



OWNERS MANUAL

*Bill Elliott*

**NASCAR**®

CHALLENGE™

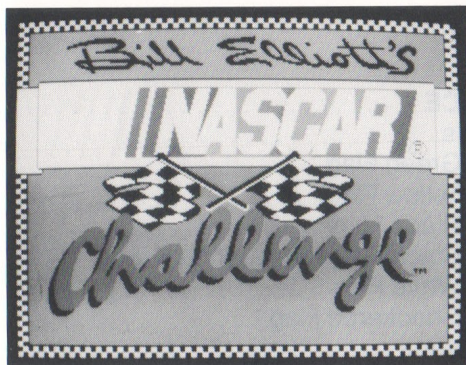
 **KONAMI**®



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## Introduction

In its relatively short history, NASCAR® racing has become a national obsession. It spans the country on short tracks and superspeedways. It is known for its high speeds (Bill Elliott's 186 mph average at Talladega stands 16 mph faster than the fastest Indy 500) and its spectacular crashes. And it draws crowds in the area of 20 million people a year. Becoming a top rate NASCAR driver takes talent, perseverance, and guts. NASCAR drivers are athletes. They are in superb physical condition, demonstrate excellent eye-hand coordination, have great stamina and powers of concentration. It is grueling work 365 days a year: testing the car, tuning it to perfection, making the adjustments that make a winner.

Those who make it to the top make themselves a place in history. Top winners include Cale Yarborough, Dale Earnhardt, Rusty Wallace, Richard Petty, and the fastest stock car driver in history, "Awesome Bill from Dawsonville" Bill Elliott. His record qualifying mark is better than 212 mph. He was voted Most Popular Driver five years in a row by the fans. Bill is the only winner of the Winston Million, the 1988 Winston Cup Champion, and the all time Winston Cup top money winner in a single season. With 11 superspeedway wins in one year, Bill has been the fastest qualifier over 24 times. He is nothing less than a superstar of the superspeedways.

This is your chance to supersede Bill Elliott in the winner's circle. You'll learn where your talents, and your weaknesses, are. Are you better on road courses or on oval tracks? How well can you match the specs of your car to your particular driving style?

If you are ready to chase the checkered flag, you are ready to take on Bill Elliott's NASCAR Challenge.

## History

William Henry Getty "Big Bill" France was a stock car racer who organized his first race in 1936. It took place on a stretch of the beach at Daytona and was a little over three miles long. The race was a success, and he continued to promote stock car races for the next ten years. He quickly became frustrated, however, because there were no stable guidelines and the rules changed from town to town. The sport was growing quickly in popularity, but it was in chaos.

Finally, in 1947, France held a meeting for promoters, racers, and garage owners in a Daytona Beach motel lounge. The National Association for Stock Car Auto Racing (NASCAR) was officially sanctioned at this meeting.

NASCAR set about organizing the sport of stock car racing. It offered insurance to drivers and guaranteed prize money among other things. It set standards, requirements, and limitations on equipment and safety.

The first NASCAR race was run in early 1948 on a beach course in Daytona Beach. It was won by Red Byron in a modified Ford.

The sport thrived under its newfound guidance. In its first season, NASCAR sponsored nine races. Two years later, they sponsored 395. Today, they sponsor more than 1700 races each year.

The most popular NASCAR races make up the Winston Cup Series. This series covers 29 races on 16 tracks in 13 states, and it is the world leader in attendance among the various types of auto racing. The Winston Cup is one of the most coveted prizes in the sport of auto racing.

Today's NASCAR racing is a big business enterprise backed by heavy sponsorship dollars, and run by highly skilled engineers, mechanics, accountants, and promoters. And the stakes are big. The 1990 Daytona 500 paid over \$200,000 to the winner.

NASCAR racing has come a long way from the days when some car buffs ran a few country miles. Today's NASCAR teams race 11,677 miles for almost \$17 million in prize money.

