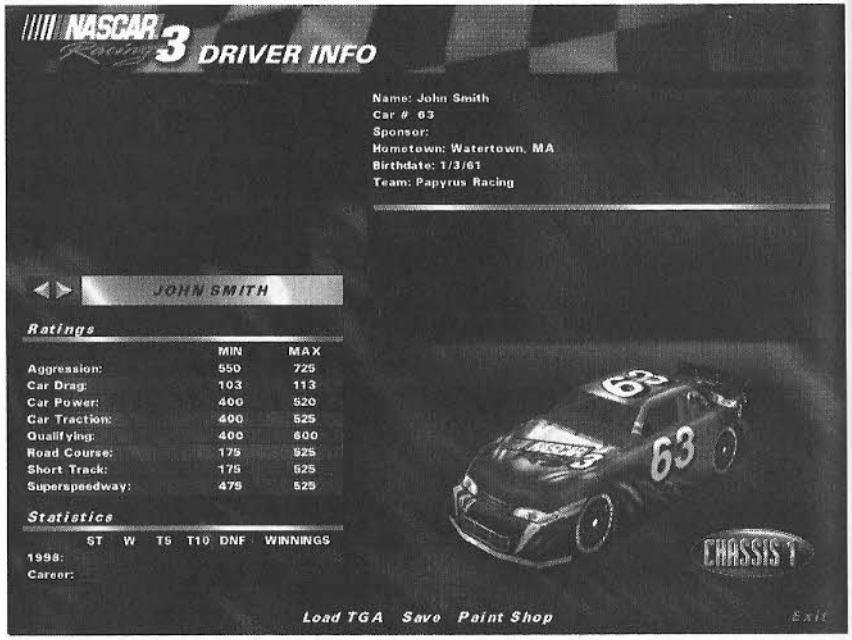
With the Driver Info Menu, you have the ability to create and manage your own lists of drivers. On the right of this screen, you'll see the current driver's list. These are the foes you'd race against if you went directly to the track. But since you're here, let's take a quick look at how we can shuffle these drivers to suit our own liking.

On the left side of the screen above, you'll see the remaining drivers who's cars exist on the system; these drivers simply aren't a part of the current list. To add a driver to your current list, click to highlight the driver you want to add from the left side of the screen, click on the arrow that points toward the right (located in the center of your Driver Info screen), and now the driver you wanted in your list is there. Remove unwanted drivers from the existing list in the same fashion. Click on the driver's name on the right side (in the current list) and then click the arrow that's pointing toward the left; this action will send the driver back to the bench. Save your changes when finished by clicking on the 'Save' button, found at the bottom of the screen.

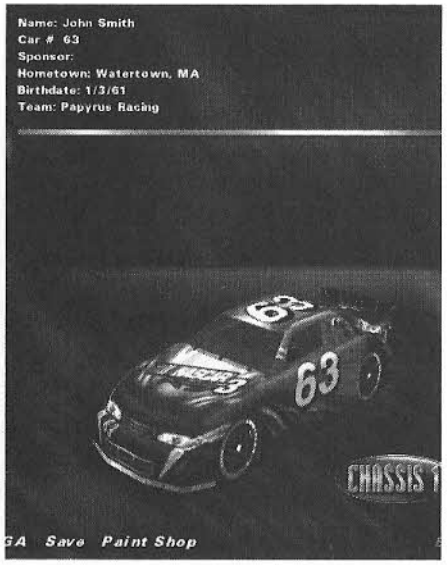
If you'd like to create a fresh list from scratch, no problem. Click on the 'New List' button along the bottom of the Driver Info screen; now you'll have a blank sheet to start filling up with your favorite drivers.

Recall existing lists by using the drop-down button on the Driver Info Menu. You'll be racing with the list of drivers you recall here, so get started! Build a list of your favorite NASCAR Winston Cup and NASCAR Busch Series, Grand National Division pros, or create your own local drivers from scratch!





When you click on the Player Info button at the bottom of the Driver Info Menu, you'll see the car you're driving, along with other appropriate information.



Type new information in just by clicking on the existing data that's there. For instance, click on the name 'John Smith' and type 'Rusty Pipe' instead (or whatever name you plan to race under). Change the car number (this only affects the number shown in standings, we'll paint new numbers on the car itself later) by typing a new number in. Change the chassis type of the car by clicking on the 'Chassis 1' button (located just to the lower-right of the car on the screen shown). There are three different chassis makes that you can use in NASCAR Racing 3. While all are equally matched, each one has its own inherent handling characteristics.

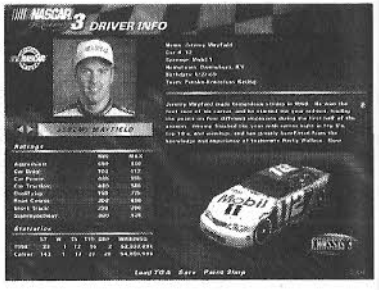
At the bottom of this screen, you'll notice a button labeled 'Paint Shop.' Click on this button to repaint the car with your favorite sponsor- Spinner Rotors, Ichabod's Ice Tea, Uncle Jesse's Wax, or whatever corporate image you'd like to flaunt as your sponsor. At the end of this chapter, you'll find more detailed information about how the NASCAR Racing 3 Paint Shop works.

Remember how you clicked on Player Info to open the screen that contained your name, stats and car? You can also highlight any other driver listed, and click Driver Info instead. By doing so, you

can open up any driver's info and car in order to edit, repaint or just study the competition. Keep your car sets updated by changing the stats and painting the most current sponsors and schemes on them.

See the chart of numbers in the screen above? These values represent each driver's strengths and weaknesses. They may be edited as well. Your favorite driver not keeping up with you out there on the track? Pump up that driver's ratings. You may want to make notes of where the numbers were before you changed them, in case you don't like the new values once you've used them in a race.

Use the gold left/right arrows shown next to the driver's name (in the example above, John Smith) to cycle through your list of drivers. That way you can easily move through the entire list, editing to your liking without having to leave this screen and come back to it each time you select another driver to edit.



Customizing Your Races

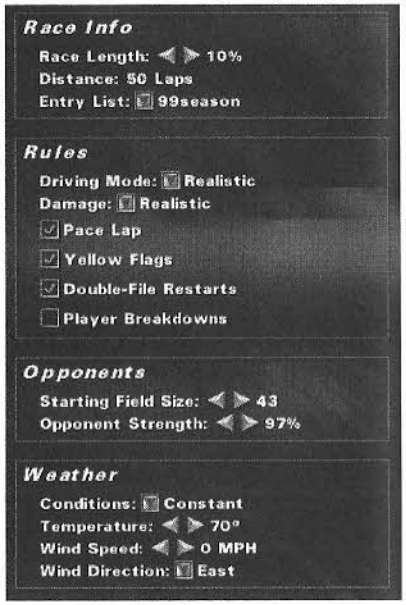
We've been through the car and its controls, and we've got your own name appearing in the standings column now. Time to do some racing! From the Main Menu, click on the Single Race button. Now you're at the Single Race Settings Menu. Remember, you were here earlier when we took a few laps around Michigan Speedway to get you acquainted with the car.

There are a host of racing options in NASCAR Racing 3. Everything from how long a race lasts to what kind of weather conditions the race will be held in may be set to your liking. Not up to speed yet at a certain track? Slow your computer opponents down. Too many cars on the track for your comfort? Reduce the size of the field. As you eventually gain confidence in your racing abilities, come back to the Single Race Settings Menu and beef things up a bit to make things more challenging.

The preferences you select on the Single Race Settings Menu are saved automatically from race to race- there's no need to re-enter them from scratch each time you launch NASCAR Racing 3. As we go through these for you one-by-one, keep in mind that most of the items on this menu can be set independently. No matter what kind of race you're looking for, you can create it here.

First off, there's the Track Selector, which you already used earlier to select Michigan Speedway for our practice run. In Single Races, you have the option of picking the track of your choice (some tracks, such as Bristol, feature both day and night versions). In Championship Seasons, you'll contest each track in the actual order of its appearance on the NASCAR schedule. In Multiplayer Races, the creator or host of the race gets to choose the track.

Once you've derived which track you're going to race on, look at the right side of the Single Race Settings Menu. These items govern virtually facet of the race- from its length to its field size. The first section, Race Info, allows you to set the length of the race, based on the actual race distance for that track. Select Richmond and set the distance to 100%, and you'll be running in a 400-lap race. Set the distance to 50%, and now you're competing in a 200-lapper. Knock the distance down to 10% and now you've got a 40-lap sprint to the checkered flag. Run any distance you wish, from 1% to 100%.



Pick the Entry List you wish to compete against. These lists are built with the Driver Info Menu. They may consist of NASCAR Winston Cup opponents, NASCAR Busch Series, Grand National Division drivers, or other custom lists you build from scratch.

Select the Driving Mode, Realistic or Arcade. The Arcade level provides beginners with a "super-car." The Arcade car has enhanced horsepower, better traction and is generally superior to the computer opposition. On the other hand, the Realistic car provides a more challenging NASCAR experience. Nip that wall too hard and you'll have to limp the car in for repairs. Let the rpms drop too low and you'll fall to the back of the line in a hurry. If you plan to race against human competition online, you'll need to master the Realistic car first.

The Damage settings come in three flavors: None, Arcade or Realistic. With Damage set to None, you can drive through concrete barriers (well, not literally), into computer opponents and into pit lane walls- in a bullet-proof car that won't suffer any nicks or scratches. The engine can still be blown by over-revving the motor, and your tires will still wear out, but with no damage selected your car is otherwise indestructible. Realistic damage challenges you to avoid other cars, walls and objects at the risk of wounding your vehicle; should you hit something, the severity of the impact is directly proportionate to the severity of damage incurred. A damaged car cannot be expected to perform as well as a healthy one; the aerodynamics and suspension components, once disturbed by an impact, may not be totally repairable by the crew. Using Arcade damage, you'll find a happy medium between None and Realistic. Your car will still be subject to damage, but at a more tolerable rate. Hard collisions may result in minor damage, for instance, when using the Arcade damage model.

The Pace Lap checkbox toggles the pre-race parade lap on or off. With the Pace Lap on, the field will make one lap at pace speed to warm the tires. As the pace car pulls onto pit road, the green flag will wave and the race will begin with a rolling start. With the Pace Lap disabled, all cars will begin the race from a standing start.

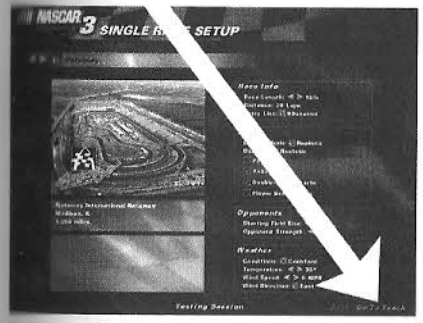
Choose whether to race with or without Yellow Flags. With the Yellow Flags box checked, yellows will occur whenever incidents dictate they should. With Yellow Flags disabled (unchecked) there will be no caution periods during accidents. You may want to leave yellows on for longer races, because of its affect on pit strategies.

Double-File Restarts are employed in real NASCAR races. Cars on the lead lap line up in the outer lane under caution, while slower cars that are no longer on the lead lap form a lane on the inside. This allows the faster cars to race each other without having slower cars in the way when the green flag drops. It also allows faster drivers who have been lapped through some misfortune an opportunity to get back on the lead lap with a clean restart. When there are only ten laps or less remaining in a race, all cars will start single file following cautions. By checking this box, your races will also feature Double-File Restarts, just like the real world. With Double-File Restarts disabled, all cars will line up single file during every caution period.

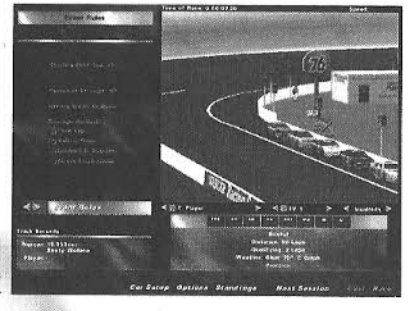
Player Breakdowns only affect your car, not the computer opposition. Checking this box means your car will become subject to random mechanical maladies that will end your day. Want to know how Bobby Labonte really feels after spending two hours in first place, only to have something go wrong with his engine? These failures will not happen in a major percentage of your races, but they will occassionally happen- unless you leave this box unchecked.

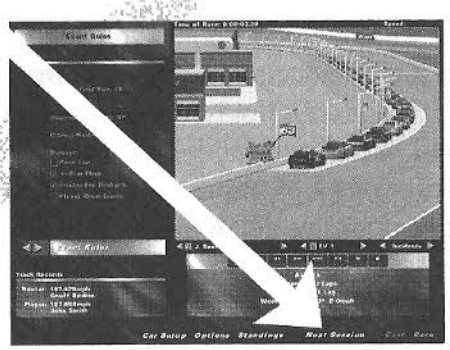
The remaining items on the Single Race Settings Menu allow you to set the maximum field size and strength, and adjust the race weather. One note about the field size: This number only represents the maximum number of cars allowed in the race. If the track you're racing on can only support 30 pit stalls, for example, you will only be able to race against 30 cars even if you've got 40 selected.

Regarding the weather, you have the option to dial up specific temperatures and wind currents, or use the Random Weather setting instead of Constant Weather. This allows you one more obstacle that real world teams and drivers must overcome- nature.



Once you've got the Single Race Settings the way you want them, click on the Go To Track button located in the bottom right corner of the screen (indicated by the arrow at left). These race settings will remain set the same as you move from track to track, until you decide to change them. For example, set the computer opponents to 97% strength for a race at Gateway, and they'll still be set at 97% next time you load NASCAR Racing 3 and pick another track to race at. They'll stay where you put them, until you change them. Once you're at the track, you'll see the Race Weekend Menu (as shown above).



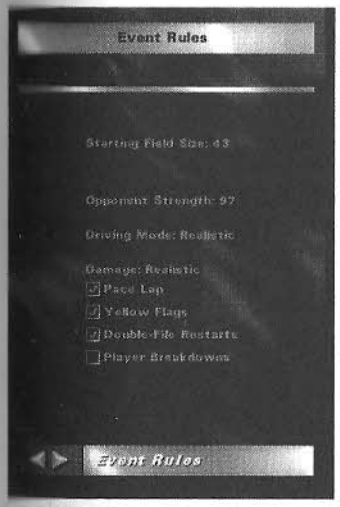


Using The Race Weekend Menu

The Race Weekend Menu is very easy to use. Click on any of the buttons at the bottom of the screen to perform the appropriate action- the Car Setup button takes you to the garage, the Options button opens up the Options Menu (the same one found by clicking Options from the Main Menu), the Standings button gives you detailed standings for the current session, and the Exit button packs up your team's hauler and leaves the track- back to the Single Race Settings Menu.

The arrow in the screen above is pointing to the Next Session button. Each time you click this button, you advance to the next session of the current race. Our sample above shows that we are currently in the Practice session at Atlanta. If we click the Next Session button once, we'll advance to the Qualifying session. When we click the Next Session button again, we'll advance to the pre-race Warmup Session, a final chance to dial in our race car and get settled in. Finally, click on the Next Session button again to advance to the Race. Feel free to skip any session(s) you wish, none of them are mandatory.

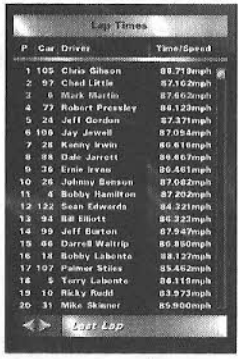
When you want to hit the track and drive your car, click on the Race button located in the lower right corner of the Race Weekend Menu. Ready to qualify? Click Next Session once to advance to qualifying, visit the Car Setup Menu to make sure you've got the chassis loaded up the way you want, then click Race! Time to make it count!

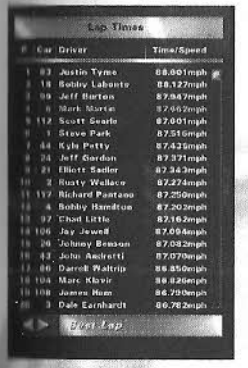


The Race Weekend Menu provides you with all the information you need to manage your racing team throughout an entire NASCAR event (without the headaches, of course).

In the upper left corner of this screen, you'll see a list of the Event Rules. This list is 'greyed out,' meaning these items cannot be changed. These are the settings you chose prior to arriving at the track itself, here for your review.

If you click on the gold left/right arrows shown in the image above, however, you'll receive additional information like you see below. View the current Leaderboard, complete with intervals, or the Last Lap speed of each car. The Best Lap screen shows you the overall best speeds that each driver has run. These items all cycle, so continuous clicking will eventually bring you back to the Event Rules display, and so on.



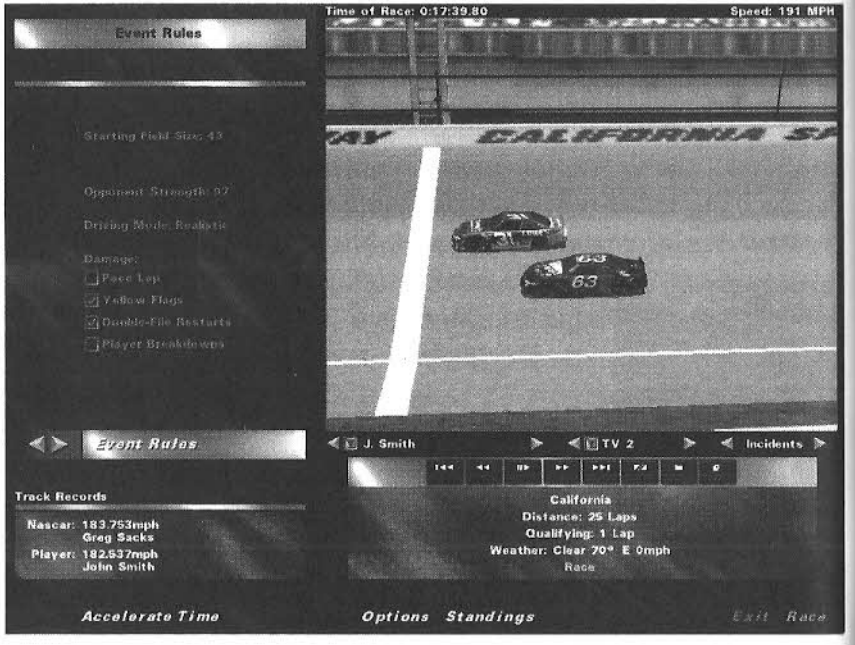


Each time you press the ESCape key while driving, the action will pause and you'll return to the Race Weekend Menu; this gives you a chance to take a break from driving (without losing your place) to review these items whenever you want.

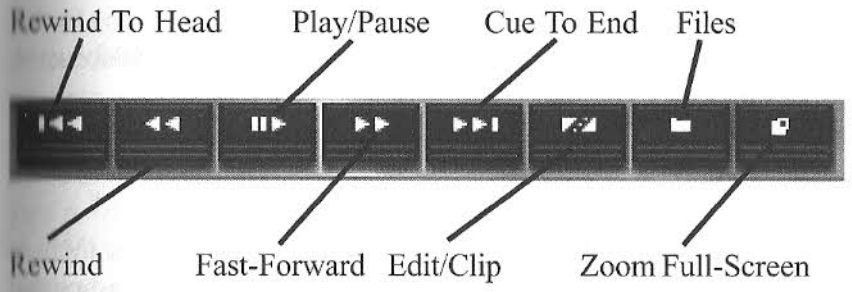
Instant Replays

We've covered most of the features found on the Race Weekend Menu, with the exception of one big one- instant replays. NASCAR Racing 3 features a powerful replay system, built right into the Race Weekend Menu.

All of the controls you need to access replays, study various camera angles, edit & save your favorite clips, and review your driving skills can be found on this screen. If you can use a VCR, you'll find the replay viewer in NASCAR Racing 3 to be pretty basic. First things first, though: let's go over the replay controls, beginning on the next page.



Instant Replay Controls



Rewind To Head Button: Click on this button to cue the footage to the very beginning. The overall length of footage available depends upon how much RAM (Random Access Memory) is available on your computer system, and how much space you allocate for the Replay Buffer. Assuming your system can only save 22 laps and you've just completed a 200-lap race, you'll only have the final 22 laps available to work with.

Rewind: Each click on this button steps backward through your footage, frame-by-frame. Click and hold the mouse button down to rapidly rewind the replay tape. You can also press the Less Than key (<) on your keyboard instead of your mouse button to step backward through the footage, or perform a rapid rewind.

Play/Pause: Click on this button once to start playing the footage in real time; click on this button a second time to pause the action. You can also use the Spacebar on your keyboard in the same manner. Press the Spacebar once to play the footage, and press it again to pause the tape.

Fast-Forward: Each click on this button steps forward through your footage, frame-by-frame. Click and hold the mouse button down to rapidly fast-forward ahead. You can also press the Greater Than key (>) on your keyboard instead of your mouse button to step forward through the footage, or hold the key down to fast-forward.

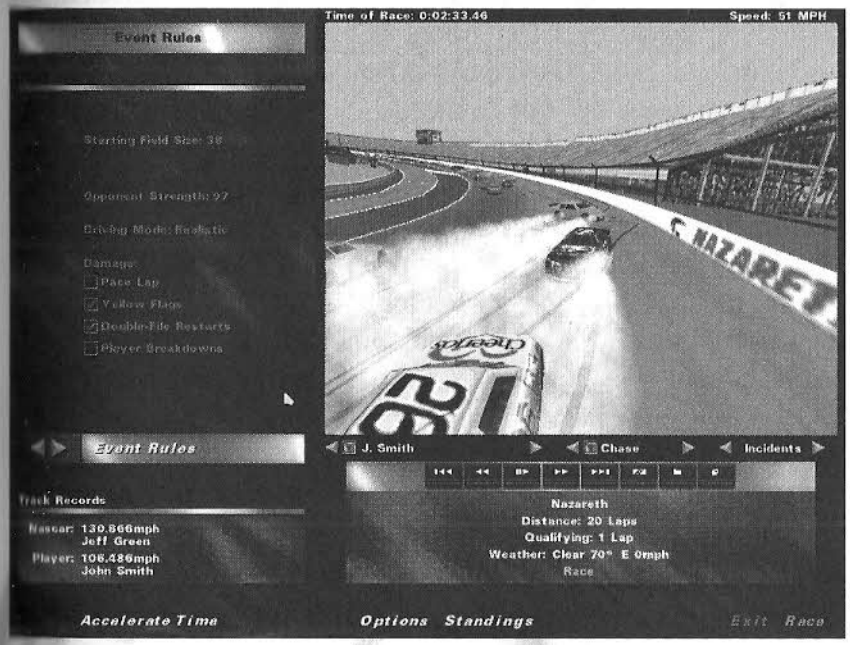
Cue To End: Click once on this button to jump to the end of the replay tape.

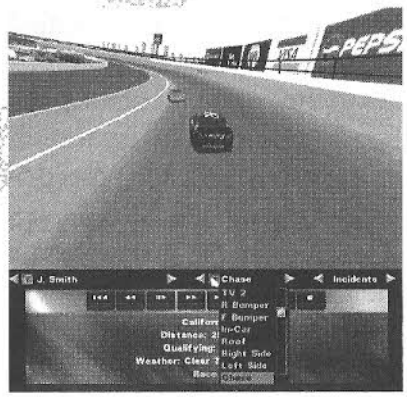
Edit/Clip: This button allows you to edit replays and save them in a more compact size. Want to clip and save that daring pass, or that dreadful incident? No problem. Cue the replay tape to the frame you wish to begin your clip with. Now click the Edit/Clip button once to mark the 'in-point' of the clip. Play or fast-forward the replay tape to the frame you want the clip to end with. Click the Edit/Clip button again to mark the 'out-point' of the clip. You will automatically be prompted to save your newly clipped file. This feature is ideal for saving small replay files you can exchange with friends, without having to make them wade through an entire twelve-megabyte replay file!

Files: Click on this button to save or load your replay file.

Zoom Full-Screen: You can watch replays in full-screen color, instead of the compact replay window found on the Race Weekend Menu. Just click on this button to do so. Keep in mind that while viewing full-screen replays, all of the VCR keyboard keys still operate (such as the < > keys), so that you can control the footage. When you're ready to exit the full-screen view, just press the ESCape key on your keyboard.

In addition, there are three other replay controls available. The first of these allows you to switch the replay view to any car- not just your own (perfect for seeing the 'whites of their eyes!') In the screen below, John Smith's car is selected; therefore the cameras are trained on car #63. Click on the left or right arrows beside John Smith's name to switch the view to another car (or use the gold drop-down button to select from a list of drivers). Like many of the VCR controls, these commands are duplicated by the keyboard, perfect for when you're viewing the action in the full-screen window. By pressing the 'V' key on the keyboard (remember 'V' for Vehicle), you can jump ahead to the car nearest John Smith's. Each subsequent press of the 'V' key will step one car ahead. By pressing 'Control-V' on the keyboard, you can step backward along the track, viewing replays from every car.





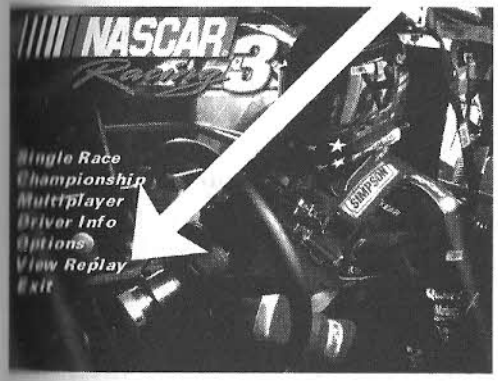
Studying the screen at the left, notice the list of cameras in the drop-down box. Currently, the 'Chase' camera is selected. There are several angles available for viewing, and you can switch between them whenever you want.

To change the camera view, click on one of the gold arrow buttons (or the gold drop-down button as shown in the example) and select the camera angle of your choice. The first two angles, TV 1 and TV 2 represent what you would see if you were watching the replay on television. These angles are similar to a Television Director cutting from shot to shot, covering the action. To change cameras using the keyboard, just press 'C' to move down the list of available camera views (remember 'C' for Camera). Press 'Control-C' to move backward through the list of cameras. Like the vehicle keys, the camera keyboard keys give you a way to switch views when the VCR buttons are not visible due to full-screen mode.