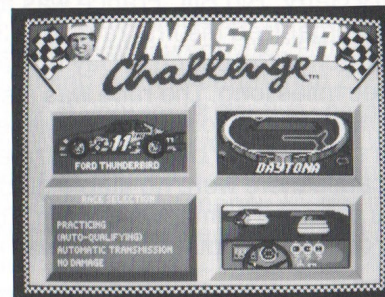
## Starting the Game

See the Quick Start Loading & Playing Instructions on how to start the game and begin racing right away.

## Password Instructions

The password screen appears after the title screen. On the password screen, you see a number and a picture of a race track. Refer to the password booklet to find out which track goes with the number on the screen. Then scroll through the pictures of the tracks until you reach the track that goes with the number. Press Enter to continue.

## Getting Ready to Race



## Main Menu

Before you actually begin to race, you have to get things set up to suit your tastes and talents. That means you have some preparation to do. The first selections you make are from the Main Menu. You have the following choices:

- Car Selection
- Race Selection
- Track Selection
- Start Racing

The Main Menu already shows a selected car, a race setup, and a track. If you are satisfied with the information that is presented, you may go directly to Start Racing. If you prefer, you may change any or all of the selections. See the Loading and Playing Instructions booklet for instructions on how to make menu selections.

## Car Selection

The cars used in NASCAR races look like ordinary cars, but in reality, they are very different. These racing machines are designed and built from the ground up to provide extraordinary performance. They provide increased road handling, stability, stamina, acceleration, and braking.

The engines used produce anywhere from 650 to 680 horsepower at 8000 rpms for long periods of time. A typical Winston Cup class engine is a 350 cubic inch V8 with a single four-barrel carburetor. The internal parts of a racing engine are tooled to produce a clearance of one-tenth of one thousandth of an inch. The building of these engines has become a science that requires knowledge, talent, and money.

NASCAR Winston Cup races are open to steel-bodied, American-made passenger car production sedans manufactured within three years of the racing season.

While modifications are made to improve the performance of the cars, NASCAR rules are very strict in what is allowed. In general, the cars must remain standard in appearance except for approved alterations for safety reasons such as roll bar and fire wall installation.

The cars must weigh a minimum of 3,500 pounds ready to race without the driver, and they must maintain a minimum right side weight of 1,600 pounds.

Cars must have a 110 inch wheelbase and a roof height of no less than 50.5 inches.

Actual differences among cars that run the Winston Cup circuit are fairly minimal. The cars you have to choose from vary slightly in weight, engine displacement, acceleration, top speed, and stopping capabilities. You may find that you favor one car over another simply because it feels better to you. You may want to run a practice session with each car to get a feel for its handling.

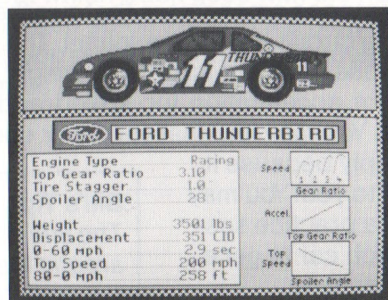
### Bill's Tips

*The line you run around the race track will be determined by how well the car is handling. On a superspeedway, the quickest way around is on the low side through the turns.*

You have three cars to choose from:

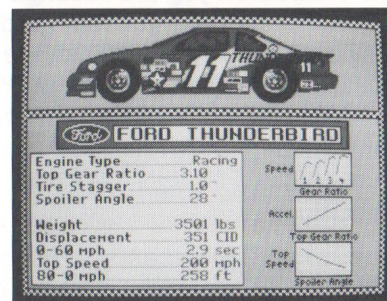
- Ford Thunderbird
- Chevrolet Lumina
- Pontiac Grand Prix

As you scroll among the cars, you see the specs for each one. You will be able to change four of the specs when you tune your car: engine type, top gear ratio, tire stagger, and spoiler angle. The other specs are inherent in the car and cannot be changed by you: weight, engine displacement, acceleration time, top speed, and stopping length.