Use the Incident arrows to quickly locate spins and wrecks involving the selected driver, on your replay tape. Click on the right gold Incident arrow to skip ahead to the next incident; click on the left gold arrow to go back to the previous incident.

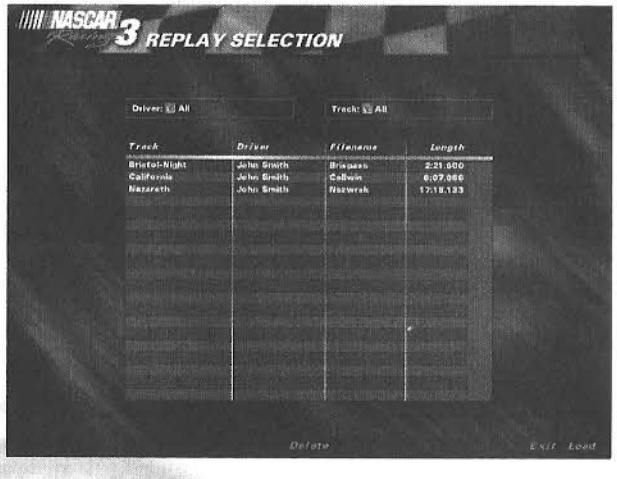
Viewing Replays From The Main Menu

NASCAR Racing 3 has a handy way for you to access stored replays, without having to load up the particular track the replay was recorded



at. From the Main Menu, click on the View Replay button (indicated by the arrow at left). This takes you directly to a replay file management system, showing you all of the available replays that have been saved on your computer.

Replays can be sorted by individual drivers and tracks, or you can simply view every replay available on your system. In the example below, we've got three replays saved from three different tracks. Just click on one of the saved files to load it up and view the replay. For instance, if we want to watch the tape of our stunning victory at California, we'll click on the replay file called 'Caliwin' (that's the name we gave the replay when we saved it after the race). After clicking on the filename to highlight it, click the Load button in the lower right corner of the screen. The selected replay will now load.

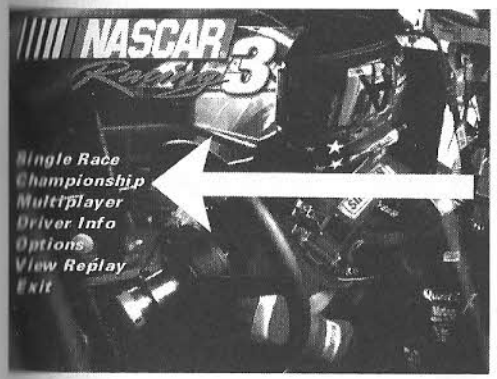


Replays are stored in RAM (Random Access Memory) until you decide to save them. If you leave the track without saving your replay, the replay is purged from RAM.

You can adjust the size of the Replay Buffer in NASCAR Racing 3. This is basically how much RAM you wish to set aside to hold replays during races. From the Main Menu, choose Options/Graphics. Near the lower right corner of the screen (as indicated by the arrow) you'll notice a setting labeled Replay Buffer. Set the buffer size to whatever you wish, between a minimum of 1 megabyte, all the way up to a maximum of 255 megabytes (more than you'd likely need to save an entire race). The length of your replays are determined by the size of the Replay Buffer. Using a small, 2 megabyte buffer size will result in shorter clips. It's doubtful you'd be able to capture more than a few laps with such a setting. Just how many laps you can save depends upon the size of the track. You'd obviously be able to pack more laps into 2 megabytes at Martinsville than you would, say, Watkins Glen.

Going For The Crown

By now you've driven the car, looked at the various menus and probably changed several of the player preferences in NASCAR Racing 3. Only one thing left to do...go for a title! You've seen how Single Races allow you to participate in NASCAR Winston Cup and NASCAR Busch Series, Grand National Division events; these single races take place at the track of your choice. The Championship Season works the same way, with a few exceptions.



First, Championship Seasons follow a schedule of races; each race follows the same race settings you define prior to the beginning of your season. So, if you want the races to be 25% in length, you'll set that parameter before the first race begins. Once you've got the Championship Season set up and underway, you cannot go back and redefine race settings.

Second, the Championship Season is contested on each track in the NASCAR Series you are competing in. A NASCAR Busch Series, Grand National Division season will follow the real Grand National schedule on the tracks that are included with this simulation. A NASCAR Winston Cup season would follow all of the real schedule, on each of the official NASCAR Winston Cup tracks that are included with NASCAR Racing 3.

The Championship itself is decided by a points system that rewards consistency over a few impressive victories. The chart below shows you how many points you receive for each race, based on your finish:

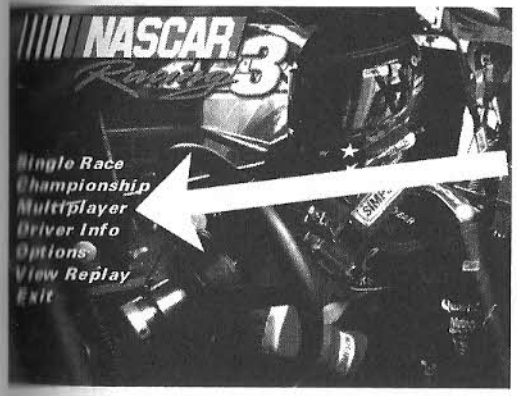
1st..... 175	16th.....115	31st..... 70
2nd.....170	17th.....112	32nd.....67
3rd..... 165	18th..... 109	33rd..... 64
4th.....160	19th..... 106	34th.....61
5th.....155	20th..... 103	35th.....58
6th.....150	21st..... 100	36th.....55
7th.....146	22nd.....97	37th.....52
8th.....142	23rd..... 94	38th.....49
9th.....138	24th.....91	39th.....46
10th..... 134	25th.....88	40th.....40
11th.....130	26th.....85	41st..... 37
12th..... 127	27th.....82	42nd.....34
13th..... 124	28th.....79	43rd..... 31
14th..... 121	29th.....76	Ld One Lap..... 5
15th.....118	30th.....73	Ld Most Lps..... 5

Each driver who leads at least one lap receives 5 'bonus' points. The driver who leads more laps than anyone else in each race is awarded 5 additional bonus points. At the end of the season, the driver with the most overall points is declared the Champion.

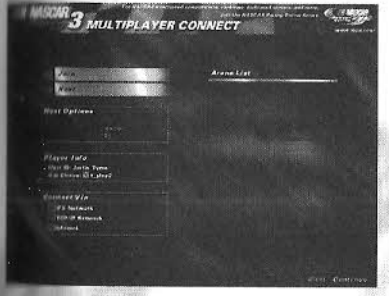
You can save races and seasons whenever you want; there's no need to drink a pot of coffee and try to get through the entire schedule in one night!

Multiplayer Racing

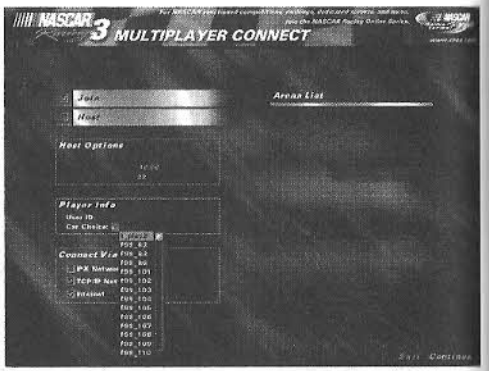
"I'm kicking everybody's butt in single races, and have already won more Championships than Dale," you say? How about putting your modem where your mouth is- with Multiplayer races!



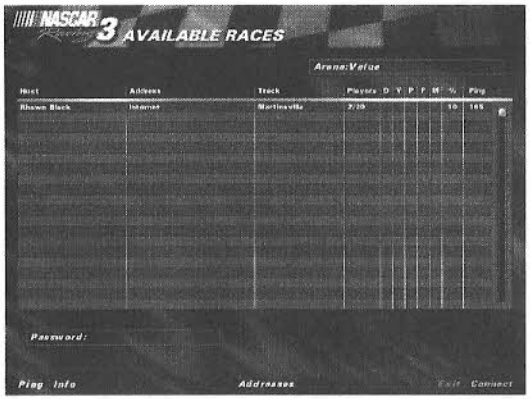
Using the built-in multiplayer capabilities in NASCAR Racing 3, you can race against a field full of human opponents...leave the computer cars off the track if you want to! To host or join a multiplayer race, make sure you've got your Internet connection up and running prior to launching NASCAR Racing 3. Then, click on the Multiplayer button found on the Main Menu (indicated by the arrow above). This takes you to a Multiplayer Connect screen where you can set the parameters of your own races, or look around for a race to join.



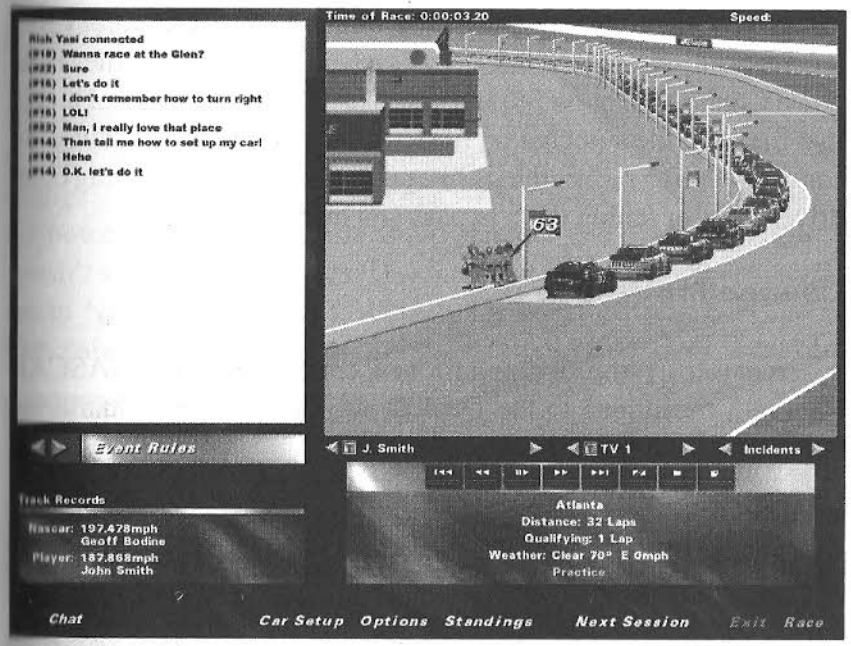
Click on the Join box to jump into an existing race; click on the Host box if you're going to create the race yourself. You'll need a high-speed Internet connection to Host races that have more than two or three cars in them.



Multiplayer races offer you the ability to pick the car you want to drive, and give yourself a name to use online. Using the Player Info area (as shown at right), type in a name and pick a car. Choose the type(s) of connections you plan to use. Click on the Continue button in the lower right corner once you've got the connection properties set.



If you've decided to host your own event, you'll be prompted to set up all of the race properties (just like you did in the Single Race Settings area). If you wish to join an existing race, you'll see a chart of races that are available (like the picture shown here). To join a race, click on the Host's name (in this case it would be Rhawn Black) and then click on the Connect button in the lower right corner of the screen. Since we know Rhawn (he's on the beta test team), we'll go ahead and join his race. Don't worry, he won't mind! Certain races may require a password (this is up to the host) before you can join them. This feature allows leagues to prevent non-league members from joining their events.



Once you connect to the race, click on the Chat button in the lower left corner to open the Chat window. Type your message and hit the Enter key. You can also chat while driving, by first pressing the 'T' key on the keyboard. After pressing 'T,' type the message and hit the Enter key. Don't get too chat-happy during races...keep those eyes on the road, Bucko!

The Autochat feature allows you to send scripted messages to other drivers, with just a keystroke or two. You can have up to ten autochat messages built and ready to send. The autochat.txt file in the NASCAR Racing 3 folder is a simple text file containing ten lines. Use the default text that's already there, or edit your own custom messages with any text editor. To use these autochat messages, hold down the Control key and press a function key, F1-F10. By pressing

the F1 key while holding down the Control key, for example, you'd automatically display the first line of text in the autochat.txt file. Hold down Control and press F5, and you'll display the fifth line of text in that file. Use the autochat.txt file to display common messages and warnings during races...things like pit announcements, waving other drivers low, or telling them to pass you high, etc.

Connection Issues

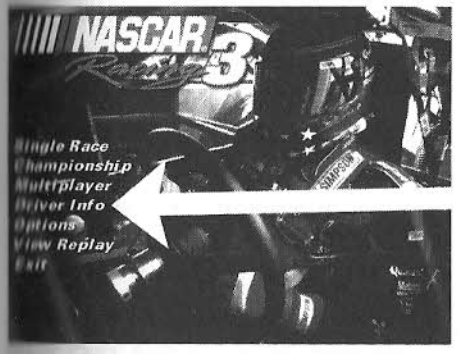
A server (Host) stops looking for new connections once NASCAR Racing 3 transitions to the Qualifying session. Once qualifying begins, new players cannot join in.

Each client that connects to a server via a dial-up Internet connection will require a minimum of about 24,000bps of bandwidth. For an analog modem, this limits a server to a maximum of two clients. An ISDN connection can handle up to four clients reliably. Cable modems may require some special considerations that are outlined in the 'readme' file.

You can enter numeric (#.#.#.#) or symbolic (bob.fred.net) Host names if you wish. If you enter a symbolic name, it may take several seconds for the computer to translate the name. If it cannot, an error message will appear on the screen.

Painting Cars

By using the NASCAR Racing 3 Paint Shop, you can put the final touches on your race team. Paint your favorite sponsors on the car, change its number or color scheme. With the Paint Shop, you have the power to design your car in any manner you can dream up! It doesn't stop there, however. Use the Paint Shop to paint any stock car in NASCAR Racing 3. Update the latest NASCAR Winston Cup paint schemes and sponsors. Create your favorite local dirt track cars...the capabilities are virtually endless.



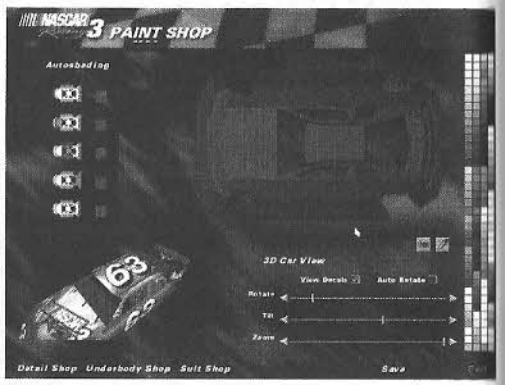
To get to the Paint Shop, click on the Driver Info button at the Main Menu (as indicated by arrow at left). Choose a driver and click Driver Info (or Player Info).

When you've got the car you wish to paint selected, click on the Paint Shop button found just below the car itself (as shown by arrow at right). This takes you directly to the NASCAR Racing 3 Paint Shop.

The Paint Shop basically consists of three screens: The Detail Shop (shown at right), the Underbody Shop and the Suit Shop. Using these three screens, you can paint your car and crew- and even view it in 3D to make sure it's what you want!

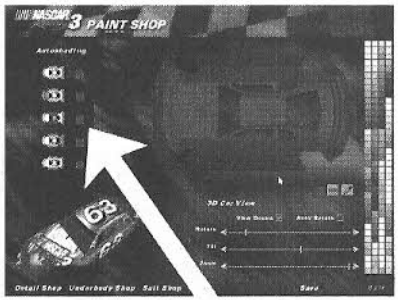
The Underbody Shop

The Underbody Shop is where you'll paint the base colors of the car. If you have Car Textures turned on, you won't actually see much of the underbody paint; players that have the graphical detail turned down, however, may see only underbody colors. That's why it's a good idea to spend a few moments in the Underbody Shop, putting the basic colors on your car. To get there, just click on the Underbody Shop button, located at the bottom of the screen.



You can easily add realistic shading to your car with the Underbody Shop. To do so, pick a color from the palette on the right (just click on it) and then click on one of the five Autoshading areas to apply it.

Each Autoshading box indicates what body parts get painted with each click (the autoshading boxes are indicated by the arrow below). The Autoshading boxes do just that: automatically applying a shaded mix of the chosen color to that area of the car. You can view the results of your work on the body panels shown on the screen. You can also forego the Autoshading feature and click directly on the body panels themselves. Sir, did you order the red roof? No problem, choose red and click on the roof. How about the blue hood? We've got one of those! Just choose the blue you want from the palette, and click on the hood.

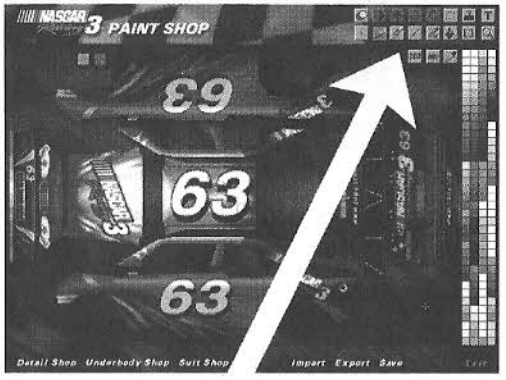


We'll come back to the Underbody Shop later. For now, let's click on the Detail Shop button found at the bottom of the screen. Time to add the glitter!

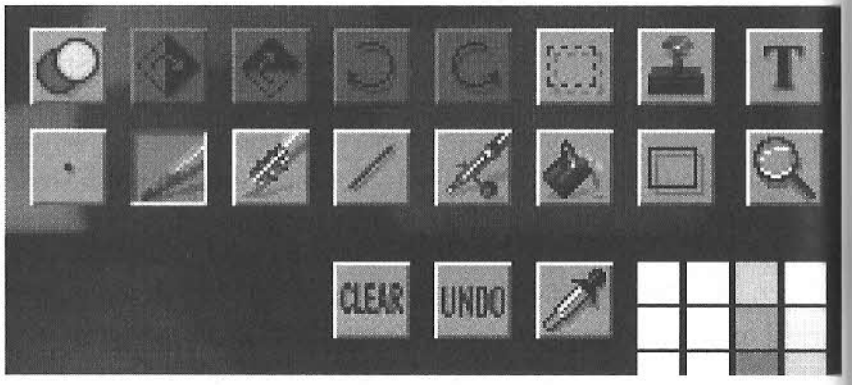
The Detail Shop

Welcome to the Detail Shop, the screen you'll spend the majority of your painting time with. While the Underbody Shop paints the base colors of the car (the colors you'd see if you turn off Car Textures), the Detail Shop is where you'll paint the exterior of the car- not only numbers and decals, but also it's color scheme (with Car Textures turned on in the Graphics Menu, the majority of the car is covered by the Detail Shop panels). But hey, don't just use the Detail Shop for numbers and decals; add hood pins, body lines, gas fillers and overflow valves. If it can be found on the outside of a stock car, you

can probably paint it here. If you've used other computer-based drawing and painting programs, you'll probably get a feel for the Detail Shop right away. If you haven't, don't sweat it. Painting cars is not difficult, and there's no spilled paint to clean up when you're done (remember, if you don't like the way a car looks as you try to paint it, you don't have to save it). Click the left button on the palette to choose foreground colors, or the right button to choose background colors.



All of the tools you'll use in the Detail Shop are centrally located in the upper right corner of the screen (as indicated by the arrow at left). With these tools, you can add and rotate text, numbers, logos and car body parts



to your design. Detail Shop tools are explained thoroughly in the next few paragraphs.

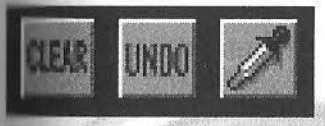
Tool Type: Click on this button to reveal a pull-down menu of 3 tool types- 1) Blend, for complete coverage, 2) Anti-aliasing for removing jagged edges, 3) Smear, to help achieve a more natural look without involving foreground and background colors.

Flip and Rotate: Click on these buttons to manipulate the selected graphic, horizontally, vertically, or rotated in 90-degree increments.

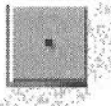
Select Tool (Marquee): Click the left mouse button and hold it down as you drag it across an area you want to manipulate. Once you've selected an area, you can flip, rotate or paste it.

Text Tool: Click this button to reveal a text window. Inside the text window, choose from a variety of typefaces and sizes. The text will appear in the current foreground color. After you type your text, flip or rotate as necessary, and drag it over the area you want it in.

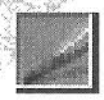
Stamp Tool: Right-click on this button to reveal an available selection of decals. Select the decal you want to apply and position it over the car part where you want to stamp it. Use the flip and rotate buttons to adjust the decal's orientation, if need be. Click the left mouse button to finalize the decal, sticking it in place.



Use the Clear button to erase all of the details off of the car. This starts you over with a clean slate, in the current foreground color. Click Undo to remove your most recent change. Use the Eyedropper tool to grab colors off of the car. This really helps when you're trying to match colors. Hold the eyedropper over a color you want to 'pick up.' Click the left mouse button to make that color the new foreground shade. Click the right button to assign it to the background shade.



Brush Thickness: Click on this button to reveal a pull-down menu of available brush widths.



Freehand Drawing Tool: Choose a color, click on the pencil tool and start drawing! Adjust the brush width and tool type buttons to your liking. Hold down the left mouse button to draw with the foreground color, or the right button to draw in the background hue.

Eraser Tool: Erases in the current color. Hold down the left mouse button to erase with the foreground color, or the right mouse button to erase with the background color.

Line Tool: Click and hold the left button (foreground color) or the right button (background color) to draw straight lines. Use the brush thickness and tool type settings to customize your lines.

Airbrush Tool: Use this tool to create spraycan effects on the car. Choose colors with either mouse button, position the cursor over the car panel you want to airbrush, and hold the mouse button down to apply spray. Move the mouse back and forth to paint layer after layer.

Paint Bucket Tool: Click on this tool to get the paint bucket icon. Position the paint bucket over a car panel, and click the left mouse button to fill with the foreground color, or the right button to fill with the background shade.

Shape Tool: Click the right mouse button over this icon to reveal different shapes you can draw. Select a shape and hold down a mouse button to draw in either selected color over a car panel.

Zoom Button: Click on this button to get in close, for fine, pixel-by-pixel work. Position the selection rectangle over the area you want to zoom to and click the mouse button.

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Detail Shop Tips

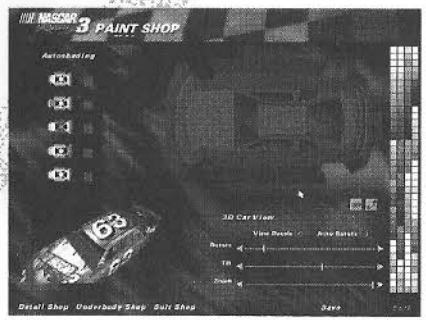
You can draw matching lines across several car panels at once with the Line Tool. For example, start a line at the top on the car's passenger side. Holding the mouse button down, drag the line across the roof and left side as well. One continuous line across three body panels!

Also, remember to draw shadows, gas caps, hood pins, exhaust pipes and other body characteristics on your car. That little sign the crew holds up on pit road? That's a copy of the roof of your car. Try to paint the roof in such a way that it looks good on the car, but makes a pretty darn nice sign too.

The Suit Shop

Click on the Suit Shop button at the bottom of the screen to customize your pit crew's uniforms. Like the Underbody Shop, you can grab a color and click on any of the Autoshading boxes to quickly and easily give your crew's attire a realistic look.

You can also click directly on the larger mannequin to color items individually.



Once you have the details the way you want them, click back to the Underbody Shop to view the car in 3D. You'll see a replica of your handiwork in the lower left corner. To the right, notice that there are viewing controls to assist you in checking out your designs.

Click and drag any of the sliders to adjust the viewing angle. The car on the left will move accordingly. Check the Auto Rotate box to keep the car spinning constantly, 360 degrees. While the car is rotating, adjust the Tilt and Zoom until you get a good look at all sides of the car.

Uncheck the View Decals button if you want to see the underbody of the car alone.

Getting More Help

You can also use a scanner to capture logos and images to place on your cars. This requires a third-party paint program. There are dozens of sites on the Internet out there to guide you through this process. An excellent place to find them is listed below.

http://www.sierra.com/sierrasports/forums/motor/

Tuning To Win

Using The Garage To Make Your Car Faster

The NASCAR Winston Cup Garage

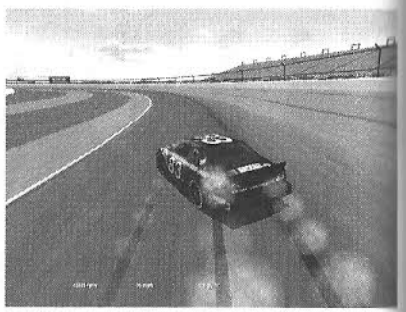
If you don't own the fastest car on the track, you can- by perfecting your driving techniques, and adjusting the car to better fit them. The next few pages will show you how to adjust your stock car to make it faster, better handling and longer lasting.

Before you start changing sway bars, adjusting tire pressures and moving that spoiler up and down, let's take a look at basic chassis behavior.

Understeer

Also called 'Push.'

Understeer occurs when the front wheels lose grip with the pavement before the rear wheels do. The car doesn't quite turn sharp enough unless the brakes are applied much harder than desirable, as it seems to slide out toward the wall. Cars that understeer are said to be 'too tight.'



Oversteer

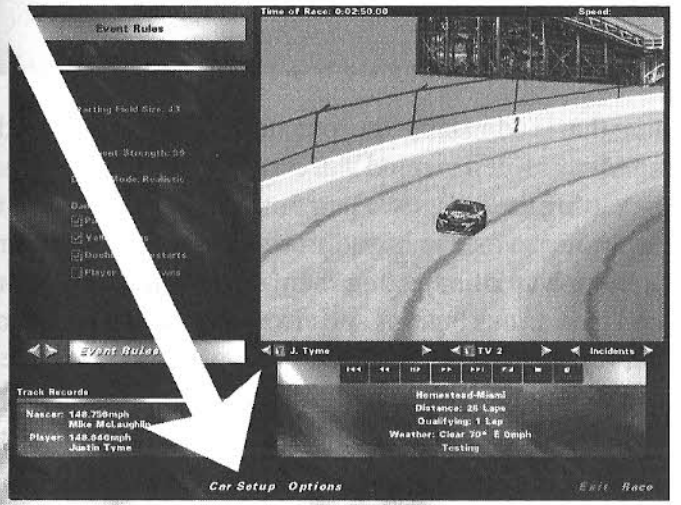
Also called 'Loose.'