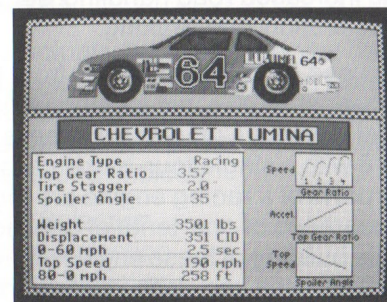


The default settings for each car are meant to provide optimum performance on a particular type of track. The Thunderbird is set up for tri-oval tracks, the Lumina is set up for oval tracks, and the Grand Prix is set up for road courses. Of course, you can change the settings to suit your tastes when you tune your car before a race.

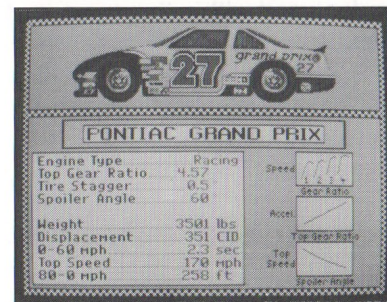
## Ford Thunderbird Car # 11



## Chevrolet Lumina Car # 64



## Pontiac Grand Prix Car # 27





## Track Selection

Much of the appeal of NASCAR racing comes from its variety. It does not always take place on the same type of track. NASCAR drivers have to be adept at high-banked oval tracks as well as at non-banked road tracks. They have to develop strategies for tracks that range from .533 miles long to 2.66 miles. And they have to handle their cars at speeds that range from an average 70 mph to over 200 mph.

You have the opportunity to try eight of the best and most exciting tracks in NASCAR racing. Each track has its own characteristics, its own personality. NASCAR champions like Bill Elliott know them all well.

As you scroll through the tracks, you see a picture of each one. You also see certain characteristics such as track length, maximum banking, and the length of the race in miles and laps. Bill Elliott's best speeds are included to show you what you have to beat.

To select a track, press Space. If you want to change the length of the race, press Enter. A cursor appears after the number of miles to race. You can back-space to erase the current number of miles, then enter the number of miles you want to race. As you change the number of miles, the number of laps automatically changes. Press Enter again to return to the Main Menu.

## Atlanta

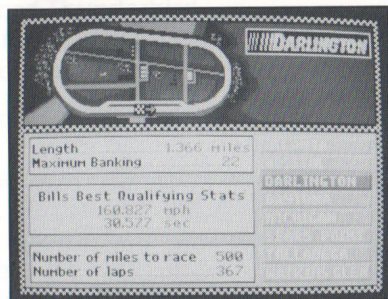
Length	1.522 miles	ATLANTA
Maximum Banking	24	BRISTOL
Bills Best Qualifying Stats	174.341 mph 31.428 sec	DARLINGTON
		DAYTONA
		MICHIGAN
		SEARS POINT
Number of miles to race	500	TALLADEGA
Number of laps	329	WATKINS GLEN

## Bristol, Tennessee

Length	0.533 miles	ATLANTA
Maximum Banking	37	BRISTOL
Bills Best Qualifying Stats	114.576 mph 16.747 sec	DARLINGTON
		DAYTONA
		MICHIGAN
		SEARS POINT
Number of miles to race	266	TALLADEGA
Number of laps	500	WATKINS GLEN

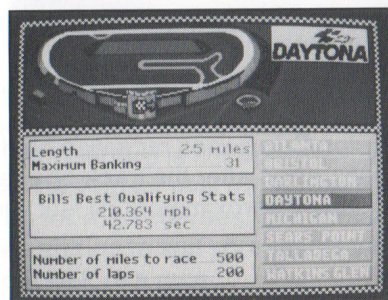
The first Winston Cup series race was held at Bristol on July 30, 1961, soon after the track opened. The straightaways are approximately 70 feet wide.