Oversteer happens when the rear wheels lose grip with the pavement before the front wheels do. There is more grip at the front of the car than at the rear, so the car tends to fishtail as the back end spins around. The driver must release the throttle and brake carefully in order to maintain control of the car.

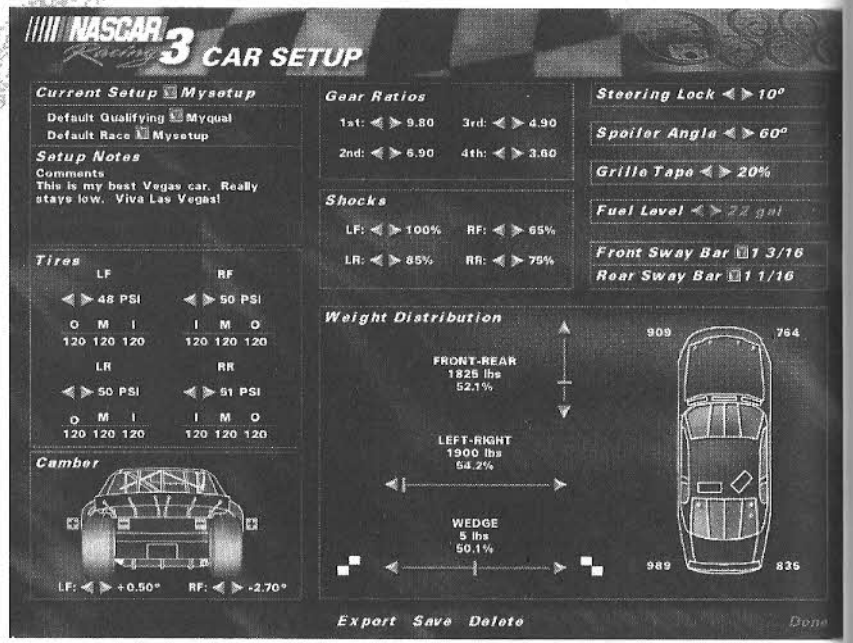
Going Inside The Garage

There are several pre-designed car setups included with NASCAR Racing 3. If you don't ever wish to fram your knuckles on a single adjustment, feel free to load one of the ready-made setups and race as hard as you can. But because car setups are as unique as the people that drive them, you'll probably get better results on the track if you spend a little time getting familiar with the garage area. Whether you simply wish to load a basic setup on your car, or turn wrenches late into the night, you will make these decisions using the Car Setup Menu.

From the Race Weekend Menu, click on Car Setup at the bottom of the screen (as indicated by large arrow below). Now you're in the garage, looking at the Car Setup Menu.

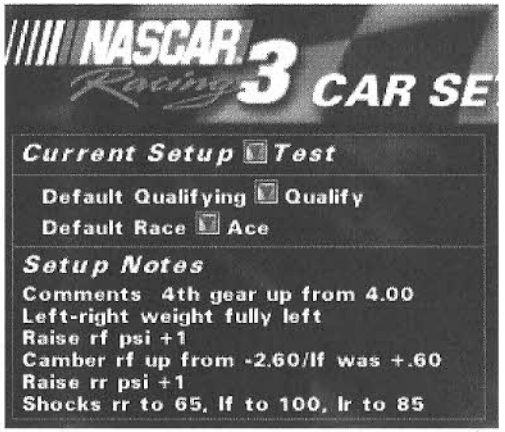


Using The Car Setup Menu



Everything that is adjustable on your stock car is represented on the Car Setup Menu. Keep in mind that certain items are also adjustable on pit road, using the corresponding function keys. Items on the Car Setup Menu are grouped in boxed areas for clarity. Most items have more than one way of adjusting them. You can make changes by clicking on the various buttons and arrows, or clicking and dragging sliders. Or if you prefer, click directly on any numerical value shown and just type in the new figure you'd like to use. The bar along the bottom of the screen contains the necessary file management controls to Save, Delete or Export setups.

Loading And Saving Your Setups



NASCAR Racing 3's Car Setup Menu allows you to have up to four different setups loaded at a time.

First, there's the Default Race Setup. Click on the arrow and load the setup you plan to use for the race itself. Once the race begins, the setup selected here will be the one automatically loaded for your car. The Default Qualifying Setup is the setup you'll use for the qualifying session. Click on its arrow and choose from available setups. When you elect to begin your qualifying run, whatever setup is loaded here will be what you qualify with.

The Current Setup indicates which setup file you're making adjustments to. Click on its arrow, choose from available setups and load the one you'd like to work with. When you're finished tweaking, save your setup under a new name, or overwrite the original file instead.

In the shot above, you'll notice that the setup we're working with at the moment is called 'Test.' We already have a setup called 'Qualify' selected as our qualifying setup, and the 'Ace' setup selected to race with. Setups must be loaded for each track. In other words, assuming

we've got the three setups loaded above for the current track (Dover) when we race at Michigan we'll have to load up to three more setups for that speedway. Once the three setups are loaded, as in our Dover example on the previous page, they will stay there until we decide to change them. Leave Dover, shut down NASCAR Racing 3 and crunch some numbers with a spreadsheet, or type a document, whatever- next time you come back to Dover, those same setups will already be selected and waiting for you.

Ah, but there were four setups mentioned on the previous page...where's the last one? When you load a file as the Current Setup, you don't have to save it right away (although this is highly recommended). Load up the Dover Test setup you've made earlier, make a few tweaks to it, hit the track and it'll still be there on the Car Setup Menu when you return (though not saved yet). You might think of this as a 'Workspace Setup.'

To save new setups, click on the text name of the current setup. Type in the new name you'd like to give the current setup in the workspace, and hit the Enter key. You can also save setups by clicking on the Save button at the bottom of the Car Setup Menu, and following the prompts on your screen.

Keep an eye on that comment field. To change or add comments about the current setup, just click on the box next to the word 'Comments.' Type or edit the comments in the same manner you would using a word processor. Real NASCAR Winston Cup teams keep meticulous notes about car settings and tracks- so should you. It only takes an extra second or two, but the information that tends to wind up in the comment field is darn well worth having.

Building A Better Racecar

So many items to adjust, where do you start? There is no magical formula in chassis adjustment, no guy bottling and selling high-performance from the backdoor of the little wooden shed in turn four. The finest mechanics in auto racing have been known on occasion to throw their hands in the air, scratch their heads and walk away with dumb looks on their faces. Sometimes you'll nail it, sometimes you'll keep coming back to the garage...and back to the garage...and back to the- you get the idea.

However, the process of building chassis setups can be demystified somewhat; and as long as you don't allow yourself to be intimidated by it, you'll probably pick up the basics in little time.

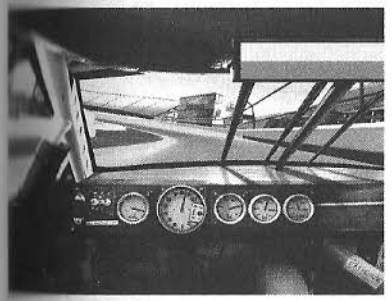
That said, here's what we're going to do: We'll pick a track, start with a slow setup and gradually transform it into one that is faster, and better handling, step-by-step. For this procedure, let's rule out the road courses, since whatever knowledge you glean will only apply to two tracks. Let's also avoid Talladega; it's a fairly easy track to build a setup for, but it stands alone as a no-braking/no-lifting restrictor plate track. Something mid-range might be appropriate, that way you could transfer what you learn to several tracks afterward. Something in the mile category; something like...Dover Downs. Dover it is.

Click on the Testing Session button at the bottom of the screen. This will give you a clear track to work with as you adjust the car.

Dover offers us fast enough speeds, but still requires plenty of handling in order to turn fast laps, and it is in the first U.S. State- so we're off to Delaware! Select Dover, click on Testing Session (we don't want to hassle with other traffic while we're setting up our car) and create the setup shown below. Save it under the name 'Test.' This is a slow, easy setup that we'll attempt to tweak into a more competitive car.

Let's get fourth gear set first; take the car out for a ten-lap run, and keep your eye on the tachometer. Drive controlled laps, without downshifting in the turns. We'll see you back on pit road in about five minutes.

Did you notice that the engine only wound up to around 8,400 rpms at the end of the straights? The over-rev light never even lit up, and your best lap was probably only in the neighborhood of 151.5 mph. That means we've got a small amount of room we can play with to get more rpms working for us. Let's move fourth gear up, from 4.00 to 4.10. Save the setup and take the car back out onto the track for another ten-lap session, paying specific attention to the tach and over-rev lights.



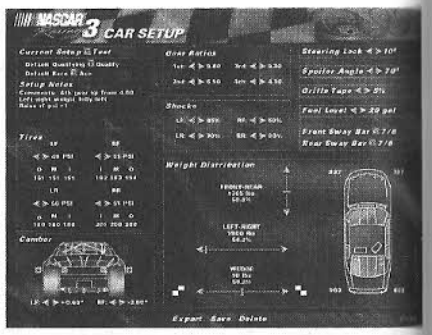
Look at the tachometer as you reach the end of the straightaways, just before you brake. The red over-rev light should just barely start blinking as the rpms approach 9,000. Our test car is only pulling about 8,400 rpms, so we'll change fourth gear.

This time, the light blinked as you reached the end of the straights, right? We'll leave fourth gear set at 4.10 for the moment, but keep in mind that other adjustments may cause the rpms to increase- if so, we'll have to back fourth gear down accordingly.

Now it's time to deal with the chassis itself, particularly the way the car pushes out toward the wall as it leaves the corners. Our Test setup doesn't feel like a setup that keeps the car glued to the bottom of the corners like it should. Notice on the Car Setup Menu that the left/right weight bias is not fully adjusted to the left. Move the slider all the way left. By placing more weight on the left side of the car (and less on the right), the car will turn better. Now, run ten more laps and bring the car back in for another look-see.

This time, the car did some laps in the 152.5 mph range, so we know

we're heading in the right direction. Now we'll start honing the tire settings to find more grip. Notice that the temperature of the right front tire is hottest on its outside edge. Let's bring the tire pressure up slightly, from 51 psi to 52. Time for, you guessed it- another ten lap test drive, after saving our changes.



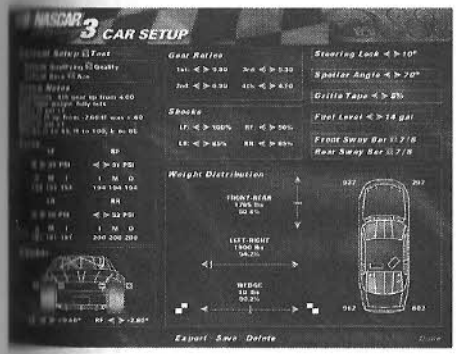
Now the right front temps are almost even, all the way across the tire. But let's try something, just for grins. Move the right front camber from -2.60 to -2.80. As you're sitting in the driver's seat of a stock car, this suspension adjustment will bring the top of the right front tire inward a little more. If the camber here was set to zero, the tire would point straight up, ninety degrees from the ground. Positive camber settings would move the top of the tire outward. We want to bring it in some instead, so that we get the inside of that right front tire 'biting' the pavement for us in the turns.

Setup Notes
Comments 4th gear up from 4.00
Left-right weight fully left
Raise rf psi +1
Camber rf up from -2.60

Use the Setup Notes area to keep track of all of the changes as you apply them. This way it will be easier to undo changes that don't improve the car. You can also use this area to make notes about how a setup should be driven. For instance, you might note the line you're driving around the track, or how many laps you can drive before the right front tire wears out.

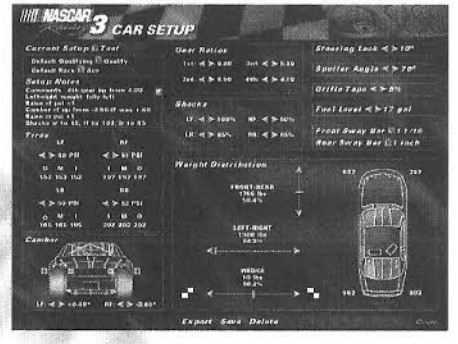
Ten more test laps now reveal that the car is capable of those mid-152 mph laps with ease. Now that the right front tire is set, let's

move to the left front. Looking at the temps we notice that we can pick up some more grip here by reducing the amount of positive camber on this wheel. Let's move it from +0.60 to +0.40.



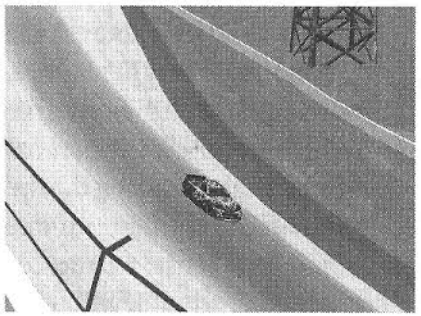
Following another test run, our car is beginning to feel better. Now let's address the problem at the right rear tire, particularly, its excessive temperature. We'll combat this by slightly raising the tire pressure, bringing it up one notch to 52 psi. Time for another ten lap segment to evaluate our work.

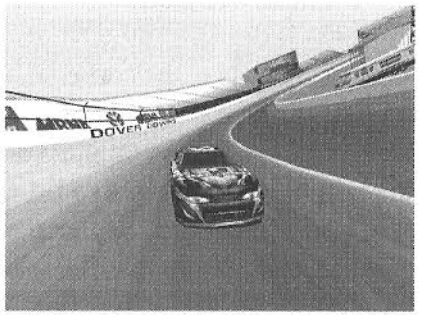
Now let's do something about the way the car feels in the corners. It still feels like the car wants to crawl up toward the wall as we drive it into and out of the turns. To counter this, we'll soften the right rear shock. Knock it down to 65%. This will help the car grab a little better, and further reduce the stress on the right rear tire. Stiffen the left rear shock up to 85%. We want more weight transfer to occur on the left side of the car in the corners; this will give us more grip on the right side. Ten more laps.



We're scraping 153.5 mph now with the car; let's make one more change to the shocks.

Raise the left front shock to fully stiff; stiffer shocks generally give you more straightaway speed, and the temperature readings indicate that we're nowhere near abusing the left front tire at this point. Put ten more laps in, just to make sure we can handle the stiffer shock.





Checking replay angles confirms what we feel in the cockpit- the car sticks to the bottom of the turns, while reeling off laps above 154 mph. Now, we could take this car to Rockingham, or other tracks similar in size, and use it as a baseline to begin building from.

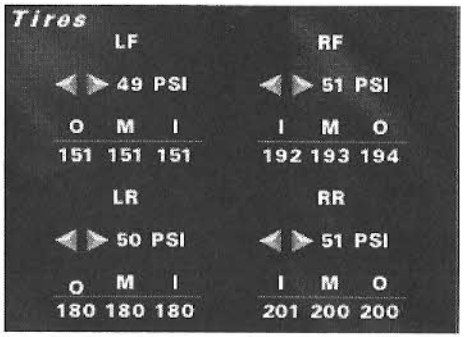
No problem, the car seems to agree with our changes so far. Those 153.5 mph laps have now become routine, once the tires get warmed up. Where do we go from here? Since the car still feels a tad 'pushy,' let's give it some overall stiffness in the suspension to help it hug the bottom of the track. For this, we'll replace the front and rear sway bars.

Up to now, our car has been using the softest bars available. Let's go up a couple of notches, trying a stiffer one-inch rear sway bar. We'll take the front sway bar one degree stiffer than the rear, to 1-1/16 inches. By using a slightly stiffer front bar than rear, we'll keep more downforce on the nose of the car as we enter each corner. This will help us maintain better overall cornering speed. You know the drill, note the changes, save the setup and hit the track.

Wow. Within ten laps, the car now hits low 154 mph laps consistently. That's a three-mile-per-hour improvement over where we started. There is probably still more room for adjustment in the sway bars, but other than that, the only remaining chore is to experiment some with different amounts of grille tape. Eventually you'll want to take the car out for a full fuel run (between 95-100 laps at Dover) to see how it behaves overall. Take note of how well the tires hold up; you should still have a tiny amount of rubber left on the right front tire as the car runs out of gas. If the engine overheats, you'll have to remove some tape, or bring fourth gear back down to 4.05. If your tires wear out too quickly, you'll need to alter your driving style or make further adjustments in the garage to reduce the stress on them.

The Significance Of Tire Temperatures

Tire temperatures are perhaps the most significant barometer of how well your car's chassis is handling. Pay close attention to them, more often than not they'll reveal what areas of your setup are in need of work.



When your car first rolls onto the track, its tires are relatively cool. As you drive the car, however, the tires build up heat inside them. Exactly how much heat builds up in each tire is directly related to driving style, speed, weather conditions and chassis setup. Each tire's optimum operating temperature is between two-hundred and two-hundred twenty-five degrees Fahrenheit. If the tires are allowed to build more heat than this over a period of time, chances are they will wear out much quicker than they should. In general, the hotter a tire gets, the more stress it is enduring. If the tires are much lower in temperature than two-hundred degrees, it means the tires are not necessarily providing maximum grip.

Get in the habit of checking tire temperatures before you make any adjustments to your stock car. Your crew will provide you with temperature readings from three key areas of the tire surfaces: The Outer (O) edge, the Middle (M) of the tire, and the Inner (I) edge.

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The part of the tire that is spending the greatest amount of time touching the pavement will be hottest, while the part of the tire that is gripping the least will be the coolest.

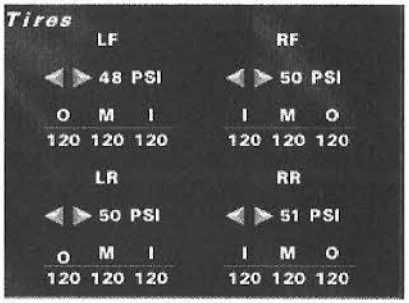
If one tire's overall temperature is hotter than the others, then that tire is undergoing the greatest amount of stress, given the way the car is setup and being driven. You'll probably have to soften the suspension, slow down or look for other ways to reduce the temperature at that particular wheel. Conversely, if one of the tires is too cold, you may want to look at ways of putting more stress on that tire, in order to distribute grip evenly. You'll also want to even out the temperatures across each tire, to the best of your ability. If all three temperature readings are even on a particular tire, you can expect that tire to last longer since it is wearing equally.

Tire temperatures are available to you at any time when you visit the garage. They are located on the Car Setup Menu, on the left side. You can also view current tire temperatures as you drive (just don't try it in heavy traffic). Just press the F4 key to display tire temperature information while in the cockpit.

Tire Pressure Adjustments

The tire pressure in each wheel affects several areas. First off, the profile of a tire (whether it's saggy or firm) can determine the tire's overall performance. Over-inflated tires will bulge in the center, causing the center temperature reading to be higher than the outer edges. Under-inflated tires sag, causing the outer edges to be hotter.

Tires with higher pressures will be firmer, and often faster on the straightaways. Keep in mind, though, that an overinflated tire can also produce negative results. Tires that are too firm can produce less grip in the corners, because so little of the tire's surface is actually touching pavement. Under-inflation creates softer, slower tires (because of an increase in the amount of 'rolling drag') that grip in a more forgiving manner.



Change tire pressures in the garage by clicking on the gold arrows corresponding to each tire. The left arrow lowers the pressure, while clicks on the right arrow raise the psi. Remember that you can also have the pressures changed while on pit road by using the F5 Radio key.

Each tire is prefilled with compressed nitrogen. Nitrogen is much more stable inside a tire than air is. The humidity of air can change drastically inside a tire, making it difficult for the crew to determine what the appropriate tire pressure should be. Nitrogen is relatively inert (meaning it's inactive), is the major ingredient in air and is unaffected by humidity. This allows the crew to inflate the tire to a specific pressure, and maintain that pressure even after several hot

laps on the track.

Tires mean everything when it comes to race speeds. When the tires are new and properly installed, they have maximum grip. As the rubber is consumed, however, you'll notice that you can't quite race through the turns like you could earlier. Eventually, it'll be time to head for the pits and put the tire changers to work.

To adjust tire pressures, run a few laps to get accurate temperature readings. Adjust the pressures as necessary to even the temperatures out. Tires that are too hot overall may benefit from raising the pressure, while a tire that is too cold may better serve you with less inflation.

Just remember that it's all a tradeoff- fill up the tires for more straightaway speed and shorter life, or reduce the pressures for better cornering performance and possibly longer life.

Tire Rundown

Even Tire Temperatures generally provide the best grip.

An underinflated tire will sag, creating more rolling drag while making the tire run hotter. A stickier tire overall.

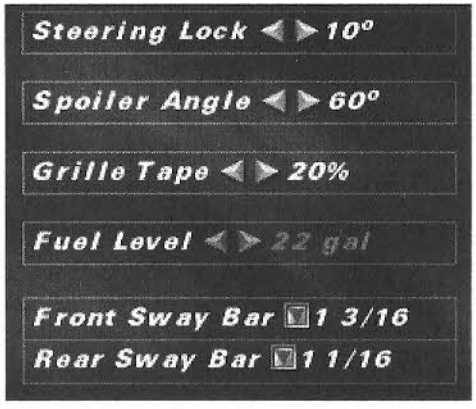
An overinflated tire will be stiffer, creating a greater shock rate in the tire while making it run cooler. A firmer, faster tire.

Many handling problems can be rectified by simply changing tire pressures.

Fuel Economy

Your NASCAR Winston Cup stock car consumes a very high octane blend of gasoline. Octane levels indicate the fuel's ability to resist premature detonation and burn evenly inside the engine. The higher the octane rating, the more anti-knock additives found in the gasoline, an absolute for high-performance racing motors.

Your car's fuel capacity is 22 U.S. gallons, per official NASCAR rules. Because of the minimum weight guidelines set forth by NASCAR, the car must be 'topped off' prior to qualifying sessions. You cannot put just enough gas in the tank to make your qualifying attempt- the tank has to be full. Because of this fact, you can only specify the amount of fuel you want in the tank during Testing Sessions, and once races have begun. Other than that, your Crew Chief will make sure the car is filled prior to the start of every Qualifying and Race Session. "Why should I wait for a fill-up when I only need five gallons to finish the race?" you ask. Relax. During your last pit stop, your Crew Chief will calculate how much fuel you need to finish. You'll get that amount, plus a tad extra just to make sure you can reach the finish line. You can calculate this figure yourself if you'd like. Use the F3 Radio key and adjust the 'Fill To' value to the desired setting. Most drivers will find it more comfortable to probably just let the Crew Chief do the math for you here- after all, it's his butt on the line if he's wrong, eh?



During actual race weekends, the fuel level section on the Car Setup Menu will appear greyed out. You will not be able to specify amounts, the car will always leave the garage with a full tank. During Testing Sessions, however, you can set the fuel level to whatever amount you wish- useful for getting familiar with how the car feels under different fuel payloads.

Specifying how much fuel you want during Testing Sessions can be useful. By filling the fuel tank to different levels, you can easily get a feel for how your car setup behaves as the tank empties. This helps by not forcing you to drive several laps just to see what happens when you run low on fuel.

Remember, weight of the race car plays a key role in how the car handles at high speeds. As your fuel tank empties, the handling will change. After all, you've got roughly 150 lbs. of fuel in the car when you leave pit road on a full tank.

Fuel Rundown

When the tank is full, the car may have less top speed than when it is near empty. The extra weight of fuel can slow the car down some.

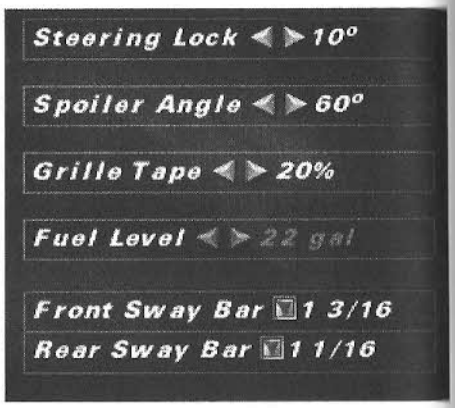
With a tank near empty, the car may run faster. Keep an eye on the tachometer to ensure you're not over-stressing the engine when the fuel runs low.

Getting The Angle On Spoilers

NASCAR Winston Cup stock cars have a spoiler mounted on the rear decklid. These spoilers consist of two halves that extend across the tail of the car. A small opening exists in the center, to accomodate insertion of the body template during the pre-race inspection process. This opening gets taped shut prior to the race.

Spoiler heights vary among the car makes. NASCAR attempts to achieve fair competition regardless of manufacturer, and governing the allowable spoiler height based on the car make is an easy way to facilitate equality.

At each track, your spoiler is adjustable anywhere between forty-five and seventy-four degrees. The spoiler on your car can be adjusted in the garage, and it can also be moved by the pit crew during races. Raising the spoiler creates more downforce on the rear of the car, improving the car's behavior while cornering. Higher spoiler angles also create more drag though, so straightaway speed gets traded off. Lower angles provide less



The rear spoiler is adjustable, from a minimum angle of 45 degrees, to a maximum angle of 74 degrees. Click on the left gold arrow to lower the spoiler. Click on the right gold arrow to raise the spoiler. You can also have the pit crew adjust your spoiler by using the F7 Radio key.

effectiveness from the spoiler. While top speed will be improved thanks to the reduction in drag, the car's cornering ability will be hindered because the spoiler will be generating less downforce on the rear decklid.

Make spoiler adjustments in the garage by clicking on the appropriate arrows or by clicking on the existing value and typing the desired angle in its place. You can also have the crew adjust the spoiler while you're in your pit stall. Just use the F7 Radio key to set the desired angle.

Spoiler Rundown

Higher spoiler settings will improve the car's cornering capabilities by adding downforce to the rear. Using high spoiler settings causes the car's straightaway speed to be lessened though, because of the increase in drag.

Lower spoiler settings will provide the best straightaway speeds, but give you the least amount of downforce in the corners.

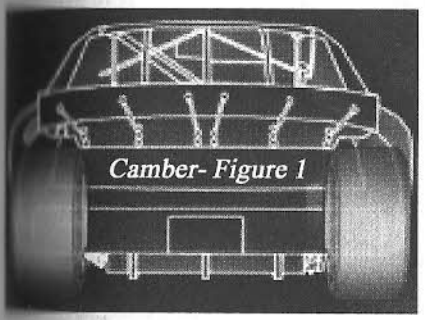
Sticking By Suspension

With the Car Setup Menu, you'll dedicate very little time toward the engine of your car. The majority of fine tuning will occur in the suspension of your racecar. If you read the previous pages that gave a sample tutorial on the setup process, then you probably have a feel for what to do with the Car Setup Menu. Drive a few laps, note the car's behavior, pull up the Car Setup Menu, adjust one item, drive some more laps, return to the Car Setup Menu, make another adjustment, and so on. It may sound repetitive, but that routine is pretty much what real NASCAR Winston Cup crews endure every weekend, minus the frammed knuckles, pressures to perform for sponsors, and personnel limitations. Mundane, yes, sometimes...but when you hit on something, when you figure out something the other drivers don't know, when you really get it right- it's an exhilarating feeling!

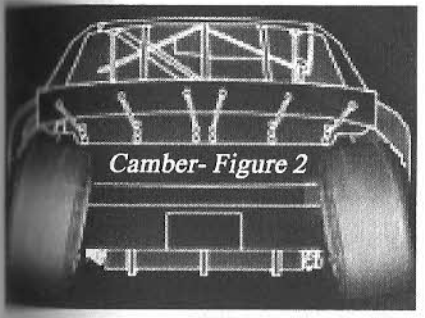
Chassis setups differ from track to track, and must be built to accomodate each driver's individual characteristics. Trying to put together a setup that is 'all things to all drivers' just doesn't happen in the real world. Even the default setups in this simulation, built by some of the best online racers going, will probably require a minor tweak or two to suit your skills.

Don't be afraid to tinker with the suspension, just remember to save your changes to a new file. If you get it wrong, you still have the old version to return to; if you get it right, start practicing your victory lane speech!

Camber At The Front


Camber- Figure 1

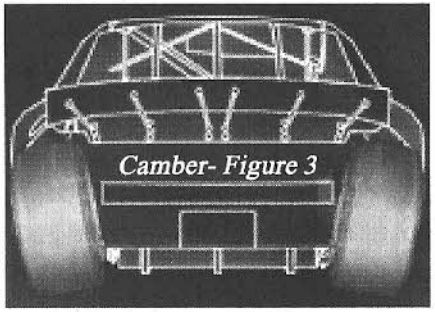
When your car is parked on flat pavement, it's front and rear wheels are perpendicular to the ground, standing straight up. In this position, the camber of each wheel is 'zero' (see figure one at left). As the car is driven at high speed, downforce is generated; this downforce presses the car down, causing part of the tire surfaces to no longer be in contact with the pavement (as seen in figure two, below left).


Camber- Figure 2

The camber of the rear wheels is not adjustable. You can adjust the camber of the front wheels though. The idea here is to set the camber so that your front wheels have as much rubber touching the ground as possible.

By adjusting the camber to move a front tire outward at the top of the wheel (away from the engine), you are adding *positive* camber. You can see an example of this on the next page, in figure three. By moving the camber to a *negative* value, the top of the wheel will be closer to the engine, like the diagram in figure two, above, shows. Now that you know what camber is all about, how can you determine when/why/how to adjust it? Very simple. Remember, those tire temperature readings give you valuable information!

Basically, if a tire is too hot on its outer-most edge, you'll need to bring the top of the tire in some. Reduce the camber if it's already a positive value, such as +1.80; move it further negative if it is already a negative value, such as -0.40. The process is reversed for a tire that is too hot at its inner-most edge. Move the tire outward by applying values that are more in the positive direction. You can also direct more heat to an edge of the tire that's too cold by adjusting the camber.



Camber- Figure 3

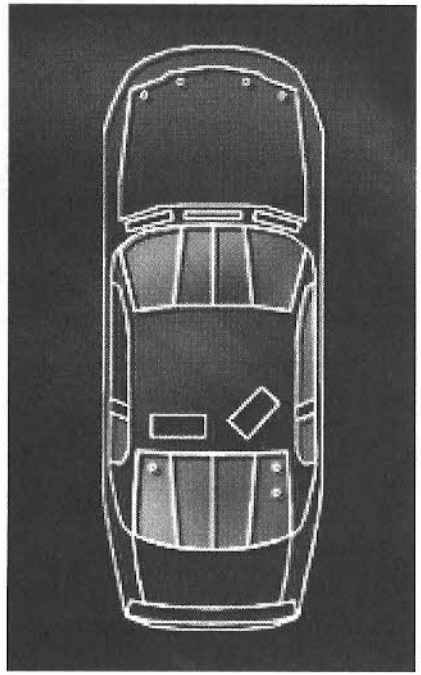
The values themselves represent inches. For instance, a left front camber value of +1.50 means that you're actually setting the suspension up so that the left front wheel will be an inch-and-a-half further away from the engine at the top of the wheel than it will be at the bottom. A left front camber value of -0.40 means that the top of the left front tire will be four-tenths of an inch closer to the engine compartment at the top of the wheel than at the bottom. Camber is only adjustable in the garage.

Camber Rundown

Negative camber moves the top of the tire more inward, to equalize tire temps or generate more heat on the inside edge of a tire.

Positive camber moves the top of the tire more outward than the bottom, to put more heat on the outer edge.

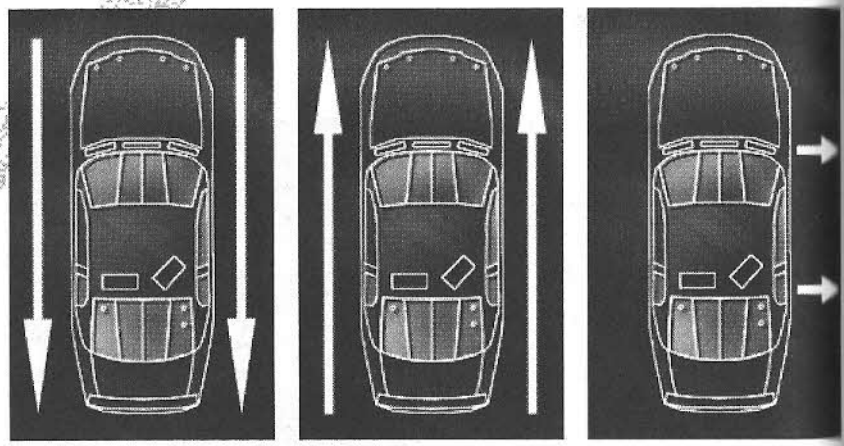
The Weight Workout



As you drive your stock car, its weight constantly shifts in various directions. Mash the gas and weight shifts toward the rear of the car; stomp on the brakes and the car's weight comes hurtling forward, pressing the front end down. Drive left around a speedway corner at high speed, and weight gets thrown toward the right. Take the sharp right hairpin turn at Sears Point, and your car's weight shifts to the left. You get the basic idea.

Now, imagine being able to position the static weight of your racecar so that those shifts of weight work in your favor...ah, now we're on to something. We could put more of the car's static weight in the rear; this would make the chassis feel looser under braking, because more weight would be transferring from the rear of the car toward its front.

Remember our Dover Downs experiment a few pages back? Our car hugged the corners better when we moved a majority of its left/right weight to the left side of the car. That's because when a car turns left, centrifugal force throws the car's weight toward the right.



The three images above show what happens to the car's weight as you drive. In the image on the left, weight is shifted toward the rear of the car under acceleration. In the center image, weight is transferred toward the front of the car under heavy braking. At right, the car is being driven through a left turn. The chassis weight shifts toward the outside of the turn, in this case toward the right.

By loading more weight on the left side of the car to begin with, the car will provide you with better grip on the right side. In a road course setup, you may want the weight dead center, to accomodate left and right turns.

Here's a simple illustration to remember: On a speedway car that's only going to be driven through left corners, think of the left side of the car as the 'throw' side. Think of the right side of the car as the 'catch' side. When you accelerate, the front of the car will be doing some throwing and the rear will do the catching. When you hit the brakes, the front of the car will catch for the rear. Now we'll introduce one more weight to the illustration- cross weight, or as it is more commonly known, 'wedge.'

Your stock car must weigh at least 3,400 lbs. in order to pass inspection. NASCAR Racing 3 maintains this weight for your car, so you don't have to worry about it like the actual race teams do. Of that 3,400 lbs., NASCAR rules allow up to 1,900 on any side of the chassis- that means up to 1,900 lbs. on the front or rear, and no more than 1,900 lbs. on the left or right sides.

Actual stock cars weigh a bit less than the required minimum. The frame of the stock car is tubular; teams will add blocks of lead inside the frame rails of the chassis to meet NASCAR's weight requirements. These blocks of lead can be positioned inside the chassis anywhere they're needed; this makes it easy for the crew to move those weight biases around as needed. Want more weight on the left side? No problem, a crew member will simply slide the lead blocks more toward the left. How about more weight up front? No sweat, simply have your crew slide the leaded blocks toward the front end of the chassis.

But what about this cross weight thing? Wedge, they call it. O.k., here it is in a nutshell. Cross weight adjustments allow you to specify how much of the car's static weight gets applied to each wheel *individually*. Left bias helps the car turn left. Front/rear bias can help the car enter or leave turns in a more desirable manner. Cross weight can give you that bite in the right front wheel. It's good for entering turns, it's good for leaving them. Specifically, you're working with the amount of weight distributed between the left rear and the right front tires. You could draw a diagonal line from the left rear to the right front of your car, and that would represent cross weight. So, putting more weight on the right front wheel subtracts weight from the left rear; removing weight from the right front wheel adds weight to the left rear.

How And When To Adjust The Weight Bias

For the most part, you'll want as much weight as you can get on the left side of the car for ovals. This includes short tracks, mile tracks, and superspeedways. On road courses, you may want the weight evenly balanced between the left and right sides...or maybe not. Take a look at that road course- if more of the important corners (o.k., they're *all* important!) are right handers, you may want to think about putting some of that extra weight on the right side of the chassis.

For front/rear bias adjustments, more rear weight will tend to help the chassis oversteer (feel loose). This oversteer can sometimes be difficult to control under hard braking, but really help get the car into a state of turning a little sooner. More front weight will cause the chassis to understeer as you brake (feel tight). This is preferable on many tracks because the car will feel more in control as you brake.

Positive cross weight (more weight on the right front tire) will help the car plant and turn better, but you've got to consider the amount of stress the right front tire is already encountering. Too much cross weight can burn up the right front tire prematurely. Since the cross weight can be easily adjusted by your crew while in the pits, you may find it necessary to build your chassis setups with the cross weight set somewhere close to zero; that way you can have the crew make wedge adjustments on pit road as needed. Car too tight? Have the crew remove some wedge. Car too loose? Tighten it up by increasing the cross weight.

The cross weight gets adjusted by a crew member, who inserts a wrench through a small opening in the car's rear window. As the

wrench is turned, the left rear wheel spring gets compressed to remove wedge; turning the wrench in the opposite direction decompresses the left rear spring, causing more weight to shift toward the right front of the chassis. This adds wedge to the car. Each full rotation of the wrench adds or subtracts five pounds of wedge. If you hear someone say they added two rounds, this means they shifted about ten pounds of weight toward the right front of the chassis.

Weight Rundown

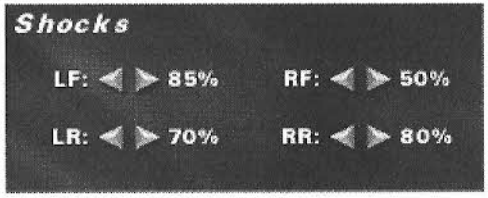
Left/Right Bias adjustments: Slide this value toward the left to add weight to the left side of the chassis, subtracted from the right. Helps the car turn left better.

Front/Rear Bias adjustments: Move the slider forward to add more weight to the front of the car, subtracting from the rear. This increase the amount of understeer. Move the slider backward to add more weight to the rearend, while reducing the amount of weight on the front. This increases the amount of oversteer in the chassis.

Cross Weight: Diagonal weight on the chassis, specifically the relationship between the weight at the left rear wheel compared to the weight at the right front wheel. Add more cross weight (wedge) to tighten up the chassis. Reduce cross weight to loosen up the chassis. Also adjustable on pit road.

Shock Absorbers

Your car is equipped with high performance, adjustable shock absorbers mounted at each wheel. In addition to minimizing all of the little bumps and jounces felt on the race track, shock absorbers help stabilize the car's chassis during high speed turns.



In some respects, shock absorbers control how much time your tires spend touching the pavement as you drive. Stiffer shocks produce quicker response from the chassis because it is able to 'reset' faster after hard cornering or braking. Softer shocks provide a more forgiving chassis, allowing the shocks to spend more time 'dampening out' shifts of weight.

More weight is transferred at the wheel that is stiffest. If your left front shock is set much stiffer than your other three shocks, for example, more weight will transfer at the left front wheel than at the other three. Consequently, this would increase the stress applied to the left front tire- not a bad thing, since the left front wheel usually suffers the least amount of abuse anyway.

Stiffer shocks will create a wheel that rolls better on straightaways, while softer shocks will make cornering easier. You can see the effects of shock settings yourself at a high speed track like Atlanta Motor Speedway. Set all of your shocks to something soft, say, 10%. Head out to the track and run some laps; you'll notice that the car is very sluggish on the straights, but you could probably take the corners with your eyes closed. Now bring the shock stiffness up to

100% on all four wheels. This time, you should notice that the car is faster on the straightaways, but probably difficult to corner with.

Now that you've seen firsthand how the shocks affect handling, where do you begin to make adjustments on them? There are no hard, fast rules for setting up the shock absorbers, unfortunately. You'll have to spend some time experimenting with different settings to come up with some combinations that suit your driving tactics. There are some shortcuts, however, that might provide you with a starting point. Load up some of the various setups that came with NASCAR Racing 3, at several different tracks. Take note of the shock settings and how they work together- you'll begin to see a pattern or two emerge. In most cases, the left front shock will be the stiffest. In several setups you'll notice that the right front shock will be the softest (remember our 'throw and catch' theory when we talked about weight transfer a few pages back).

Typically, though, you'll want to begin with front shocks that are set a little bit stiffer than the rear ones. This will create a slight amount of understeer in the car, making it safer to drive. As you adjust the shocks, remember to take into account temperature, track design, straightaway speeds and banking- all of which play a part in how the suspension performs.

To adjust the car's shocks, you must be in the garage (at the Car Setup Menu). Click on the arrows by each shock to adjust stiffness. The higher the percentage (100% maximum), the stiffer the shock. Like other garage items, you can also click directly on the values themselves, and type the desired amount onto the screen. Remember, each shock absorber may be set to individual values, independent of one another.

Shock Rundown

Using softer shock settings, weight transfer is reduced. The car will become less responsive as the chassis takes more time to reset itself after each corner. Softer shocks do provide less stress to tires and more forgiveness in steering input.

Using stiffer shocks, you'll gain more top speed. The tradeoff is that the car will be very responsive and harder on its tires. Shocks that are too stiff may lead you to over correct.

Each shock may be individually adjusted, independent of one another.

This Sway And That

Sway bars have gone by many different names in racing garages. Anti-roll bars, torsion bars, whatever you choose to call them, there are two on your car- one between the front wheels, and one between the rear wheels. Sway bars control the amount of 'body roll' the car experiences while turning. Thicker sway bars help minimize body roll, but using bars that are too thick tend to create handling problems.

Hughston Caldwell has been beta testing Papyrus racing simulations for years, and has competed in hundreds of online races as well. By day, he is a NASCAR Winston Cup crew member, having served on several different teams through the years. Here's his take on sway bars:

"Front sway bars control the roll of the car through the corner, but more so on entry. The smaller the bar, the more roll the car has. The bigger the bar, the less roll and the tighter the car will be entering the corner.

"Rear sway bars act the opposite. They control the roll of the car off the corner. The bigger the rear bar, the less roll you will have and you loosen the car up from the middle of the corner, off. The bigger the rear bar, the looser the car will be off the corner," Hughston says.

In general, you'll want to set the sway bars as stiff as you can control them. On most larger tracks, you'll probably want the front sway

bar slightly stiffer than the rear. Since there are only a handful of sizes available, treat the sway bars like a measure of fine tuning. Remember to keep an eye on the tire temperatures as you try out different sway bars.

Sway bars provide some of the same benefits of shock absorbers in the car's handling, but their overall effect is more subtle. You do want the bars as stiff as possible, but using a sway bar that's too thick can add too much responsiveness to the chassis, making it feel 'twitchy' to drive.

Sway Bar Rundown

Stiffer bars minimize body roll, helping the car get reset quicker as it turns at high speed.

Softer bars prevent less body roll, making the car easier to drive for beginners.

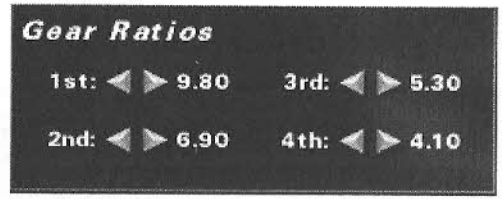
Set the sway bars up as stiff as you can control them. Set each bar up individually, with the front bar affecting your entry into corners, and the rear bar having a greater affect on your exits.

Gearing Up For Racing

Your stock car's engine generates approximately 750 horsepower. On restrictor plate tracks (like Talladega), your engine is capable of making only about 420 horsepower. By choosing different combinations of cogs in your stock car's transmission, you can determine how the engine will manage that horsepower.

Shorter gear ratios provide greater acceleration, but less overall top speed. Taller gears give you the opposite- great top speed but reduced acceleration. To get a handle on how to pick the right gear, let's look at two tracks- Talladega, a superspeedway and Bristol, a bullring.

At Talladega, you can just about toss acceleration out the window. What you'll want is top speed, as much of it as you can get. In that case, a 3.20 fourth gear will get you more top speed than a 3.45 setting. That's because the 3.20 gear is taller (larger in diameter) than the 3.45 is. Bristol, on the other hand, requires a different approach. Since you're only on each straightaway for four or five seconds, a fourth gear that is too tall would cost you acceleration and waste horsepower. In this case, a 4.10 gear would be too tall; something more in the 4.75-5.00 range would probably be more appropriate.



Begin your setup process by choosing fourth gear first. Run some laps, paying close attention to the tachometer and over-rev lights. Using the longest straightaway at whatever track you're setting up for, try to pick a fourth gear that will get the over-rev light to just

barely start blinking as you reach the straight's end. If the over-rev light doesn't blink at all, you may not be using all of the power available to you from the motor. If the dash light begins blinking too soon, the motor may undergo too much abuse and eventually blow. On oval tracks, fourth gear is the most critical; get fourth gear set and then space the other gears accordingly.

With fourth gear being so important though, don't overlook first gear! By trying different ratios for first, you can find something suitable for obeying the pit road speed limit. To learn more about this, let's go back to Bristol again. Using a first gear ratio of 10.00, you can run the engine up to about 4,500 rpms without breaking the pit road speed limit. But if you were to use a taller first gear, such as 9.00, you would have to keep the car at or below 4,000 rpms on pit road. Pick a first gear that gives you the acceleration you need on starts and restarts, but that does not cause you to exceed the pit road speed limit when you barely touch the accelerator.

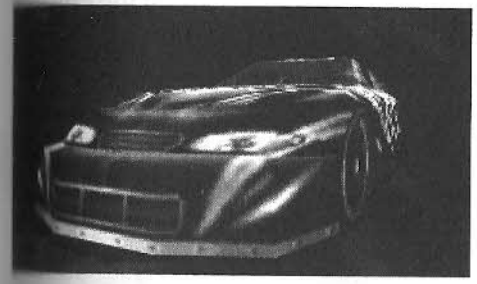
Gear Rundown

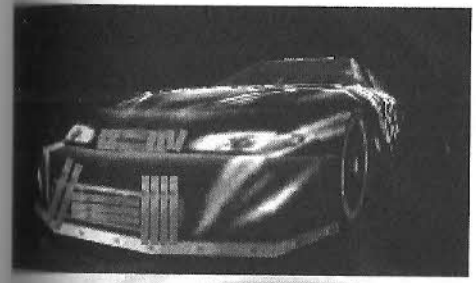
Use shorter gear ratios (higher values) to create more acceleration. Shorter, tighter ratios help the engine reach peak horsepower sooner, possibly trading off some topspeed.

Taller gear ratios (indicated by lower values) will provide more topspeed but less acceleration. It may take the car a lap or two to get 'wound up to speed' with taller, longer gears. Ideal for superspeedways like Talladega.

The Truth About 200 MPH Tape

As your stock car travels at high speed, the front of the car strikes air. A certain amount of this air passes through the front grill of the car, and into the engine compartment. Some of this air is desirable, as it helps cool the engine. This air also creates extra drag as it gathers inside the engine compartment, however, and that can slow the car. By reducing the size of the grille opening on the nose of the car, this air flows up over the hood, creating more downforce up front while reducing drag. Race teams apply strips of duct tape to the car's grille in order to minimize its opening when necessary.





The top view shows you a normal grille, without tape. The lower view shows you what the grille might look like with tape applied to reduce the size of its opening. You can use the Paint Shop to draw tape on the nose of your car, as we did here.

Typically, the nose of the car will have a minimal opening during qualifying. Generous amounts of tape are applied over the grille to try to achieve the best downforce. Only a small opening is needed for the one or two laps of qualifying that will take place. During races, however, the engine needs the air collected through the grille to keep it cool, so little or no tape at all is used.

You'll have to experiment some at the different types of tracks for tape settings that allow you to go the distance without over-heating the engine. Keep an eye on the water temperature gauge to find out whether you're using too much tape or not.

You can probably get away with a little more tape at tracks that have higher speeds. Talladega, Atlanta, Texas- the speeds at these tracks will force more air into the engine compartment; adding some tape to the grille during races at these tracks will be beneficial without abusing the motor. In contrast, at shorter tracks like Martinsville you won't be driving fast enough to generate much air to cool the engine. Using too much tape will cause the motor to overheat.

You can select the amount of tape you want added in the garage, using the Car Setup Menu. You can also have tape added to your car's grille during any pit stop, by pressing the F8 Radio key. Sticking a piece of tape on the grille takes just a few seconds; this makes grille taping an excellent way to address certain handling issues, provided the engine doesn't get too hot.

Grille Tape Rundown

More tape on the nose of the car reduces the amount of air that causes drag. The downforce on the nose of the car is increased, but the engine receives less air to keep it cool.

Use as much tape as you can get away with, for the long haul, but be careful not to blow the engine by cutting off too much of its cool air supply.

Setting Wheel Lock

Wheel lock refers to the maximum angle that your front wheels steer left-to-right, or in other words, how sharp the front wheels turn. Since the banked, expansive corners of superspeedways like Talladega require very little steering input from a driver, a smaller wheel lock value would be desirable. On a road course though, a small wheel lock setting might not give you enough steering range to find your way around its coziest hairpin turn.

To a large degree, the amount of steering lock you choose at any given track should be determined by the control device you're using. Wheel users may prefer smaller lock values, as compared to joystick or keyboard drivers. Individual steering devices have different ranges of control to them, so you'll have to choose wheel lock accordingly.

If you set the wheel lock to a value of 18° for example, you would not need to turn the wheel (or other control device) as sharply as you would if the lock was set to 5°. The 18° lock may require the slightest rotation of the steering wheel to cause the car to turn dramatically. The 5° lock would require that same driver to rotate the steering wheel a considerable amount before the car will steer as sharply. Use the smallest lock value that you're comfortable with for the best overall control. If you choose a lock value that is too high, the car will be very sensitive to your steering movements. Lower lock values

will give you a finer range of control.

You should also understand that wheel lock is not necessarily going to change the behavior of your car's chassis. A loose car with a low wheel lock setting will still be loose after the lock is raised, and so on. Don't waste time trying to compensate for obvious handling errors in your chassis setup by adjusting wheel lock. Remember, think about the corners of the particular track you're racing on- not just the radius of each turn, but also the banking. Steeper banks will help reduce the amount of wheel lock you'll need.

To change the wheel lock, use the Car Setup Menu. Choose a higher value to make the steering sharper, and more responsive. Select a lower value to slow down the steering and afford you more control.

Wheel Lock Rundown

Use more wheel lock (higher angles) to increase the turning radius of the stock car, adding responsiveness to cornering. Keep in mind that too much wheel lock will make the steering very sensitive, possibly causing you to over-correct.

Less wheel lock (lower values) is perfect for larger tracks that have broad, sweeping corners. Slight movements of the steering wheel or joystick will not affect the car as greatly, allowing you to make high speed corrections easier.

Tracks Of The Trade

A Complete Guide To Each Track
In NASCAR Racing 3

Atlanta Motor Speedway

Hampton, Georgia

Originally constructed in 1960, Atlanta Motor Speedway underwe a dramatic facelift in 1997. Following the Spring race that year, t track was reconfigured from its original oval design, to a faster quad oval layout. When the new design debuted for the final race of th season, NASCAR fans were treated to record speeds from the drive

The old front straight is now the back straight; in addition, gorgeo condominium units and luxury suites were added to the facilit Atlanta Motor Speedway is located in Hampton, Georgia, about thir minutes South of downtown Atlanta.

The Atlanta Setup:

Let the banking here do the work for you, don't loosen the car up too much...Check the rev light for fourth gear settings at the entrance to turn one...If your wheels are spinning too much, try stiffer sway bars...

The Atlanta Line:

This is a wide, fast track. The smooth banking makes for exhilarating passing action in the corners with an outstanding sensation of speed. As you grow accustomed to this track, you'll discover that you don't really need to use the brakes much at all.

At the start/finish line, steer around the second dogleg and position your car in the middle of the track to enter Turn One. Lift off the throttle, wait a beat, then step back on the accelerator. Drive flat out around the rest of the corner, keeping the car as low as you can without getting on the apron. When you exit Turn Two, let the car float back up to the outside wall.