## Darlington



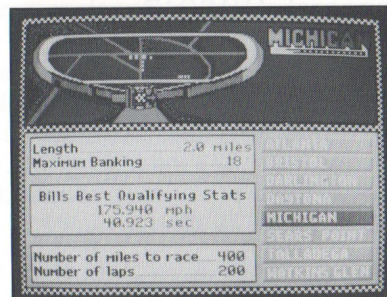
The Darlington International Raceway near Florence, South Carolina, was, at its opening in 1950, heralded as the start of modern stock car racing. It has a narrow racing groove and disproportionately banked east and west turns that give the track the reputation of being “too tough to tame.”

## Daytona

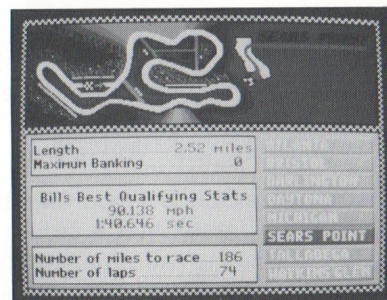


The Daytona International Speedway was built in 1959 by Bill France. It has become known as the “World Center of Racing.” The track is a tri-oval course with the east and west turns banked 31°. The banking at the start/finish line, however, is 18°.

## Michigan



## Sears Point

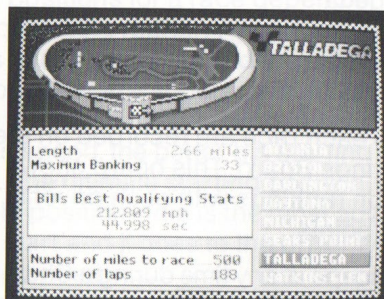


This road track is located in Sonoma, California.

### Bill's Tips

*On a road course, if you can get through the turns quick, you're going to run well. All of this will be determined by your setup with the tire stagger, the angle of the spoiler, the gear you're running and your driving ability.*

## Talladega

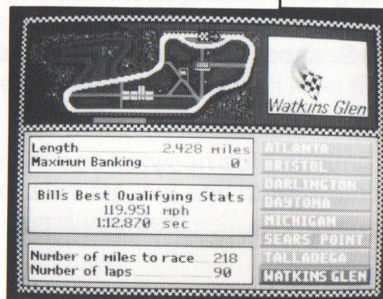


This track was constructed by Bill France in 1969. It is the world's fastest speedway. In 1985, the world's fastest 500 mile stock car auto race took place here. Bill Elliott averaged more than 186 mph at Talladega. It is a high-banked, tri-oval track that is 48 feet wide.

### Bill's Tips

*Two or more cars running nose to tail on a superspeedway can run faster than one car by itself. At tracks like Daytona and Talladega, if you're not running in the draft with the lead cars, you're going to loose positions and slip back in the running order.*

## Watkins Glen

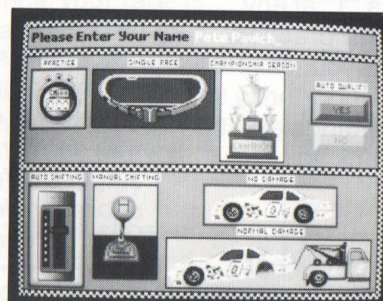


This road track is located in Watkins Glen, New York.

## Race Selection

You can configure your race to suit your style. On the Race Selection screen, you are asked to enter your name. Then you have these choices to make:

- Type of race
- Auto-qualify
- Shifting
- Damage level



### Type of Race

You may choose from three different types of races:

- Practice
- Single Race
- Championship Season

### Practice

It may be a good idea to choose to practice when you are getting used to your car or when you are just starting out and you're learning your driving style. Practice gives you an opportunity to familiarize yourself with the lay of the track, also.

When you choose to run a practice round, you are allowed to drive around the track. Bill is on the track practicing, also. Aggressive driving isn't necessary during practice. Speed isn't vital. Just spend a few laps getting used to the handling of your car. Concentrate on the length of the track, the turns, the banking. Find your groove and run in it for a while. This is your opportunity to warm up for the real race and to evaluate your car's performance.