As you approach Turn Three, drive hard all the way to the start of the corner before lifting off the gas. Give it one, maybe two beats of coasting before you reapply the power. Step back on the gas and steer the car off of Turn Four toward the outside.

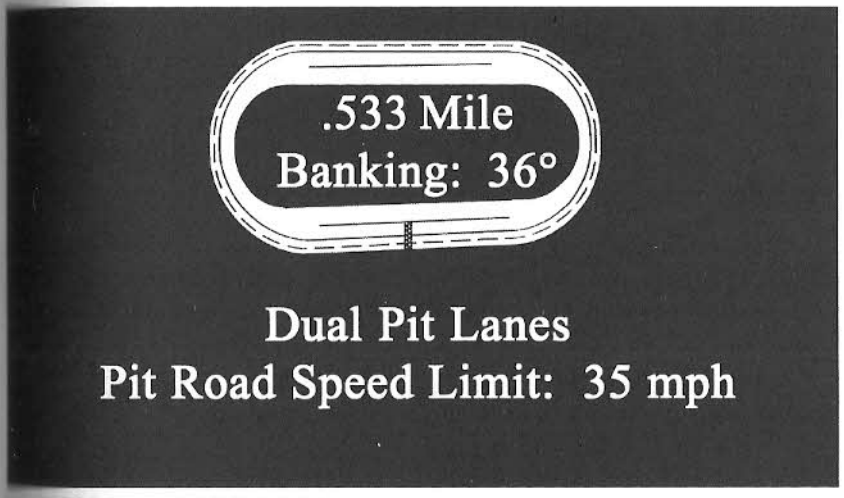
When you reach the dogleg, make a wide entry and be near the outside wall as you cross the start/finish line. Dive low and run almost at the curb as you pass through the second dogleg on your way back to Turn One.

Last Minute Tweaks:

Are you too loose in the turns? You can't afford to be. If you are, you're probably scrubbing off speed. It's a fast place, but don't overdrive it. Let things come to you instead.

Bristol Motor Speedway

Bristol, Tennessee



Bristol Motor Speedway is located in Bristol, Tennessee, near the Tennessee-Virginia border. At thirty-six degrees, Bristol Motor Speedway features the steepest banks on the NASCAR Winston Cup circuit. Bristol has been a regular stop on the NASCAR schedule since 1961, and is dubbed "The World's Fastest Half-Mile Speedway" despite the fact that the track is actually just over a half-mile in length.

Originally paved with asphalt, the track was eventually resurfaced with concrete and has been nearly doubled in seating capacity. Bristol's wide, fast concrete surface and high banked turns have no trouble keeping the action intense for five-hundred laps.

The Bristol Setup:

One of the trickier tracks to get the chassis set up for...The car cannot be too loose here, because the banking will cause the back tires to spin at the exit of each turn...exit speeds and straightaway speeds are most critical to fast lap times

The Bristol Line:

Bristol has a fairly wide surface that allows drivers to race two-wide through the corners quite comfortably. Fast lap times can be achieved in the low groove as well as the higher lane, but like most tracks, Bristol does have a preferred racing line.

From the start/finish line, keep the car out against the wall. As you approach Turn One, lift off the throttle and brake down to around 7,000 rpms. Try to drive the car down to the bottom of the corner, while remaining on the banking and holding the rpms at 7,000. You'll notice here that the view out of the windshield ahead is nothing but a wall of concrete. Because of the limited visibility and high speeds, you'll have to drive "heads up." It's not uncommon for an accident to begin on one straightaway and end on the opposite one. When the car hugs the bottom of the track at the apex, roll back on the gas and drive the car back up to the wall.

As you approach Turn Three, repeat the process- lift, brake and dive to the bottom of the track, careful not to get so low that the car flattens out on the apron. The exit at Turn Four feels markedly different from the exit at Turn Two; you'll notice that in Turn Two you could exit hard up to the wall quickly. However, doing this off of Turn Four could upset the car and make it feel quite loose. Instead, try to

maintain a precise line and drift back to the outside just before the start/finish line.

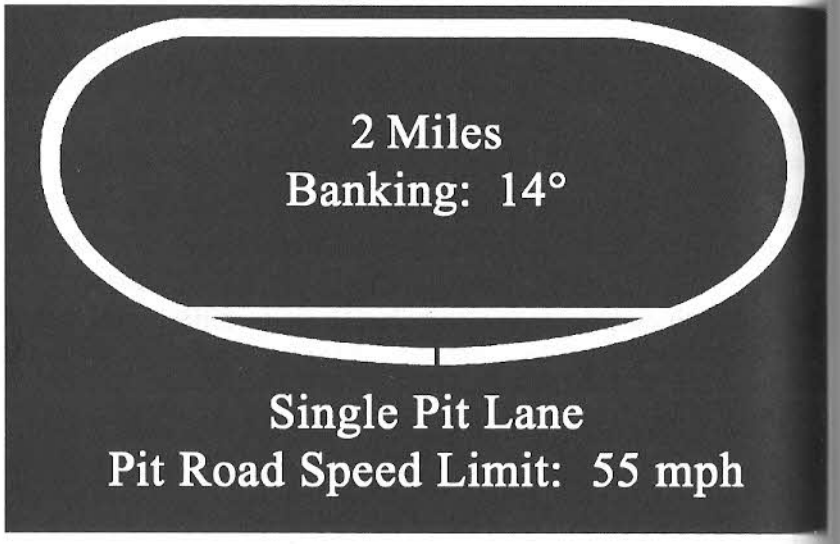
Last Minute Tweaks:

Getting familiar with the corners at Bristol takes practice. You'll need to get comfortable with driving the car into each corner fairly hard, and getting back on the gas before the car actually feels like it's ready to turn.

Chassis setup plays a bigger part in overall speeds at Bristol than it does at many other tracks. Keep in mind, the difference between the lead car and the slowest car here is often only three or four tenths of seconds, so finding those tenths in the garage is imperative.

California Speedway

Fontana, California



Since its inaugural race in 1997, California Speedway has kept a busy schedule. Currently the track hosts a NASCAR Winston Cup race, a NASCAR Busch Series Grand National Division event, the NASCAR Craftsman Truck Series and the NASCAR Winston West Tour.

Built on the site of a dilapidated steel mill, California Speedway is situated on 475 acres of land about 45 miles from Los Angeles. The track compares to Michigan Speedway in shape and size, but the surface is slightly flatter.

The California Setup:

Suspension is similar to the Michigan setup, but the gearing is not...Fast laps are nearly impossible here once the right front tire is worn, so protect it wisely...It is a wide track with many different grooves to race in- know where everyone is...Be extra careful when following other cars closely into the corners, many drivers use different braking points getting into the turns at California...

The California Line:

From the start/finish line, stay near the middle of the track as you approach Turn One. Lift off the accelerator, tap the brakes and drop to the low groove, keeping the left side tires on the white line. Try to keep the car from getting too low onto the apron, in order to avoid spinning the back tires as you exit the turn. Hold the power at around 7,000 rpms until you reach the apex of the corner; when the car is perpendicular to the back straight, step back on the accelerator and floor it off the turn.

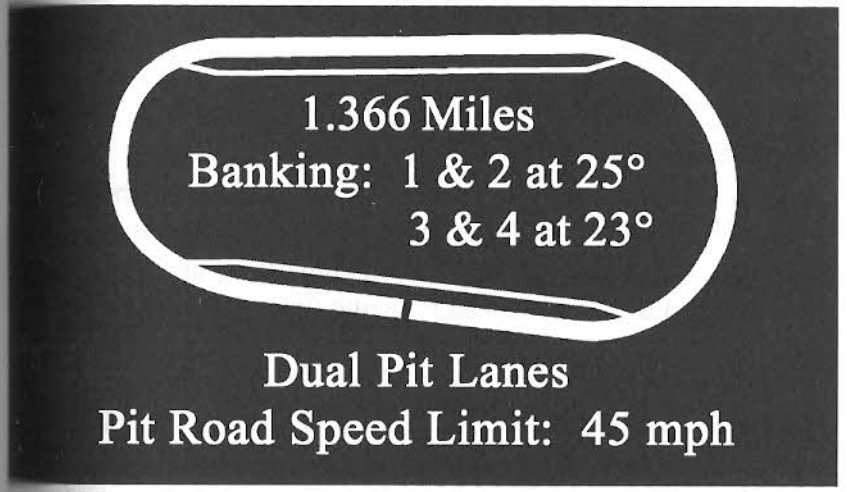
Stay near the outer wall along the back straight. When you reach the entrance of Turn Three, lift and step on the brakes, bringing the car back down to 7,000 rpms. Follow the low groove into the turn, keeping the left side tires on the white line. Just as the car reaches the large orange Union 76 ball on your left, get back on the gas and let the car drift toward the middle of the track as you exit Turn Four. Away from Turn Four, cross the start/finish line toward the lower-middle of the track.

Last Minute Tweaks:

Don't get too aggressive in the turns here; if you dive into the corner too hard you'll rob yourself of valuable straightaway speed. Try to concentrate on developing a car that turns quickly when the rpms get down to 7,000.

Darlington Raceway

Darlington, South Carolina



Darlington Raceway was carved from an old cotton field in 1950. NASCAR's first superspeedway, Darlington is an egg-shaped oval that has been dubbed "Too Tough To Tame," and "The Lady In Black." Its odd corners have left many a Crew Chief scratching his head over the chassis setup.

The track was reversed in 1998 to accomodate new grandstand configurations- the old Turn One is now Turn Three. On the track itself, however, it's still the same Darlington- lift an arm and prepare to scratch *your* head!

The Darlington Setup:

Because of the odd-shaped corners, a chassis that is slightly looser on exits may be a bit faster, if you can maintain control...Horsepower off the turns is crucial to fast lap times...Soften the right front suspension to preserve tire wear...If you're having trouble staying out of the walls here, you're probably attacking the corners too hard...If you're not up to speed, work on Turns One and Two first, it's a tricky corner to drive at high speed on...

The Darlington Line:

Darlington is a one-groove track that must be driven with a patient, give-and-take mentality. High speeds combined with a narrow groove mean that every pass must be handled gingerly by all cars involved. As a driver, you'll feel like you're racing the track more here, rather than the other cars.

At the start/finish line, stay on the gas and near the outer wall until you reach the first corner. This is the wider, faster end of the race track; drive the car into the corner a little deeper than you might feel comfortable doing, before braking. As you enter the corner, use the brakes and drift away from the wall, positioning the left side tires on the dotted white line near the middle of the track. As the car dips down to 7,000 rpms, step back on the gas early (before the apex of Turns One and Two). The car will move up approximately a half-a-lane, but you should be able to hold the same line around the remainder of the corner after that.

The car should come out of Turn Two near the wall, and at full speed. The banking takes a dip at the exit of the turn, so you've got

to remain below that in order to avoid the wall. Stay to the outside and on the gas as you streak down the back straight. As you enter Turn Three, brake hard and steer the car into the corner just above the dotted white line. Let the rpms fall down to around 6,200 and apply just enough throttle to hold them there as you round the turn. In the middle of Turns Three and Four, roll back on the accelerator and steer the car along the white line all the way out of the turn. Drift back out toward the wall as the car approaches the start/finish line again.

Last Minute Tweaks:

Darlington presents one of the toughest tracks to develop a feel for. Don't get frustrated, practice trying to maintain as many rpms as possible in Turns One and Two in order to carry lots of speed down the back straightaway.

Dover Downs International Speedway

Dover, Delaware

Known as "The Monster Mile," Dover Downs International Speedway celebrated its 30th year in NASCAR racing in 199 Originally paved with asphalt, Dover was resurfaced with concre prior to the 1995 season, becoming the first NASCA superspeedway to sport a concrete surface.

A horse racing track surrounds the infield of the one-mile oval, hen the name "Dover Downs." Due to its speeds, banking and tig corners, Dover is a physically demanding racetrack for drivers face.

The Dover Setup:

The steep banks keep the right side tires working very hard throughout race, it's up to your set up to reduce the stress on the right side...Do not allow the car to be too loose at Dover, especially at the exits of the turns...

The Dover Line:

Dover is a comfortable track to race side-by-side on. Its wide, high corners provide two distinct lanes to travel in.

Racing flat out at the start/finish line, stay up high along the wall. You'll notice that the straightaways at Dover possess an unusual amount of banking; as you enter Turn One, brake down to about 6,500 rpms and drive down to the bottom of the corner. Because of the steep straights it will feel like you're driving into the bottom of a hole. Maintain just enough acceleration to let the car hug the bottom of the track; just prior to reaching the middle of the corner, step back on the gas and drive full speed around the remainder of the turn. As the car reaches the exit of Turn Two, let it drift back up the banking, out near the wall.

Down the back straight, stay wide unless you are overtaking other cars. You may feel the urge to drive hard into Turn Three, and for what it's worth, the car will respond. However, hard entrances into Turn Three tend to take quite a toll on the tires and really don't do much for shaving lap times. Instead, make an earlier entrance by braking hard and diving for the low line. Keep the car on the bottom of the track at a constant 6,500 rpms, and stay off the gas until you see the end of the pit wall appear ahead. At that point, get back on

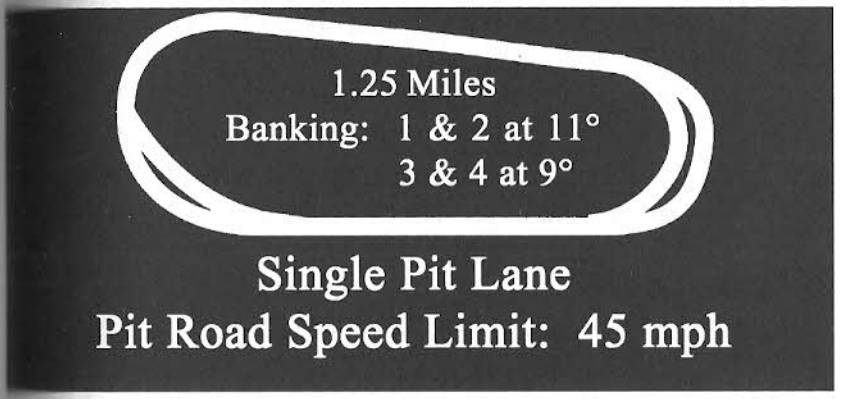
the throttle hard and steer the car off the low lane of Turn Four. If you exit Turn Four too wide, you'll most certainly smack the wall and leave a mess for your crew to clean up. The Turn Four exit is perhaps the trickiest part of a Dover lap; as your tires begin to wear, wait a beat or two later before getting back on the gas. This will help you avoid that sneaky Turn Four wall.

Last Minute Tweaks:

When the right side tires are gone, this is one of the tougher tracks to drive on. Take it extra easy on worn tires at Dover Downs, until you can replace them.

Gateway International Raceway

Madison, Illinois



In addition to its 1.25-mile oval, Gateway International Raceway features a 1.6-mile road course and a dragstrip. The speedway itself is comprised of two very unique turns that give the track an overall oblong shape.

Though the track is actually located in Madison, Illinois, Gateway International Raceway is often thought of as being in St. Louis, Missouri, which is five miles away. The famous Gateway Arch can be seen in the distance from the track.

The Gateway Setup:

Strive for a chassis that's a little loose getting into the corners, bu not loose exiting them...Exceptionally soft right front suspension ma pay off with quicker cornering speeds here...Choose a flexible fourt gear that can carry straightaway speed yet keep enough rpms turnin in the corners...

The Gateway Line:

At the start/finish line, stay in fourth gear along the outer wall. A you approach Turn One, brake early, and brake hard. Slow the ca down to 5,200 rpms. As you make the turn, start high then let th car drift low as the engine revs way down. Clip the bottom of th apex, then ease back onto the accelerator (don't mash the gas to soon!) and steer the car out of Turn Two, near the outside wall.

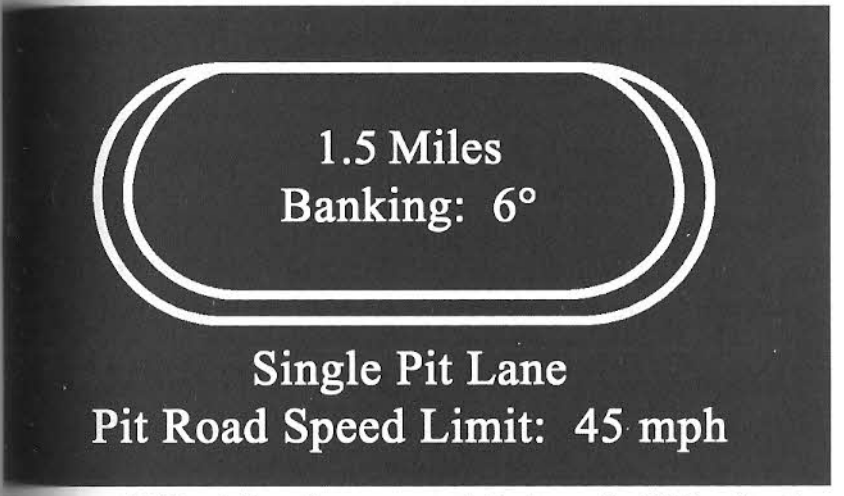
Stay wide on the backstretch, and get on the brakes as you pull eve with the pit lane entrance on your left. Keep the car high at first, le the rpms fall to 6,000 while coasting down to the bottom of th track. Just before the left side wheels reach the curb, step back o the gas and try to keep steering left as hard as you can. If you hit i just right, the car will drive straight off the corner and out near th wall as you exit Turn Four, heading back to the start/finish line.

Last Minute Tweaks:

Try shifting down to third in the corners if you're uncomfortabl with the low rpms. Take another look at your rear sway bar stiffness, to make sure you're getting all the grip you can as you exit each turn

Homestead-Miami Speedway

Homestead, Florida



Homestead-Miami Speedway opened its doors in 1995. Hosting NASCAR Busch Series Grand National Division and NASCAR Craftsman Truck Series races over the past few seasons, Homestead-Miami was added to the NASCAR Winston Cup schedule for the 1999 season. The warm South Florida climate is a perfect fit for Fall racing, which is why the track hosts its NASCAR Winston Cup and Busch Series Grand National Division events in the fourth quarter.

Touted as one of the most state-of-the-art racing facilities in existence, Homestead-Miami offers plenty of luxury suites and fan-friendly accomodations.

The Homestead-Miami Setup:

Try not to let your chassis settings make the car too tight, unless you plan on braking extra-early...A little more spoiler may help you get through the corners smoother...Play with camber and wedge settings to make the front wheels grab the pavement for you in the corners.

The Homestead-Miami Line:

Very little banking gives the Homestead-Miami corners a slippery feel. Long and lazy, these turns demand utmost concentration in order to get through them consistently. The turns are roomy, but with little traction each driver must hold their line.

At the start/finish line, stay along the wall and in the gas until you reach the entrance of Turn One. This should be just about at the same point where the pit lane exits to your left. When you reach this spot, brake down to 6,000 rpms and drive a diamond pattern- starting high, then dropping low at the apex of Turns One and Two. Hold the rpms at a constant 6,000 until you reach the middle of the corner, then gently bring the accelerator back on full. Let the car drift out near the wall as you exit Turn Two.

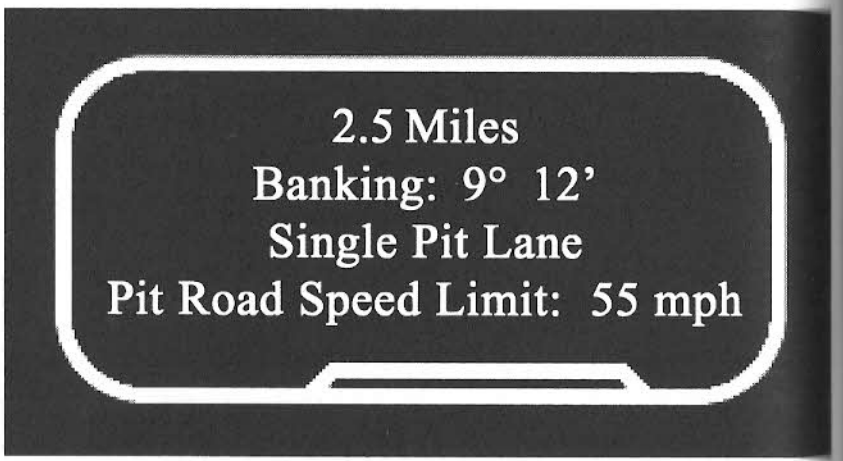
Along the back straight, stay near the outer wall until you reach the pit entrance on your left, just before Turn Three. Using the pit lane as your braking point, get off the throttle and slow the car down to 6,000 rpms. Enter the turn wide, then drop to the bottom at the apex, again cutting a diamond pattern through the corner. As you reach the middle of the turn, roll back onto the accelerator. This should be just before you reach the first small grandstand on your right. Let the car come off the turn high to position you for another run along the front straight.

Last Minute Tweaks

Remember, the key to fast laps here is learning to master the corners. They are the heart and soul of this track; try to develop a setup and approach to handling these corners in a consistent manner.

Indianapolis Motor Speedway

Indianapolis, Indiana



The historic Indianapolis Motor Speedway joined the NASCAR Winston Cup schedule in 1994. Since that time, the annual Brickyard 400® race has become the largest race on the NASCAR schedule.

The track was built in 1909 and shortly thereafter paved with bricks- 3.2-million of them! Most of the bricks have been paved over with asphalt, except for a strip of them that remains at the start/finish line. In 1911, the Indianapolis Motor Speedway hosted the first Indianapolis 500®, won by Ray Harroun in his Marmon Wasp. Harroun won the 200-lap race with an average speed of 74.602 mph, beating the second place finisher by one minute, 43 seconds. The Marmon Wasp can be seen at the track's spectacular museum, displayed alongside many other historic auto racing vehicles.

The Indianapolis Setup:

You need a chassis that allows you to stick low in the corners...Soften the right front suspension to protect your tires, but be careful not to give up too much straightaway speed in the process...This is a track where you can fine-tune with sway bars and grille tape...

The Indianapolis Line:

This is a high speed track with a lot of room, except near the apex of each turn. If you're running side-by-side in the low lane, you may need to concede a little horsepower in order to keep your car from drifting up into your opposition.

6,500. Remember that number. What was it again? Oh yeah, 6,500. From the start/finish line, stay along the outer wall until you reach Turn One. Brake early and let the rpms fall to, you guessed it- 6,500. Try to steer a low line through the turn, making a wide exit onto the short chute. Back on the power, there isn't enough time to build it very high- you won't need to touch the brakes going into Turn Two, just lift off the throttle instead. Let the rpms come down to, all together now- 6,500. Pin the car to the bottom of the turn and step on the gas, exiting wide onto the back straightaway.

Down the long back straight, stay near the wall as you approach Turn Three. Brake early, drop the motor down to somewhere between 6,400 and 6,600 rpms; o.k., 6,500 if you must. Drive the car down to the bottom of the corner (you did brake early, didn't you?) and get back on the gas. Floating back out to the wall of the short chute, you'll take Four without braking. Just lift off the gas, get the rpms to hit "you know what," and drive through the bottom of the turn. As

the car hugs the low lane, you'll be able to step back onto the throttle and speed back to the start/finish line.

Last Minute Tweaks:

Try braking earlier in order to get the car to "set" before you reach each corner. Don't shy away from the draft here, you might pick up a tenth or two on the straightaways by finding a buddy out there.

Indianapolis Raceway Park

Indianapolis, Indiana

.686 Mile
Banking: 7.5°

Single Pit Lane
Pit Road Speed Limit: 35 mph

Indianapolis Raceway Park is one of the original NASCAR Busch Series Grand National Division tracks. In 1998, the track underwent major reconstruction to its surface, creating a smoother overall groove for the drivers to compete on. The track features a grand lighting system, a road course and drag racing facilities. Indianapolis Raceway Park has been owned by the National Hot Rod Association since 1979.

The IRP Setup:

Loose in, tighter out- get those sway bars working for you...Don't let the motor over-rev too long here, drive at least a half-a-tank of fuel's worth of laps before setting fourth gear...

The IRP Line:

Thanks to a recent repaving, the line has moved inward a little. There used to be two distinct bankings, forcing the stock cars to the extreme outside, hugging the wall. The new pavement design lets the cars run a lane lower, near the middle of the track.

At the start/finish line, approach Turn One near the upper-middle of the track. Brake down to 6,500 rpms and coast around the corner. Keep the car in the center of the track, don't let it get too low or you'll miss the exit. Just past the apex, feather the gas on and off until you hear the tires stop squealing. At that point, you can get back on the throttle hard and move up the track to the outside wall.

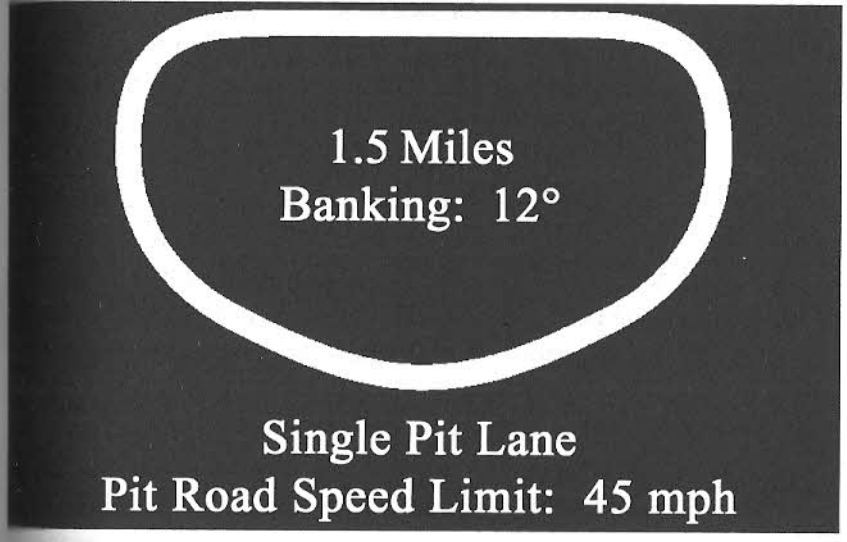
Entering Turn Three, again try to keep the car above the middle lane as you brake down to 6,500 rpms. Coast into the turn and pump the throttle on and off, being careful not to get back onto the gas too soon. As the car floats near the bottom, keep it near the center if you can and only apply full throttle when you hear the tires stop squealing.

Last Minute Tweaks:

The difference in speeds here is really less than you'd think- if you're having trouble keeping pace, try loading up one of the default setups and making one or two tweaks from there.

Las Vegas Motor Speedway

Las Vegas, Nevada



Las Vegas Motor Speedway is an all-inclusive facility located about fifteen miles from the famous Las Vegas Strip. Its expansive complex features several tracks, including a dragstrip, a motocross track and a half-mile clay oval; the speedway offers several training schools on the art of racing, from BMX riding to NASCAR Winston Cup driving schools.

The track made its first appearance on the NASCAR Winston Cup schedule in 1998, with Mark Martin claiming the victory. Care to try your luck?

The Las Vegas Setup:

Pay special attention to the sway bars here, being too loose as you exit the corners will ruin your lap times...

The Las Vegas Line:

Las Vegas bears a slight resemblence to its bigger brethren, Michigan and California. Two-wide racing into and out of the turns is quite common, and fairly comfortable. You'll find that it's possible to drive hard into the turns a bit deeper here than some other tracks.

As you cross the start/finish line, have the car just below the middle of the track. Staying on the gas, approach Turn One by letting the car drift back up near the outer wall. When you reach the entrance of the turn, tap the brakes and let the rpms fall to 6,200 as you drop the car down to the bottom of the corner. At the apex of the corner, just before your car directly faces the "Turn 2" label painted on the wall, begin rolling the gas back on to accelerate off the turn.

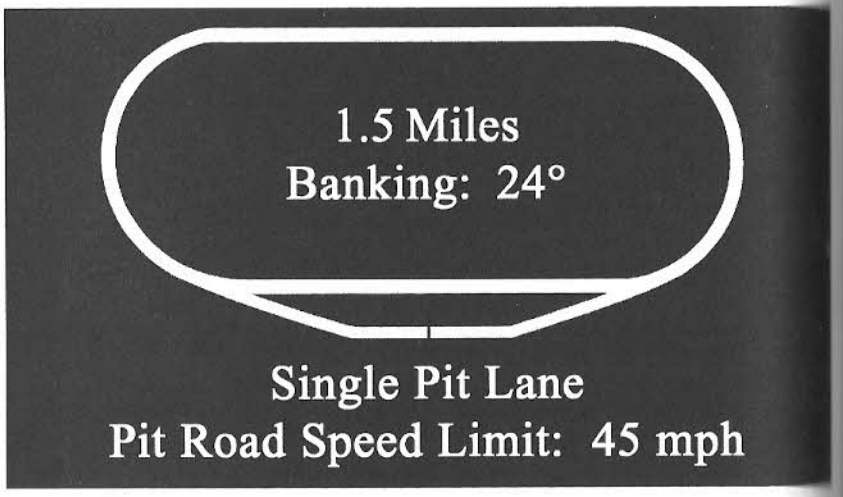
Let the car come up off the bottom of the track at the Turn Two exit, then ease back out toward the back straight wall. As you approach Turn Three, give the brakes a light jab and lift off the throttle. Let the rpms fall back down to 6,200 as the car drifts down to the bottom of the corner. This corner is slightly tighter than Turns One and Two; for that reason, wait an extra beat before reapplying the gas. As your tires wear you'll notice that you've got to wait even longer before speeding off of this turn, in order to avoid contact with the Turn Four outer wall. When you can get back on the gas full, drive the car off the bottom, as low as you can. The car will exit the turn and drift up near the wall; gently work your way back down near the bottom of the track as you cross the start/finish line.

Last Minute Tweaks:

Try starting with your Rockingham setup if you're looking for a baseline to begin with. Don't have a competitive Rockingham setup yet? In that case, reach for your Darlington car and go from there.

Lowe's Motor Speedway

Concord, North Carolina



One of the favorite stops on the NASCAR Winston Cup schedule for teams, drivers and fans, Lowe's Motor Speedway is located in Concord, North Carolina, just outside of Charlotte. Most of the teams are based in the immediate area, and the drivers use Lowe's Motor Speedway for testing quite frequently.

The track was the brainchild of the late Curtis Turner, legendary stock car driver. It opened in 1960 and has provided many a historical racing moment since. The track features an impressive lighting scheme; it was the first superspeedway to accomodate night racing on the NASCAR Winston Cup circuit.

The Lowe's Motor Speedway Setup:

Start by running a few laps and setting fourth gear so that the over-rev light just starts to blink at the end of the back straightaway...Right front tire wear is crucial, so strive for a happy medium between stiff, fast suspension and soft, grippy rubber...Try to keep the car neutral, since a loose chassis will result in slower exit speeds off the corners...Put as much tape on the grille as the car's water temperature will withstand on long runs...

The Lowe's Motor Speedway Line:

For a quick lap here at Lowe's Motor Speedway, there are two schools of thought. Some drivers prefer to enter the corners higher and lift a little early, never using the brakes. This method allows a driver to attack the corners at slightly higher speeds, while putting a little bit of extra wear and tear on the tires. Other drivers strive for better tire wear by giving the brakes a slight tap at the entrance of each corner. This lets a driver enter each turn lower, with minimal tire squeal, while trading off a small amount of speed. This is the more common line, so it is the one we will illustrate for you below.

At the start/finish line, try to be out near the wall to set the car up for the 2nd dogleg left. Cut the car down low and nip the curb of the dogleg; the car will drift back out to the middle of the track and be in good position for the Turn One entry. Tap the brakes for a split second, let the car come down to about 7,500 rpms and enter the turn just above the bottom white line. Barely three or four car lengths into the corner, get back on the gas; at this point the car should be pointed directly at the outside wall at the Turn Two exit. The car will practically turn itself as you accelerate off of the corner wide; as you exit the turn, let the car drift out to the wall.

Keep the car out along the wall on the back straightaway. A favorite place to set up a move, many drivers like to draft the car ahead on the Lowe's back straight, then dive low and use the extra speed to complete the pass at the Turn Three entrance.

Just before your car reaches Turn Three you'll notice a white stripe that crosses the asphalt. Stay on the gas until you cross that line; just over the line, lift and stab the brake again, getting down to 8,000 rpms. You won't need to bleed off as much speed in Turn Three as you did in One, Three is a slightly faster corner. As the car slows just enough to drop down to the low white line in Turn Three, get back on the gas and drive hard off the corner.

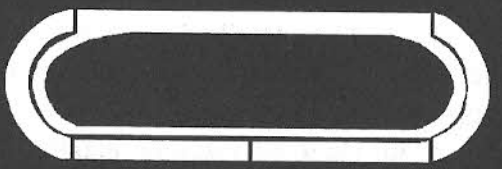
Try to let the car drift out near the middle of the track before you get to the first dogleg; you'll scrub the tires unnecessarily if you try to stay at the bottom (inside) of the track here. Try to drive both doglegs in one continuous, sweeping move, rather than as two separate apexes. Round the first dogleg flat out while letting the car drift to the outside under the flagstand, then clip the bottom of the track again on the second dogleg. If you fail to hit these two doglegs just right, or if your tires are heavily worn, you may have to lift to avoid striking the wall as you get set to enter Turn One.

Last Minute Tweaks:

You can drive a lot of different setups here and find that each one will run about the same speed. Aside from a risky fourth gear adjustment, the most significant improvements in speed here will come from altering your racing line around the track.

Martinsville Speedway

Martinsville, Virginia



.526 Mile
Banking: 12°
Single Pit Lane
Pit Road Speed Limit: 35 mph

Martinsville Speedway is the oldest NASCAR-sanctioned track on the circuit. The track held its first race in 1947 as a dirt track, and was paved with asphalt in 1955. The track is located in Virginia, near the North Carolina border.

The two straightaways comprise sixty percent of the racing surface at Martinsville; this leaves very little room in the tight, flat turns. Drivers can expect to find themselves in heavy traffic here all day, giving new meaning to the phrase "rush hour."

The Martinsville Setup:

Strive for a slightly tight setup that can be driven consistently...Soften up the right side of the suspension for extra grip and longer tire life...The front and back straightaways look similar; memorize landmarks to remind you of where you are...

The Martinsville Line:

An exercise in patience, Martinsville Speedway cannot be driven in an "on the edge," over-aggressive manner. Stomping on the gas as you leave the turns here will swing the back end of your car around too quickly, causing the car to get sideways and lose speed. Rolling the gas back on- gently accelerating over a one or two second span, is a vital art to master before challenging the field at "Marty."

From the start/finish line, stay about a car-width away from the outer wall as you approach the first turn. Just before you reach the concrete surface in the corner, lift and brake hard, letting the rpms plummet to 5,200. Hold the power there until you feel the car pass the apex of the turn, then gently roll back on the accelerator.

Let the car come out of Turn Two near the outside, staying a half, to maybe a full car-width away from the wall. Driving hard down the back straight, get off the gas and hard onto the brakes just before you reach the concrete pavement in Turn Three. Hold the rpms at 5,200 until you reach the center of the corner; roll back onto the throttle and let the car float back out toward the wall as you exit Turn Four.

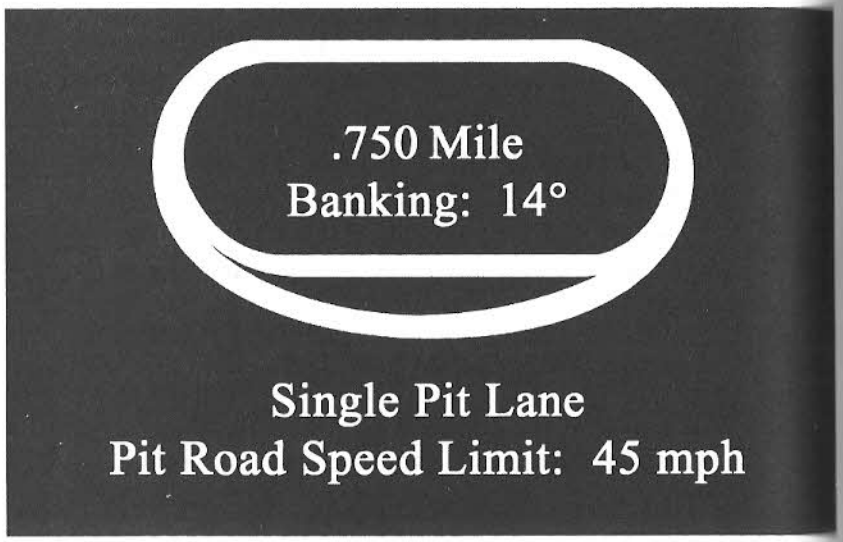
NASCAR Racing 3

Last Minute Tweaks:

Remember, you've got to brake early here. Take another look at the line you're driving. Are you waiting until you're already at the corner before hitting the brakes? If so, you're not going to go fast here. The key is to get the car 'set' by the time you reach the middle of the turn, so that you can really apply the power coming out of the corners.

Memphis Motorsports Park

Millington, Tennessee



Memphis Motorsports Park features a three-quarter mile tri-oval as its showcase of the multi-race facility. Recent, extensive renovations include a repaving of the speedway, and improvements to grandstands and suites in order to provide the Mid-South sports market a comfortable, exciting atmosphere.

Dover Downs Entertainment acquired the facility in 1998 in a buy-out of the Grand Prix Association of Long Beach, and is intent on attracting other major stock car events to the speedway.

The Memphis Setup:

You don't need a loose car, the banking will do the work for you...Stiffen the front suspension and put a bit of extra wedge in...Drive several laps to evaluate fourth gear...

The Memphis Line:

Memphis has steep banks, akin to those found a few hours away at Nashville Speedway USA. These banks allow drivers to stay up on the high side on the straights, dive down low in the corners, and climb back up the banks again as you exit.

At the start/finish line, the car will feel like it wants to drift down-don't let it. Instead, keep the car high as you lift and brake for Turn One. Let the motor coast down to 5,500 rpms; the car should point its way toward the bottom of the banking. If you time it just right, the car will reach the base of the banking at the same moment that it reaches the apex of Turns One and Two. Confidently reapply the accelerator and steer out of the corner, in the middle of the track. Let the car wash back up to the outside wall in order to set up Turn Three.

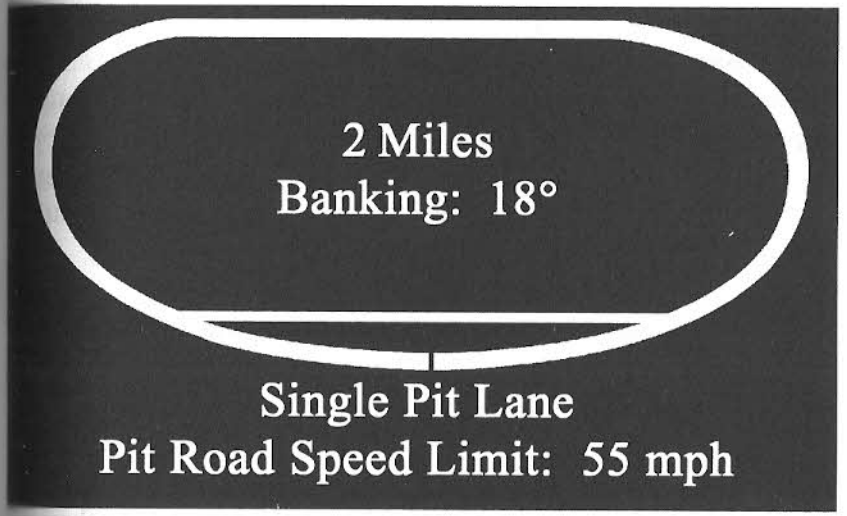
When you reach Three, brake and let the rpms drop to 5,500. There's a white stripe across the track here, start your braking just before you reach it. Enter the turn high, then guide the car down to the bottom of the turn. If you enter the turn too low, you'll have to brake harder and fight the car to keep it in control. As the car reaches the bottom of the track, step back on the gas and steer out toward the wall. Don't let the car cross the start/finish line on the bottom, even though it wants to; getting back out to the wall is important for another run at Turn One.

Last Minute Tweaks:

If you're off-speed, it's probably not the setup, but your line. Take another look at your braking points, and study replays of other drivers to get it right. Try tweaking up your Myrtle Beach car and running it here.

Michigan Speedway

Brooklyn, Michigan



Located about an hour from Detroit in the Brooklyn/Irish Hills area, Michigan Speedway first appeared on the NASCAR Winston Cup schedule in 1969. A 600-mile race was slated for that year, but rain and darkness ended the event after only 330 miles were completed. The following year, the race was shortened to 400 miles.

Michigan features steep, wide banks that are suitable for several brands of racing. The track configuration here allows each driver to develop an individual line, making for exciting races filled with lead changes.

The Michigan Setup:

You'll need a chassis that can be a tad loose getting into corners, yet neutral exiting them...Watch that right front rubber, as it wears down the car will push considerably...A good California car may run well here with a slight change to the gearing...

The Michigan Line:

The key to competitive lap times at Michigan is to make wide entries into the corners, then dropping the car down to the bottom as you reapply the throttle. Take care that you don't get too low however, planting all four tires on the apron will likely create a loose condition, sending your car into the wall.

At the start/finish line, the car will be in the middle of the track. In order to set up the Turn One entry, let the car drift high. Lift and tap the brakes as you enter the turn, bleeding off the rpms until the tach falls to 7,000. Let the car drift down to the bottom of the turn; this is vital toward driving a fast line out of Turn Two. Hold the rpms steady at 7,000 until the car reaches the apex of the corner, then get back on the gas and steer the car out to the wall as you exit Turn Two.

If you got off the corner low enough, you should have plenty of speed to carry down the back straight as you keep the car near the outside wall. Upon reaching the Turn Three entrance, tap the brakes and steer the car low into the corner, again reducing rpms to 7,000. As you make the turn, get back on the gas and let the car swing back up toward the middle of the track.

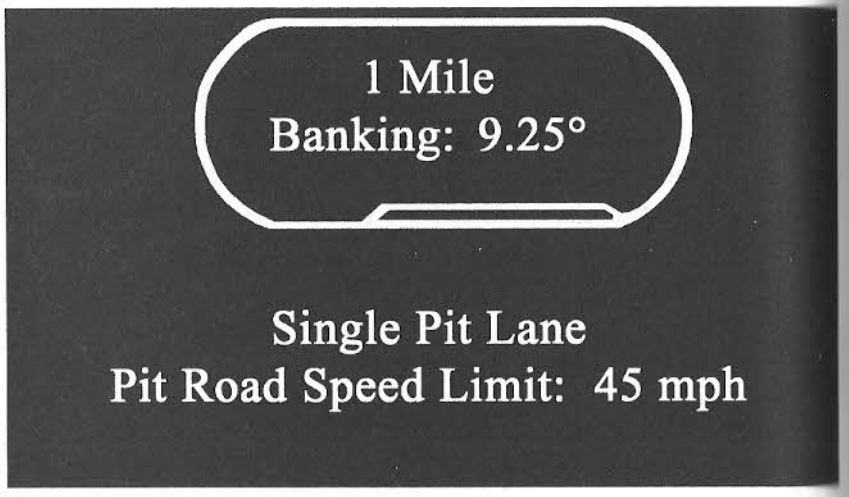
As you clear Turn Four, the car will be drifting back out to the wall. Try to slide back down to the middle of the track as you cross the start/finish line, careful not to squeal the tires.

Last Minute Tweaks:

If you still find you're not hanging with the pack, you might want to try removing a round or two of cross weight. Odds are that you're not getting enough speed off of the corners, causing you to get left behind on the straights. Using a little less wedge may give you that extra grip off the corners.

Milwaukee Mile

West Allis, Wisconsin



Welcome to one of the oldest racing venues in North America, The Milwaukee Mile. Originally built as a dirt track for horse racing, The Milwaukee Mile hosted its first auto race in 1903. The track was paved with asphalt in 1954.

NASCAR first visited the track in 1984, and the track became a charter stop on the NASCAR Craftsman Truck Series in 1995. The Milwaukee Mile is located at the Wisconsin State Fairground in West Allis, Wisconsin.

NASCAR Racing 3

The Milwaukee Setup:

The car should be fairly neutral here, both in and out of the corners...The rear sway bar and cross weight adjustments may find you a little more grip exiting the turns...

The Milwaukee Line:

The corners here are very, very flat. You'll need a steady gas foot and a patient mind in order to conquer The Milwaukee Mile.

From the start/finish line, keep the car near the outer wall as you approach Turn One. Brake early, don't wait until you've fully reached the turn. Slow the car down considerably, until you dip below 6,000 rpms. Steer the car low on the blacktop, keeping it just above the apron as you roll around the turn. As you reach the mid-point of the corner, ease back on the gas and drive low around the bend. Punching the gas may cause the car to break loose and spin, use a deft touch instead.

Exit Turn Two near the wall and stay on the outside down the backstretch. When you reach Turn Three, brake early and enter the turn in the middle lane, with the rpms falling just below 6,000. As the engine revs down, let the car ease to the inside and onto the blacktop. Just as you cross the mid-point of the turn, roll back on the throttle and drive hard out to the wall. The car should steer easily, avoiding the wall by a car-width or so.

Last Minute Tweaks:

This track is not as dependent upon the setup as some other tracks. If you're off-pace, try adjusting your line for faster laps.

Myrtle Beach Speedway

Myrtle Beach, South Carolina

Myrtle Beach Speedway is located amidst one of the nation's most famous resort areas. The surroundings make it a favorite stop on the NASCAR Busch Series Grand National Division schedule for the drivers and their families.

Constructed in 1958 and christened "Rambi Raceway," Myrtle Beach Speedway was added to the NASCAR Busch Series Grand National Division schedule in 1988.

The Myrtle Beach Setup:

Right front, right front, right front- make it soft enough to stick when you plant it...Move some weight toward the rear in order to get that backend to turn for you in the corners...

The Myrtle Beach Line:

Myrtle Beach is a fun track to race on. Prepare to brake hard and focus on exit speeds here if you plan to win.

From the start/finish line, the car should be in the middle of the track. As you approach Turn One, keep letting the car drift higher. You sort of have to drive a straight line from the low part of the front straight, up to the crest of Turn One. When you reach Turn One, brake hard, down to 6,000 rpms. Get most of your braking out of the way before you turn the car. The car should begin pointing toward the back straightaway before you actually get to the apex. Step on the gas and dive low to the bottom of the track, exiting back up wide near the wall in Turn Two.

When you reach Turn Three, enter it low, not high like you did Turn One. Brake hard and let the rpms fall to 6,000. Wait until you reach the apex of the corner, then get back on the gas and drive up the banking. As you approach the start/finish line, let the car come back down the track toward the bottom.

Last Minute Tweaks:

You may be over-attacking the turns here. Be patient and let the speeds come to you. Strive for a steady rhythm instead.

Nashville Speedway USA

Nashville, Tennessee

.596 Mile
Banking: 18°

Single Pit Lane
Pit Road Speed Limit: 35 mph

Nashville Speedway USA has appeared on the NASCAR Busch Series Grand National Division schedule at various times through the years. Located at the Tennessee State Fairgrounds, the steeply banked oval keeps the speeds up for its eager crowds. The track was freshly repaved in 1995.

Bobby Hamilton, Darrell Waltrip and Sterling Marlin are among the NASCAR Winston Cup drivers who have honed their trade at Nashville.

NASCAR Racing 3

The Nashville Setup:

Stiffen the front suspension some, the banking will do some of the work of turning the car for you...Don't overlook the left front camber setting here, get it right for the banking but be careful with it- too drastic a setting may cause the car to get upset when driving onto the aprons...

The Nashville Line:

Nashville's banking allows for comfortable side-by-side duels. Plan to spend some time practicing both the high and low grooves here in order to be a factor from anywhere.

At the start/finish line, you'll be near the bottom of the track. Move the car up a lane or so as you approach Turn One. Brake hard, let the engine coast down to 5,200 rpms and steer toward the bottom of the track. It's an early apex corner, but not by much. Just before the car reaches the bottom of the track, step back on the gas and drive out to the wall off of Turn Two.

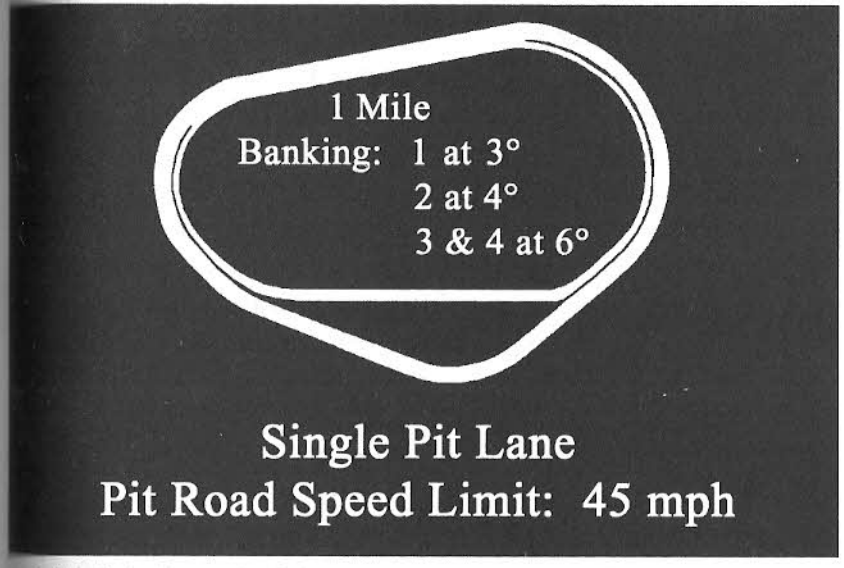
Stay wide on the back straightaway, but begin dipping low just prior to reaching Turn Three. Lift, then brake down to 5,200 rpms and make a slightly lower entrance than you did in Turn One. Keep an eye out for cars that may be slamming on brakes to dive onto pit road, which does appear quite suddenly at the apex of the turn. Get back on the gas and let the car wash up toward the high lane. As you approach the start/finish line, move back toward the bottom, then up again for the Turn One entry.

Last Minute Tweaks:

The default cars are actually very good, even competitive here, so pick one you can handle and give it a whirl. If you're still off-speed, you may be driving a line through Turns One and Two that prevents you from making an early apex.

Nazareth Speedway

Nazareth, Pennsylvania



Originally built as a half-banked, D-shaped dirt oval in 1966, Nazareth Speedway fizzled out in 1971. After a ten year hiatus, the track was reopened in 1981 but by 1985 had fallen into bankruptcy again.

Roger Penske purchased the facility in 1986 and immediately went to work rebuilding it. The track was paved and the entire venue was renovated to accomodate a new, unique one-mile tri-oval. In 1997, Nazareth Speedway underwent further improvements, including a new grandstand adding over 10,000 seats. Today, the facility has 46,288 seats.

The Nazareth Setup:

Getting the car to turn here is very difficult...If you can drive the car a tad loose you'll be faster...Soften the right front and spend extra time working on camber adjustments for the right grip...

The Nazareth Line:

Nazareth features four distinct corners, each with a different radius and banking. This isn't a one-groove track, but it is a place where slower cars will need to concede positions to faster traffic, or risk being the source of a big pileup.

At the start/finish line, you should try to have the car as close to the outer wall as possible. Assuming you are crossing the start/finish line at race speed, brake just as you reach the stripe, because Turn One is just ahead. Let the rpms fall to 6,500, then turn the car and put the left side tires on the curbing. When you touch the curb, step back on the gas and drive the car out to the wall.

Approaching Turn Two, brake as you pass the thin white stripe painted across the track. Let the engine rev down to 6,500 rpms, and enter the turn wide, near the wall. Use all of the track out to the wall going underneath the pedestrian bridge and then turn the car left down to the inside of the track as you approach the apex. When you see the red and white curbing on your left, add some gas back on and try to steer along the inside of the turn. This is a difficult turn to get just right on a consistent basis; if you aren't in perfect position, lift slightly again until you reach the little access road on the left. At that point, you should be full on the gas, with the car drifting out near the wall.