You may press "T" at any time during your practice round to retune your car. This gives you the opportunity to get your car settings exactly right for the track you are running.

### Single Race

When you have your car tuned the way you want it and you are familiar with the way it handles, you're ready to run a race. Select Single Race. The race takes place on the track that is selected and for the number of miles you have selected.

### Championship Season

When you think you're good enough to win an entire season, choose this option. This allows you to race all eight tracks in succession (the order is predetermined) and gives you standings for the entire season. The order of the tracks is as follows:

- Daytona
- Atlanta
- Darlington

- Bristol
- Talladega
- Sears Point
- Michigan
- Watkins Glen

The results of each race are recorded on the Season Rankings Board. This board shows the current season rankings with each driver's accumulated points.

If you press Escape at any time during a Championship Season, the race you were running is forfeited, but all previous races are recorded. It is a good idea to save the game after each race you run to ensure that you don't lose any of your hard-earned season points. Then, if your Championship Season gets interrupted, you can pick up later where you left off. To save your current position, press Control S. To load what you previously saved, press Control L on the Main Menu. You can also save a game or load a saved game by pressing F10 to get to the Systems Menu. Keep in mind that when you load what was saved, you lose your current data.

You may exit during a Championship Season to change cars and race settings. However, if you change the race type to anything other than Championship Season, your entire season is lost.

#### Bill's Tips

*Practice is important. As you practice, you may want to experiment with different tire stagger, different spoiler angles and different gears.*

### **Auto-Qualify**

Starting positions for a race depend on each driver's qualifying round. A qualifying round typically consists of a few laps around the track alone. The driver doesn't worry about fuel efficiency or tire wear. He thinks about speed and only speed. The better his speed, the better his starting position in the race. The ultimate starting position, of course, is the pole position. This is the most advantageous place to start and it goes to the driver with the best qualifying speed.

If you choose not to auto-qualify, select NO. You will run a qualifying round after you choose to start racing. If you crash during the qualifying round, you are placed at the end of the pack.

If you choose to auto-qualify, select YES. You automatically qualify for a position near the end of the pack. When you choose to start racing, you are shown the qualifying results which include the speeds of the top contenders, the speed of the winner of the pole position, and your speed and starting position.

### **Shifting**

If you are new to the NASCAR racing circuit, your driving skills may not be good enough for you to be a real winner yet. You can increase your chances of doing well by selecting the skill level that suits you best.

You may choose between auto shifting (letting the computer shift for you) and manual shifting (you shift the gears yourself).

### **Damage Level**

You can choose between two damage levels. Until you are an experienced driver, you may want to choose No Damage. This selection means that any damage your car sustains is ignored and your performance is not hindered.

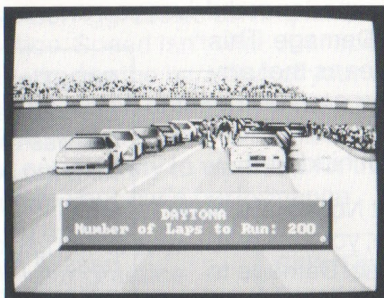
If you select Normal Damage occurrence, your race is more realistic. Damage to your car affects your car's performance. Your driving skills must be more polished in order for you to avoid damage.

When you have chosen your car, your track, and determined the race you want to run, you return to the Main Menu. You are ready to start racing.

#### **Bill's Tips**

*In some cases it might be wise to follow a car for a lap or two, in order to judge things before you attempt the pass. A misjudged pass can result in loss of position, damage to the car, unnecessary punishment to the tires or even an accident that might put you out of the race.*

## Start Racing



When you are satisfied with the selections that appear on the Main Menu, select Start Racing.

## Practice

If you are practicing, you will tune your car and then run a practice round.