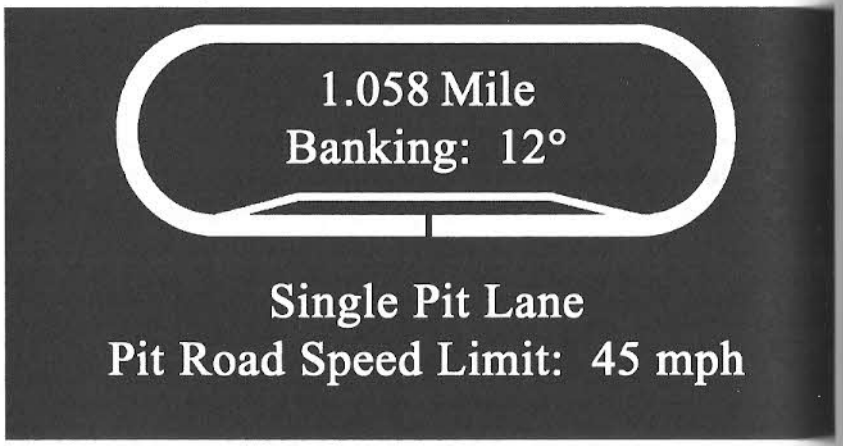
On the back straight, brake hard when you reach Turn Three and dive for the bottom. There's a little bit of banking here, but this is the tightest corner on the track. Watch the tachometer fall all the way down to 5,500 rpms, then punch the accelerator as you try to hug the bottom of the turn. Near the exit of Turn Four, let the car drift back out wide- this is important because you cross the start/finish line ahead, and then you're into Turn One again. It's a bang-bang maneuver.

Last Minute Tweaks:

Make the car stick in every turn by braking early, if you're too slow you're probably driving too hard into the corners. Don't just run laps, try to drive the car through each turn the exact same way, consistently.

New Hampshire International Speedway

Loudon, New Hampshire



Each year, New Hampshire International Speedway hosts some of the largest single-day sporting events in New England. A state-of-the-art facility, New Hampshire International Speedway joined the NASCAR circuit in 1993. The track is located in Loudon, New Hampshire, and is often referred to as "Loudon."

Just over a mile in length, New Hampshire International Speedway has very tight turns that place its straightaways very close together- giving fans an excellent view of the racing action.

The New Hampshire Setup:

You can't afford to have a car that's too 'pushy' here, aim for a neutral or slightly loose setup...Faster cornering speeds are the key to faster laps here, concentrate less on straightaway speed and more on turning ability...

The New Hampshire Line:

Two-wide racing is possible here in the corners, even common, but only with give-and-take. Turns One and Two form a deeper corner that you can 'diamond' for extra speed. Turns Three and Four however, are more straightforward- creating a slow, patient corner.

Crossing the start/finish line, keep the car out near the wall. Just as you reach the end of the pit wall on your left, brake down to approximately 6,000 rpms and steer the car into the middle of the turn, making a deep entry. Keep the car from getting too low in the corner, staying a lane or two away from the apron. As the nose of your car begins to swing left, roll back on the power and drive out of Turn Two as low as possible.

Down the backstraight, stay along the wall. The entry to Turn Three is somewhat tricky because it is blind. The roadway dips down in the corner; if you wait until you see the apron of Turn Three to begin braking, you've waited too late! Pick out a brake marker- trackside billboards, scuffs on the walls, anything. Use that marker to step on the brake just before you can see the Turn Three apron.

Brake down to 6,000 rpms and try to hug the bottom of this turn. Unlike the Turn One entrance, a deeper entry here is not generally

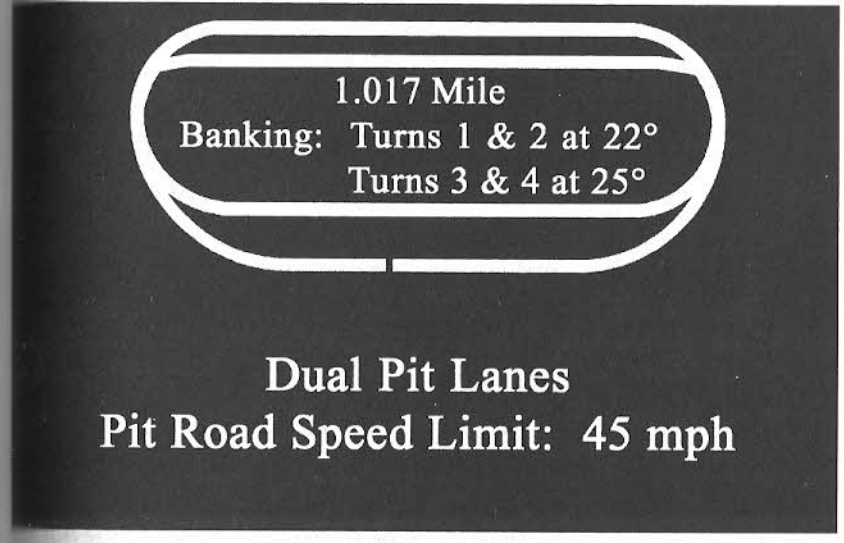
faster. Hold the engine at 6,000 rpms until you've passed the apex of Turns Three and Four. You'll have to fight the urge to get back onto the gas too quickly in order to stay away from the Turn Four wall. When you cross the centerpoint of this corner, ease back onto the accelerator and steer the car left; you'll come off the turn near the outer wall as you head back to the start/finish line.

Last Minute Tweaks:

You can't overdrive the corners here. This is a patience track; in order to master it, you've got to practice until you've obtained a consistent approach to the corners. Remember that passing here cannot be done at will. You've got to pick your spots and wait for the driver ahead to make a mistake.

North Carolina Speedway

Rockingham, North Carolina



Better known as "The Rock," North Carolina Speedway is located on the outskirts of Rockingham, North Carolina. The track has been included on the NASCAR Winston Cup schedule since 1965.

Rockingham's two distinct corners provide a welcome challenge to drivers. Each turn demands concentration- let the car get out of sorts here and you'll have no exit speed to carry with you down the straightaway.

The Rockingham Setup:

Two distinct corners present a challenge in setting up the car...A loose chassis will give you fits in Turns Two and Three, while a tight chassis will have a tough time hugging the low line in Turn One...Entrances to the corners can be unpredictable, so look for passing opportunities as you exit each turn instead...

The Rockingham Line:

The best bet is to drive patiently here and let the car find the proper groove. Once you feel it, try to maintain that line lap after lap, but beware- as the tires wear, the car tends to get slippery while exiting Two, and very tight while exiting Four. You'll have to compensate by accelerating later until you can pit and grab new rubber.

As you cross the start/finish line, let the car drift away from the wall toward the bottom of the track. Between the start/finish line and Turn One, bring the car back up near the wall and prepare for a high entry into the first corner. Brake early, bring the engine down to 6,000 rpms and dive for the bottom of the track. Coast around the corner just past the apex, then ease the throttle back on. Steer the car up out of the banking and onto the back straight near the wall.

Approaching Turn Three, move to the middle of the track and stab the brakes; let the motor rev down to 6,500 rpms. Though it's a steeper, faster corner than One and Two, getting into the accelerator early to exit Turn Four has its consequences. If you steer the car too low, the left front tire can touch the apron off the banking, sending the car into a violent spin. If you steer out too high, too soon, you won't make the corner. As you exit Turn Four the car will be near

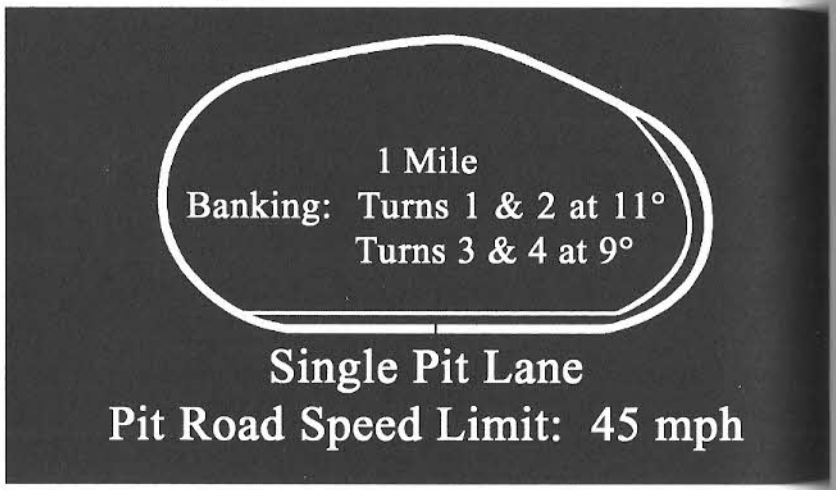
the outside wall; steer back toward the bottom of the track as you reach the start/finish line.

Last Minute Tweaks:

You might try shifting down to third in the corners here if you have trouble driving at a consistent speed at the bottom of each corner. If you're looking for a car to start with here, try loading your best Loudon setup and going from there.

Phoenix International Raceway

Phoenix, Arizona



Phoenix International Raceway is a difficult track to master, but drivers who develop a feel for its corners look forward to racing here. Each corner has a distinct radius and banking, and the backstretch features a kink that is designed to keep the action close.

Phoenix International Raceway joined the NASCAR Winston Cup circuit in 1988. Located on dry Arizona desert land, the speedway is surrounded by majestic mountain scenery.

The Phoenix Setup:

Some slight looseness here may help get the car through the turns quicker...Set fourth gear up to trigger the over-rev light as you reach the end of the front straight near Turn One...

The Phoenix Line:

Turns One and Two are very tight; in order to go two-wide through them, the outside car has to be conceding position. Turns Three and Four, however, are generously wide and can accomodate side-by-side racing quite comfortably.

At the start/finish line, keep the car near the wall. As you near Turn One, drop to the middle of the track and brake hard. Let the motor rev down to 5,500 rpms. Move the car down to the bottom, but be very careful not to touch the grass as you steer through the turn. The grass is very slippery and could throw the car out of control should you accidentally drift too low.

In the middle of Turns One and Two, get back on the gas and steer the car off the corner. The exit of Turn Two is critical. The wall near the exit juts outward and you'll feel as though you've barely missed it on faster laps. However, if you compensate for the jutting wall by making a lower exit out of Turn Two, you will not be in good position to go through the backstretch dogleg. Coming off of Two near the protruding wall is where you want to be.

Leaving Turn Two, steer full speed through the backstretch kink, carefully avoiding the outer wall as you exit the bend. Clipping the curbing here is somewhat common when trying to maintain full speed.

Approaching Turns Three and Four, get on the brakes just as you cross the white stripe that runs across the pavement, keeping your car in the middle of the track. Let the rpms drop to 6,500, then begin holding the throttle open enough to keep the motor revving at that level as you round the corner. Drive as low through the turn as possible; just after you see the yellow safety stripe on your left, step back on the accelerator and power out of the turn. Like Turn Two's exit, you'll come dreadfully close to the outer wall as you leave Four.

Last Minute Tweaks:

Remember to back off some as the tires get worn; your car may not make it through the backstretch dogleg without lifting once the right front tire gets low on rubber.

Pikes Peak International Raceway

Fountain, Colorado

1 Mile
Banking: 10°

Single Pit Lane
Pit Road Speed Limit: 45 mph

This former horse racing track was redesigned and rebuilt into a multi-purpose motorsports complex in 1996-7. Not to be confused with the famous mountain nearby, Pikes Peak International Raceway is located in Fountain, Colorado, near Colorado Springs.

The facility offers a road course along with its D-shaped oval, and plays host to NASCAR Busch Series Grand National Division, Craftsman Truck and Winston West Series events.

The Pikes Peak Setup:

The car can be a little loose exiting the turns, provided you roll the gas rather than punch it...Keep the cross weight from going negative here, you'll need some bite in the rear of the chassis...

The Pikes Peak Line:

Pikes Peak is a finesse track, requiring steady throttle control in the corners in order to run with the leaders. The turns are wide and have ample passing lanes, but the traction is very low and demands that each driver hold a steady line.

At the start/finish line, stay up high near the wall. As you approach Turn One, brake down to 7,000 rpms, then lift your foot off the brake and let the engine coast down another grand to 6,000. Try to be at 6,000 rpms just as you enter the turn. Hold just enough gas on to keep the car there as you feather your way through the middle lane of the track. As you reach the apex of the turn, reapply the gas in a fluid, steady motion. Exit Turn Two up near the wall.

Stay high on the straightaway and prepare to enter Turn Three in the center of the track. Brake down to 7,000 rpms, and as you steer into the base of the turn, let them fall again until they peg 6,000. At the apex of the turn, you'll notice an access road on your left between Turns Three and Four. As you draw even with this access road, step back on the gas and steer the car through the middle groove and out near the wall. Stay on the high side of the track as you come back to the start/finish line.

Last Minute Tweaks:

Try your Milwaukee car here if it's strong. The two tracks corners have a lot in common. Focus on throttle control in the corners, you can't be too hasty about getting back on the accelerator. Finesse your way around each corner and leave the heavy speeds to the straightaways.

Richmond International Raceway

Richmond, Virginia

Originally a half-mile oval, Richmond International Raceway was reconfigured in 1988, becoming a unique, three-quarters of a mile D-shaped oval. The track has been hosting NASCAR Winston Cup action since 1953.

For many years, Richmond International Raceway has hosted a daytime NASCAR Winston Cup event, as well as a race at night later in the season. As of 1999 however, all of the racing action takes place under the lights.

The Richmond Setup:

Softer right side suspension is necessary...Try to keep the car as neutral as possible here...You may find that running a bit more wedge will help get the car through the corners faster here, without overstressing the tires...

The Richmond Line:

Richmond is a very wide track to race on. Cars will often go two or three wide here, thanks to the variety of racing lines that drivers prefer. The hard braking in Turns Three and Four will keep you on your toes as you struggle to keep the car on the inside.

At the start/finish line, keep the car up near the outside wall. Approaching Turn One, stay wide and step on the brakes just before you reach the dotted lane lines on the track. Drop the rpms down to 6,500 and reapply enough throttle to hold them there as you coast through the turn. Drive past the apex of this corner before stepping back on the gas. When you exit the corner, the car should use up all of the racetrack available, coming out near the Turn Two wall.

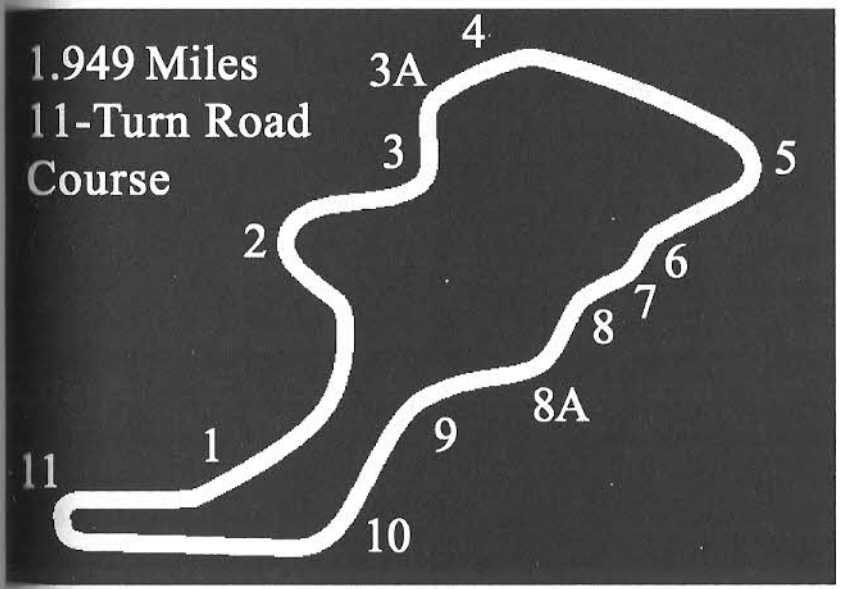
Stay high down the back straight and brake hard as you enter Turn Three. Let the car drop as low as possible here as the rpms fall to 5,800 or so. As the car reaches the end of the pit lane wall, step back on the gas and accelerate away. The car should drift back up near the wall just prior to reaching the start/finish line.

Last Minute Tweaks:

Keep the tire skidding to a minimum in the corners, otherwise you'll be out of rubber well before your competitors are. You'll find that you really won't go much slower by easing your way around each corner, and getting a hard run out of the turns.

Sears Point Raceway

Sonoma, California



Sears Point Raceway is located among lush vineyards in the beautiful NAPA Wine Valley region of California. The circuit was redesigned in 1998, but it still has many of its original characteristics- twisty corners, blind turns, rising and falling terrain, hairpins and curbing.

Sears Point Raceway joined the NASCAR Winston Cup schedule in 1989, following the demise of the road course at Riverside, California. NASCAR was looking for a West Coast replacement for Riverside, and Sears Point provided the perfect fit.

The Sears Point Setup:

You can't afford to let the wheels get too stiff here, the tire spin will slow you down...Keep in mind that most of the difficult corners on this track bear to the right...Keep the spoiler up, make the tires spongy and plan to spend some time picking the right sway bars...

The Sears Point Line:

Coming across the start/finish line, stay as far right as possible. Turn One is a fast left hander going up the hill. You'll still be in fourth gear but you'll need to lift a little through here, and you should aim to clip the grass on the left side a little to help turn the car. Still carrying a lot of speed up the hill, you have to prepare your car for Turn Two, the sharp, blind right hander at the crest. Your momentum will try to naturally force you to the right but try to stay as far left as possible in your approach. You'll downshift to first and get the right sides on the rumble strips at about 50 mph, then swing out to the left exiting back on the gas.

Next up comes the double turn, Three and Three-A. Let up early and shift down to 2nd, keeping to the right. Get the left tires on the rumble strips, then feather the gas for a brief moment, trying to keep the car left, to afford a better entry into Turn Three-A. There's a great passing zone coming up so you want to exit with as much speed as possible. In effect you use the left hander to setup for a good exit out of the right hander. At the top of Three-A get the right sides on the rumbles, and mash the gas as the car drifts out left.

Now you're barreling down the new part of the track (wave to the carousel as you pass by). As you go through the long right hander

get on the rumble strips and lift off the gas for just a second, then you need to gather the car up as it swings out towards the wall to make the sharp right hander at the end. Brake a little earlier here then it feels like you should, and downshift to second- it's easy to overshoot this corner.

Next up comes a series of five consecutive third gear turns collectively known as the "Esses." You have to be steady and constant through here, never mashing the gas, never touching the brakes, but getting the tires on the rumble strips on each side. It's really the finesse part of the track. For the second right hand turn in the Esses (Eight-A) it's a good idea to 'throw' the car sideways into it to help turn the car and get a better exit line. Coming out of Eight-A you'll need to keep the car as far right as possible to position for the next turn.

You come speeding downhill into Turn Ten, one of the toughest corners in NASCAR Winston Cup racing. The key here is to have the car under control and balanced *before* you make the turn. You need to let off the gas and hit the brakes long before the turn even appears. Get the left sides just barely on the grass at the markers for a better entry. Release the brakes for just a second before turning right, it helps to balance the car and you'll turn much better. Try to get the right sides on the rumble strips, feet off both pedals, then immediately get back on the gas, exiting at about 95mph. Again, it helps to throw the car sideways into this turn. The real trick to the exit of Turn Ten is that, once you get back on the gas do not turn the wheel much- let the rear wheels turn the car. Try to achieve as high an exit speed as possible, because the best passing zone on the circuit follows it.

Driving flat out towards the pit entrance, approaching the hairpin,

stay to the left and get hard on the brakes right at the start of the yellow pit line. Downshift to first and take the hairpin at 38mph, coming close to the right wall in the apex, and drifting out to pit wall exiting the turn. Mash the gas and climb all the way to fourth gear, bringing the car to the right wall. Cross the start/finish line and do it all again. Piece of cake, right?

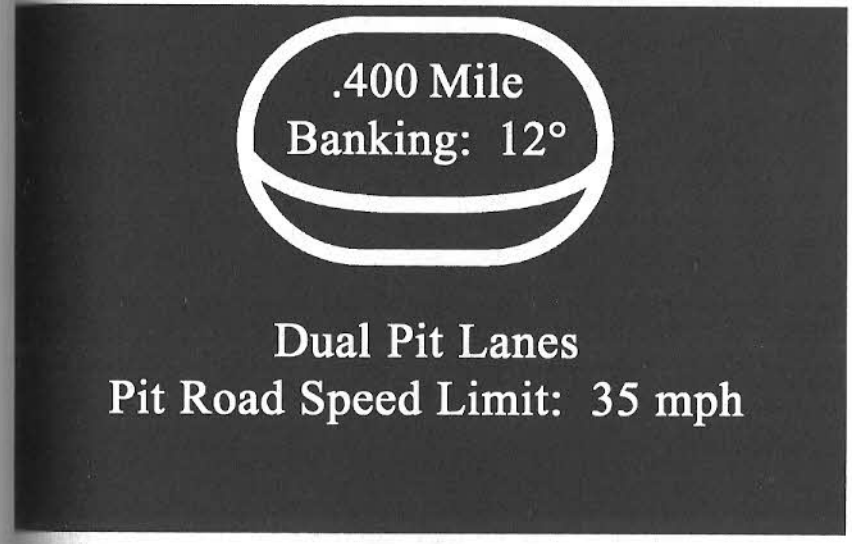
Last Minute Tweaks:

Memorize your braking points for each turn (where you get off the gas and stand on the brakes). Always let up a little before that point to leave room for error. Seat time will improve your lap times, so don't worry about your times at first, just worry about learning the track, and staying on course. Brake before the turns, not in them. The car will turn much better this way.

* Special thanks to Mike Ostrow, Beta Tester for the Sears Point Line!

South Boston Speedway

South Boston, Virginia



Located in South Boston, Virginia, this speedway was an original charter member of the NASCAR Busch Series Grand National Division in 1982. The .357-mile oval left the series following the 1991 season, but after a massive renovation project that included enlarging the track to .400-mile, South Boston Speedway rejoined the NASCAR Busch Series Grand National Division schedule in 1994.

The South Boston Setup:

A car that's loose going into the corners works pretty well, but a car that is loose on the exits is tough to maintain throughout a race...Keep the gears close together, it's a tight track...

The South Boston Line:

This is really an 'outside line' type track. Faster traffic will pass along the wall, while slower cars will remain low. You have to be careful not to drive too deeply into the turns however, in order to avoid getting the car scraping along the wall.

From the start/finish line, keep the car high and get on the brakes as you enter Turn One. Bring the engine down to 6,500 rpms and steer the car around the middle lane. When you're confident you can reapply the throttle, aim the car low and roll the gas back on. The car will drift upward on its own, winding up back up near the wall.

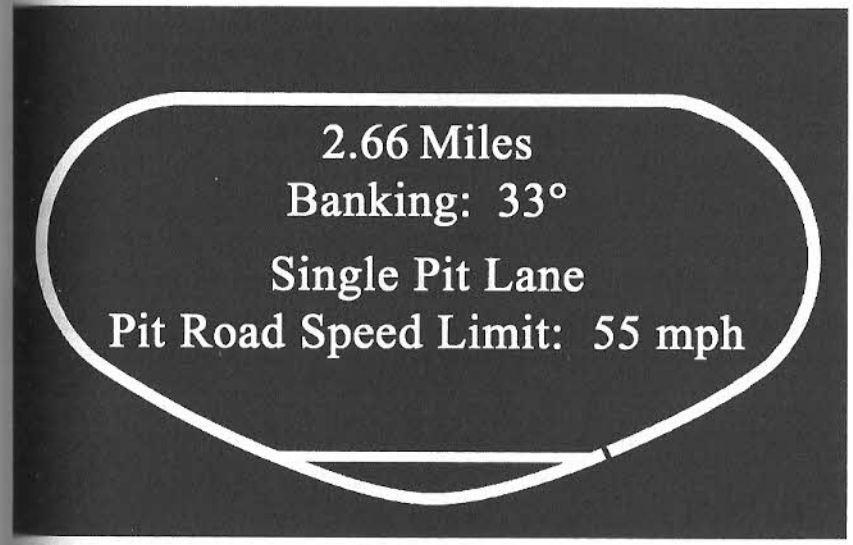
No sooner have you dispatched Turns One and Two than you're staring at Turn Three. Brake down to 6,500 rpms, keep the car high and turn in. As you reach the apex roll the accelerator back on and drive back up near the wall.

Last Minute Tweaks:

You can vary the line somewhat to find what works best, but if you're slower it's probably just that- the line. Work on being smooth and consistent.

Talladega Superspeedway

Talladega, Alabama



Bill France, Sr. wanted NASCAR to have the biggest, fastest speedway possible. So, in 1969 he built Talladega Superspeedway, a colossal track featuring gigantic banks and wide pavement. When the track opened as Alabama International Motor Speedway in 1969, drivers balked at racing here. Bill France hopped in a race car and turned a few hot laps himself in order to prove the track's worthiness.

Since that year, the track has been the stage of the fastest laps ever driven in a stock car. Bill Elliott's qualifying lap of over 212 mph still stands as the world record for stock car competition.

The Talladega Setup:

Set the spoiler at its minimum and choose a fourth gear that has the over-rev light just beginning to flicker at the end of the back straight...Use as much grill tape as conditions allow, keeping an eye on water temp...If the car's too loose it will spin out when driven down onto the apron at high speed...For faster runs, stiffen up the suspension all the way around...

The Talladega Line:

Welcome to restrictor plate racing at its finest, just mash the throttle down full and drive flat out all the way around! Patience and a capacity to work the draft to your advantage will be priceless attributes here, while an inability to remain in the draft will most certainly relegate you to the back of the field.

From the start/finish line, have the car along the outer wall. As you approach Turn One, stay on the gas and drop down about a half-a-car width off of the apron. Keep the throttle floored and stay in the low groove all the way around, careful not to wash too close to the apron; the change in banking can upset the chassis and scrub off speed or worse- throw the car into a violent spin.

As the car reaches the exit of Turn Two, let it naturally drift back up toward the outside wall. Stay along the wall all the way down the back straightaway. The red over-rev light on your car's dash should just start to blink as you reach Turn Three, where you'll keep the power fully applied as you attack the low line. Drive along the bottom of the banking, cautiously avoiding the apron as you steer the car around the corner at top speed.

NASCAR Racing 3

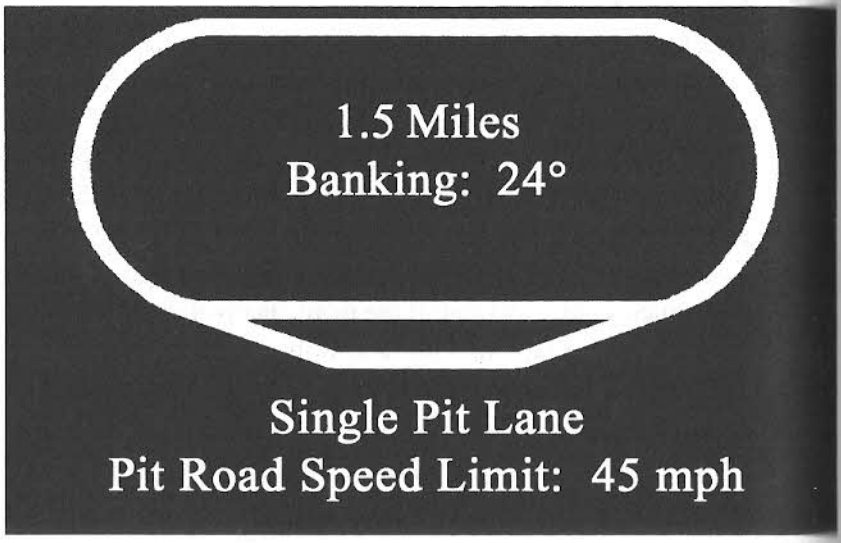
Out of Turn Four now, you'll be heading for the tri-oval. Start the car through the tri-oval near the middle of the track, letting it clip the bottom of the dogleg and easing back out toward the wall. Maintain full throttle through the tri-oval, and back across the start/finish line.

Last Minute Tweaks:

Don't expect too much too soon from the car. Let it run a few laps and see what kind of rpms you're pulling in fourth gear. You may want to use a very tall gear here in order to pull more straightaway speed. Due to the restrictor plates, you'll be racing in close quarters here. It's not uncommon at Talladega to see forty cars, nose-to-tail, working the draft while patiently jockeying for position. No matter what position your car is in here, keep your composure and methodically pick your way toward the front. Banzai style, "passing twenty cars in a single lap" driving will only shorten your day and ruin your pursuit of the NASCAR Winston Cup Championship.

Texas Motor Speedway

Fort Worth, Texas



Texas Motor Speedway is one of the largest sports and entertainment facilities in the United States. The speedway is capable of hosting over 200,000 visitors at any given time. Texas Motor Speedway is also equipped with lights for nighttime racing action.

The new track held its first NASCAR Winston Cup event in 1997, and its surface underwent a substantial upgrade prior to the 1999 season.

The Texas Setup:

Looser is only faster here when no other cars are around...Set fourth gear up to peg the light as you enter turn one...Try not to use negative cross weight values here, you may find these settings faster but very inconsistent...

The Texas Line:

The groove at Texas is narrow. Therefore, you'll find that side-by-side driving through the corners requires a lot more situational awareness than you'd need at Atlanta or Las Vegas. Plan on using the speed off of the corners to set passes up, rather than diving deeper into the turns. Deep diving cars will have trouble holding a line here.

At the start/finish line, stay on the power full until you reach Turn One. Enter Turn One low, staying on the accelerator until you actually reach the base of the turn. Tap the brakes briefly, letting the rpms come down to 7,500. Just a beat or two later, step back on the gas and try to steer the car along the bottom of the corner all the way around. It takes a delicate touch to keep the car low while avoiding the slippery apron in this turn.

Exit Turn Two and let the car drift back out to the wall. Stay in the power until you reach Turn Three; move the car down to the middle lane of the track as you approach the turn. Lift and tap the brakes, bringing the rpms down to 7,000. Turn Three feels slightly tighter than One, so brake earlier and stay off the gas until the car feels stable. Step back on the gas and keep the car in the middle or low lane as you exit Turn Four. Once you've cleared the turn, move up toward the outside immediately.

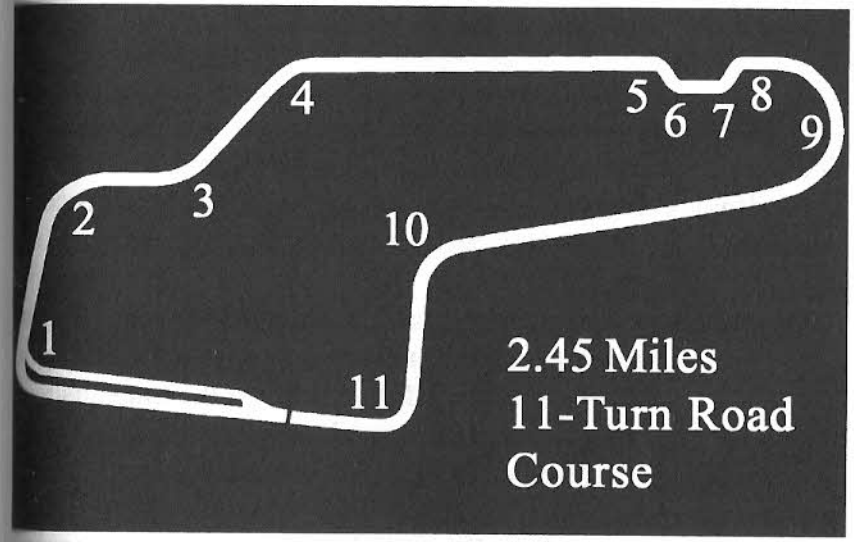
The worst place to be on this racetrack is along the bottom approaching the frontstretch dogleg. You will either have to lift or suffer the consequences of dealing with the grass if you find yourself stuck along the curb here. Your best bet is to try to 'round off' the dogleg, entering the first kink in the middle lane, drifting to the outside wall beneath the flagstand, and diving back to the inside for the second kink. This will get you in position to make another fast run at Turn One.

Last Minute Tweaks:

Still stuck? Try using your Lowe's, Atlanta or Vegas car here. Remember that in Turn One you'll need very little braking, if any at all. On the other hand, you'll need to get the car slowed and settled before you get to Turn Three.

Watkins Glen International

Watkins Glen, New York



Watkins Glen is a historic road course that first opened in 1948. During the 1960's, the prestigious track hosted the United States Grand Prix; economics played a role in the track's downfall however, and in 1981 the facility was bankrupt.

Enter the late Jim Riesbeck, a Corning, Inc. executive who persuaded the manufacturing conglomerate to purchase the facility in a joint venture with International Speedway Corporation in 1983. The track was restored and has been a regular site on the NASCAR Winston Cup schedule since 1986.

The Watkins Glen Setup:

Set fourth gear up on the back straight, approaching the Inner Loop...Keep that spoiler up, look for other ways to shave lap times instead...Watkins Glen is a 'right hand' course- that is, more of the important turns are to the right...Try to get all four tires wearing evenly as you drive...

The Watkins Glen Line:

The key to fast lap times here is to develop a rhythm for the Inner Loop. If you can string these four corners together in one graceful maneuver, you'll be among the front runners.

At the start/finish line, you're typically just shifting up to fourth gear as you make a hard exit out of Turn Eleven. Stay in fourth until you reach the brake markers on the left hand side of the track; as you approach the first marker, apply moderate braking and begin downshifting. Be careful not to downshift too many gears too soon- let the engine rev down prior to each shift. Try to get down to first gear before you reach Turn One, a tight right hander. Just as you start to enter the turn, get back on the throttle and exit the turn wide, shifting back up to third gear before you reach Turn Two, another right. Turn Two is not very sharp and can be taken with a brief lift off the accelerator, staying in third gear.

Climbing the hill toward number three now, move first to the right, then dive low to the left and clip the curb as you blast through the turn. You should be able to obtain fourth gear just before the actual turn, a blind left. As you exit Turn Three, the car will drift to the

right; you'll have to begin counter-steering to the left before you crest the hill out of Three in order to avoid contact with the wall. Just as the car moves back into the middle of the track, you'll go through Turn Four, a flat out right hander. Clip the bottom of the turn and let the car drift back out to the left.

Now you're on the back straightaway, the fastest part of the track. As you approach the end of the straight, keep an eye out for the brake markers on your left- when you reach the 500' marker, brake hard and work the transmission down to second gear. The next four turns, Five, Six, Seven and Eight, comprise what is called the Inner Loop. Steer right through Five, then left through Six while staying off the gas. After you clear Turn Six, step back on the gas and clip the curb as you steer left through Seven. Cut the wheels back to the right through Eight as the power continues to build.

Out of Eight you'll approach Turn Nine, a sweeping right hander. You can take Turn Nine in third gear, keeping the rpms low, or go all the way down to second and rev the engine a bit higher. It's kind of in-between the two gears. Either way, try to hug the bottom of the turn and wait until you've passed its apex before reapplying the throttle. You'll exit Nine to the left of the track; the surface has some extra runoff there to catch you. Shift back up to fourth gear as you head for Turn Ten, a tight left.

Move the car back to the right side of the track before you reach the brake markers. When you get to the 400' brake marker on your right side, downshift to second and cut the left wheels across the curbing of the corner. The car should float to the right side as you exit Ten, shifting back up to third; steer back to the left and downshift

to second to make Turn Eleven, a sharp right. Turn Eleven is a bit wider and offers some variety of lines to choose through it. Once you exit number eleven, you're back on the front straightaway.

Last Minute Tweaks:

There is no short cut to road course perfection, unfortunately. The best way to get faster on any road circuit is practice. Try working on each corner, one at a time. Watch your speed through each turn and work on getting faster before moving on to the next corner.

Online Racing Guide

What You Need To Know Before You Take On Human Competition

Online Racing Guide

Feeling pretty comfy racing against Earnhardt, Gordon, Labonte and the other computer opponents? Maybe it's time for you to take on some human competition via online racing. Think about it...those computer opponents are very-well programmed, but that's just it- they're programmed. In online competition, none of your opponents are programmed, or predictable- because they're all real life human beings like yourself.

"What is online racing," you ask? Simple. Using your Internet connection or a LAN system, along with your licensed copy of NASCAR Racing 3, you race against a field of human drivers on a variety of tracks. None of the cars are programmed, it's all happening live, on the fly. The races can take on a whole new dimension themselves, and you get to meet some really fun fellow-sim drivers along the way (real NASCAR Winston Cup drivers have been known to run in several online races for extra training).

So, where do you begin? Jumping into your first online race can be a daunting, if not downright frightening experience. It doesn't have to be, though! A few basic tips, combined with a little common sense will have you tearing up the tracks on your way to becoming an online racing legend.

You'll Be Famous...So Watch What You Say In Those Post-Race Interviews!

Whether you're a gifted driver who wins a high percentage of races online, or whether you're a back-of-the-packer who's always

struggling to keep up, remember this: you will gain a reputation, good or bad. It's a small world, and the online racing community is even smaller. A certain amount of chatting takes place before and after every race (and sometimes during). Unload a barrage of obscenities at that driver who just wrecked with you, and word of *your* behavior will travel fast- much faster than any word of the wreck itself. Any form of *Flaming* (telling a fellow driver off in an unkind manner) will quickly earn you the cold shoulder from many a driver. Since most online races are passworded, this sort of juvenile conduct will likely have you banned from participating in many races. Think you've got the right to free speech, the right to say what you want? Try climbing aboard a large airplane and yelling "I have a gun, this is a hi-jack!" You'll definitely learn the boundaries of free speech. Enough sermons already, just treat others the way you wish to be treated.

Start Small

It may sound trivial, but remember- Dale Earnhardt didn't win seven NASCAR Winston Cup Championships overnight. For your first race, plan on hanging back in the pack and learning the ropes. No matter how good you *think* you are, there's someone out there capable of beating you. Don't thumb your nose at the abilities of experienced drivers, *learn from them instead.*

Let's Hear It For Teamwork

You may discover that you're a great short track driver. Or, you may prefer to turn right, making you a road course afficienado. Every driver has individual strengths and weaknesses. By joining an online racing team, you can pool your knowledge with a group of drivers.

Share setups, track tips, replays and a few laughs with your teammates- you'll be rewarded with more knowledge, possibly faster speeds, and definitely some new friends. Many drivers have gone on to meet their online teammates face-to-face for the first time at a NASCAR event or other social gathering.

Bob Stanley is a Principle Engineer for a software firm in Virginia. His job takes him overseas from time to time to develop and manage 'theatre of war' demonstrations for the U.S. government. Bob and fellow driver Eric Aldhizer formed one of the first Internet racing teams ever. "Eric and I met in the NIS series online," Bob recalls. "We ran first and second to each other a bunch, got to talking on the phone and found we had similar interests besides online racing. We were having so much fun and hit it off so well over a few months that I asked him if he wanted to form a team. As we talked about what a sim race team would be about, the obvious aim was that by mimicking real world NASCAR teams we could do more testing, share information, and of course, have a sometimes all too hard to find drafting partner at Dega."

Bob, his brother Tom, and Eric formed Team Lightspeed and set up their own website. They recruited other experienced drivers to join their team and now have a highly-trafficked website you can visit, at http://www.team-lightspeed.com. Team Lightspeed's website is known as a place to turn for downloadable car setups for every track, and advice freely dispensed to the racing sim community.

"Like anything there's a downside," Bob says, "Some guys jump from team to team just gathering setups, not realizing setups are one of the least important aspects of being a good driver. Just like real racing, it's fairly easy to go fast, but learning the intricacies of racing

is a whole different story. Teammates are great for constructive criticism as well as moral support. We've all leaned on each other when going through tough times both in the real and sim worlds." "Heck, we only see each other maybe once a year but I consider these guys as 'best buds.' There are times we'll talk to each other on the phone and just chat about family, work, you know- the normal stuff beside sim racing," Bob adds.

So how does one join a team, or form a team? Simple. Ask those drivers you like racing with. Ask them in the chat room, prior to or following races. Check out the racing simulation newsgroups; post messages in them asking for teammates. Try to find drivers that have the same interests and demeanor that you do.

Are You In Their League?

There are several types of races to join online. Pick-Up Races are spur of the moment affairs that welcome anyone and everyone. These races are usually pretty short, sometimes ugly, and almost always filled with sprint drivers- those who focus primarily on speed, not much on strategy or finesse. League Races are generally longer, follow a set schedule and only allow approved drivers to participate.

Leagues don't generally recruit members based on speed; drivers are invited to join leagues based on their demeanor (remember to treat others with kindness) and on their mutual interests. Online racer Ed Keegan has met many of his fellow league drivers in person. "Pretty much if they're a nice person online, they're a nice person when you meet them face-to-face. And if they're a jerk online..." Ed muses. You'll meet high school and college students, doctors, attorneys, pipe-fitters, retailers, CEO's, retirees, computer geeks and

those who can barely peck their name on a keyboard; most leagues try to fit personalities together, rather than skill. These leagues carry abbreviated names like HAL, OSCAR, HGNS and CARS. To find a good league to join, you might want to take a look at the Sierra Forum at http://www.sierra.com/sierrasports/forums/motor/. Internet discussion groups are also a good source of information concerning teams and leagues.

"I'm Quicker Than They Are, How Come I'm Not Winning?"

In offline racing, speed kills. But in online competition, you'll need a lot more going for you than the fastest race car. Patience, solid pit strategy, your best overall chassis setup, a complete knowledge of the track, and of course, racing luck are all vital ingredients found in any stock car racing victory. So how do you gain all of this knowledge?

1. Practice. It's not uncommon to find drivers online, practicing solo or with teammates before the big race. Many drivers also crank up the opposition strength and practice offline against the computer cars. One of the worst things you can say in the chat room prior to a race is, "I've never raced at this track before, I really hate this place." Put the seat time in even if you don't like the track. Who knows, maybe you'll sneak away with a top ten when the dust settles.

2. Ask questions of other drivers, no matter how much faster you think you are- sometimes the slowest guy in the field knows *the* secret that will put *you* in victory lane.

3. Study replays. Find someone faster than you and save a replay of

them in action. Take note of the line they drive (the blimp cam is an excellent look, here) and the speeds they're able to generate in each corner.

4. Build setups that are appropriate for the types of races you're going to run. Don't load up your Martinsville sprint setup that's blazing fast for forty laps before it has you riding on the rims, if you're driving in a two-hundred and fifty miler. Slow the car down and save the tires. Don't jump into a short 5% sprint race with a slow, long-distance setup that gets great tire wear- you won't be making any scheduled pit stops anyway.

5. Stick a four-leaf clover in your pocket, tape a rabbit's foot to your computer monitor and hang a necklace of garlic cloves around your neck- okay, maybe not; just remember that racing luck will play a role. Don't let a bad streak get under your skin, and don't let a hot streak go to your head. Racing luck is cyclical- accept whatever the fickle finger of fate gives you and take satisfaction in knowing you gave it your best shot. You'll win races you really didn't deserve, and you'll lose some heartbreakers you thought were in the bag. Everybody does. Above all, don't dwell on things. Apologize quickly, even if you didn't cause the accident you were in. Make friends, that's what it's all about. Savor your triumphs, but comfort those who were slapped around by the track, incidents, connection quality or rotten luck.

The Papyrus Racing School

If it sounds like the preceding paragraphs have been a sermon on attitude, keep in mind that 80% of what you enjoy about online racing will stem from your attitude. The other 20% will come from the

races themselves. In order to make the most of that 20%, there are a few things you'll need to be aware of anytime you're on the track. So sit up straight and throw away that chewing gum! Class is now in session.

Squealing Will Only Get You Into Trouble

First and foremost, minimize that tire squeal. Anytime you hear your tires skidding around corners, that means you're putting more stress on the tires. More squealing equals more wear. If you can't reduce the skidding noises by tweaking your setup (chances are you won't) you'll need to consider altering your approach in the corners, and possibly (gulp!) slowing down a tad more. Under green flag conditions, rubber is your most precious commodity. If you can make your tires hold up a little longer than the competition's, you'll be able to run faster laps as your fuel tank reaches lower levels.

The 'Ol Two By Four

Often while racing, one of the most important decisions you'll make is whether to have two tires changed in the pits, or whether you should go ahead and take four new ones.

If your fuel tank's empty, most of the time it's best to go ahead and request four new tires. You're only going to save a second, maybe two by refusing new left side tires. That second or two you gain could easily be lost on the track as you struggle to maintain traction. Under yellow, taking four is often better than taking two; you can always take two on the following stop, which may have to be made under a green flag.

If the fuel tank is not well below the halfway mark when you stop, it may be advantageous to take only new right side tires- especially if you're making that pit stop under a green flag. You might be able to gain some position on the track by doing so. The two-tire stop is most effective when there are a lot of cars still on the lead lap...or very late in a race...or in 'Fixed Setup' races (tighter setups may feel looser after a two-tire stop).

While it's better to have four fresh tires on the car, you can't always take the added time to get them. When you opt for right side tires only, try adding some wedge to the car (between 10-30 lbs.) in order to compensate for the added looseness in the chassis.

Stretch That Fuel

There are a couple of tips that will help you squeeze every drop of fuel out of your tank. First, during caution flag periods, keep your car in fourth gear. The reduction of rpms will improve your fuel economy. Second, choose taller fourth gears if possible. Again, reducing the engine rpms will provide you with a few more laps of fuel.

One online driver, Bill Benedict, won a race at Rockingham thanks to some heady thinking- and footwork! Figuring that he would run out of gas just three or four laps short of the race finish, he gambled and began lifting off the accelerator on each straightaway in order to save gas. He began quietly fading back in the field, over a half-a-lap behind. However, when the other drivers were forced to pit for a late splash of fuel, he chose not to pit and snuck into the lead. He ran out of gas just as he received the checkered flag- and the victory!

To Shift Or Not To Shift

With a few exceptions, most NASCAR Winston Cup drivers only shift gears on road courses. Several online drivers prefer to shift gears in slow corners, however. Tight, slow corners like the ones found at Gateway, Martinsville, Richmond and Rockingham are among those that some drivers like to downshift to third gear in. If you don't feel comfortable hearing your engine dip down below 6,500 rpms, you may desire to shift gears. While there is no concrete proof of a speed benefit from shifting, there is a tradeoff to keep in mind. Lots of gear changes mean lots more opportunity for something to go wrong, such as an improper downshift. Many an online racer has blown an engine and seen a good effort go up in a plume of smoke thanks to a mis-timed downshift.

Practice Makes Perfect

You see them every time in the pre-race practice session. Speed freaks. Big dogs. Those drivers who aim to impress others by loading up their qualifying car and spitting out the fastest laps possible, in order to see their names at the top of the practice speed screen. Don't get sucked into this game! Ignore the practice speeds, throw 'em out! Use the valuable practice time instead to make final tweaks to your racing setup. Work on your line, get settled in, get comfortable with the track. Drive in and out of the pits several times in order to get the pit road speed limit burned into your mind.

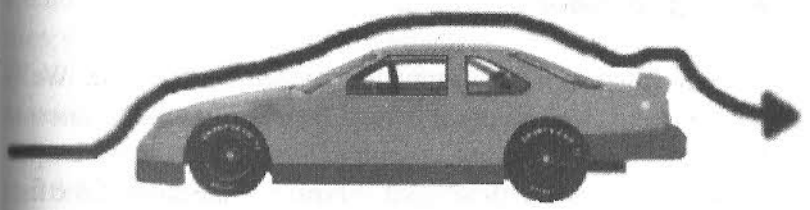
This time should be used to fix small last-minute issues with the chassis setup, and to help you find your rhythm on the track. That's it. Don't try to make anything more out of it. Load your qualifying car up with about five minutes left; take a few laps in it to make sure

you know what rpms you should be seeing in the corners, then grab a final drink, hit the restroom, walk the dog and take the phone off the hook- it's time to race!

Register For The Draft

Drafting is a technique used on speedways and long straightaways by drivers, in order to achieve faster speeds and improve track position. The car at the front of the draft punches through the air mass as it is driven at high speed. Other drivers try to keep their cars positioned directly behind the car ahead; all of the cars in the draft, including the lead car, are able to gain speed because of how the air along the track gets displaced.

At bigger tracks like Lowe's Motor Speedway, Atlanta Motor Speedway, California and Michigan, drivers will commonly use the draft for the sole purpose of gaining a position or two quickly. At



Talladega, however, the draft is your only chance of keeping pace with the field. Offline, you might be able to drive so much faster than the computer-controlled cars that the draft really doesn't mean much. But online, you've got to work the draft in a patient manner, and not let yourself slip more than four-tenths-of-a-second behind

the car ahead. If you do, you will fall back very quickly, helplessly watching the field drive away from you.

Talladega is the most popular track to race at online. This is due to the fact that it requires no braking, and it's wide. Beginners tend to flock to this track, daring any and all comers to join in 'Dega' pick up races. Some of these races can be rewarding, but most are a frustrating endeavor because beginning drivers generally don't wait patiently enough before making their moves.

You can really enjoy Talladega, its draft and all that goes along with restrictor plate racing. Venture onto its thirty-three degree banks cautiously, with drivers you've already raced with online and trust. When you get into a race here with people who know how to draft and drive patiently, it can be a real blast! Just remember that there are twenty-seven other tracks to try out; drivers who only race at Talladega become the object of scorn, nicknamed as 'Dega-heads.'

Qualifying School

There are two distinct ways to tune and race your stock car. We've talked about the main way, racing. Now let's get into the business of qualifying. You'll find it very difficult to move from the back of the field to the front in most online races. Starting at the back of the field is also riskier, since anything bad that happens will occur in front of you and it'll be your job to try to dodge it. Starting a race near the front of the field removes a great deal of this risk. But what can you do to get there?

First, let's talk about what you can do to your car to produce a better qualifying setup. Enter Mike Lentz, by day an Instructor for the

U.S. Air Force, specializing in Bio-medical computer technologies; by night, Mike is a formidable online racer known for his mastery of every type of track. "Basically, the first adjustments to making a good qualifying setup are bumping up the gearing a couple of tenths, dropping the rear spoiler, raising tire pressure a couple of pounds and stiffening the shocks at least 5% or more," Mike offers. "This also will depend on the track you are working on, but this is a general rule of thumb; you want to stiffen it up to make it looser, make it quicker off the turns and reduce drag. The grille tape is also going to have a significant impact on the qualifying setup as well. While you want the qualifying setup looser than your race setup, the goal is to make it stable enough to be able to drive for 2-3 laps without having to fight it too much."

So what about the qualifying line? Clicking off fast laps with a race setup that has warm tires is one thing, but how does a driver handle the strains of posting a fast lap on cold rubber? "Qualifying takes more concentration (and a significant amount of practice) since you are attempting to hit a perfect lap on a setup that has yet to get the tires warmed up to their most effective level of grip," notes Mike. "You have to compensate for this fact by using all of the adjustments at your disposal, to their fullest extent. As in your race setup, you only want to make small adjustments to one or two items at a time, and then practice with it to see the results."

Mike goes on to say, "Experiment with your driving line, trying to flatten turns out and gain the fastest speeds down the straights. Remember, the more you are moving the steering wheel to keep the car where you want it, the more resistance you are creating- and the slower you are going. Be as smooth as possible and practice, practice, practice!"

The Right Scuff

It's no secret that the more heat you have in a tire, the more grip you'll enjoy. During qualifying sessions, try to scuff the tires as much as possible. Before your official timed lap begins, scrub the tires against the pavement as much as possible in order to build heat. This is especially useful at tracks that have two qualifying laps instead of one. Many online drivers will 'waste' the entire first qualifying lap to heavily scrub the tires, zig-zagging at high speeds in order to produce heat. Then, on the second lap these drivers will focus on time, striving for a fast, clean line around the track.

Final Tips

You don't have to be the fastest driver on the track in order to put your car in victory lane. You don't even have to be among the ten fastest. Remember, drive patiently, drive 'heads up' and avoid taking risks early in the race. Ask yourself beforehand, "Is this race expected to be full of cautions, or will it feature long green flag runs?" Consider this factor when loading your final setup.

If you're back in the pack, go ahead and make that early pit stop under yellow, even if you don't need to. Top off the tank, get fresh tires and pray you get a long green flag run. If your prayer is answered, you might find yourself at the front of the field when all of the leaders have to pit before you do. And if fate really smiles on you, you'll get a late yellow just before you have to pit, yourself. If that happens, sit back and enjoy watching the former leaders try to battle their way back onto your lap!

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