## Auto-qualify

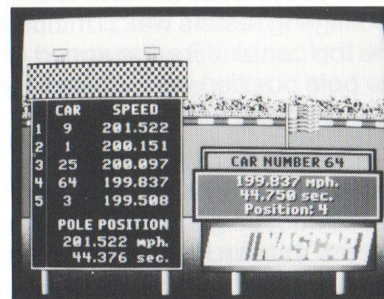
If you are set up to run a race and you chose to auto-qualify, you see the qualifying board when you choose Start Racing. The qualifying board shows the top five qualifiers and their times, it shows the time of the car that won the pole position, and it shows your qualifying time and position. Press Enter to continue. Next, you tune your car and then you run the race.

## Qualify

If you chose not to auto-qualify, you first tune your car and then you run a qualifying round. When you tune your car to qualify, select the qualifying engine setup. Tune the other components of your car so that it will go as fast as possible.

During a qualifying round, you are alone on the track. When you start the qualifying round, you get one warm-up lap. Then you are given the white flag. This is the time to go as fast as you can around the track until you are given the checkered flag. This signals that your qualifying round is over.

You are shown the qualifying board which shows the top qualifiers and their speeds and positions, the speed of the car that won the pole position, and your qualifying time and position.



After you qualify, you may tune your car again.

## Tune Your Car

Your car is ready to drive onto the track exactly as it is, so if you're anxious to get going, go. However, in the real world of racing, a driver's team makes modifications nearly up until the time the green flag falls.

The driver has spent hundreds of hours with his car and he knows it inside out. He knows how it will accelerate on this track with this engine configuration. He knows how it will handle on this turn with this tire stagger.

Once you are used to your car and once you are familiar with your driving style, you can play with the car's tuning, try it out, and make adjustments until you and your car make a winning combination.

Racing is said to be 50% power and 50% durability. Each of these things can be achieved by the way you set up your car.

These are the components of the car that you can tune:

- Engine setup
- Tire stagger
- Top gear ratio
- Angle of the spoiler

### Bill's Tips

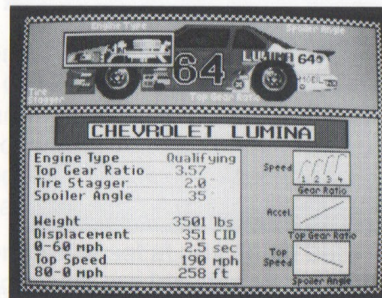
*In passing some of the slower cars in the back of the field, you can usually do that without a lot of trouble, if you've set your car up right for the track you're running on.*

You can tune these components before and after a race, before and after a qualifying run, and anytime during practice sessions.

You can change tire stagger and the angle of the spoiler in a pit stop during a race.

To change the settings on your car, select the component you want to change or adjust and press Enter or the joystick button. Then use the up and down arrows or the joystick to make your adjustment. Press Enter or the joystick button again to select the new setting. Press Space or the joystick button to accept all current settings. If you press Escape, you return to the Main Menu and the race is forfeited.

## Engine Setup

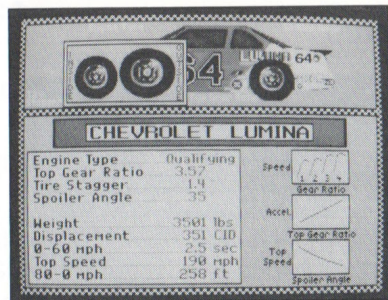


NASCAR teams make special adjustments to the car when it is qualifying. They use a minimum amount of fuel in order to keep the weight of the car down, they set the tires for optimum performance without

worrying about tire wear, and they adjust the engine for the best speed in a short amount of time.

You can choose between two engine setups: racing and qualifying. The qualifying engine overheats after a few laps because it has no cooling components, but it provides more power. In professional racing, the qualifying engine is tuned specifically for optimum performance in the qualifying round. Because the power needed to qualify is so great, the stress on the engine is high. A qualifying engine is used only once, and then it is discarded. The racing engine is made for speed and endurance. Choose the one that is appropriate for your purposes.

## Tire Stagger



Tire stagger is the difference in size between the tires on the inside and those on the outside of the car. Tire staggering is done primarily when the race is run on a banked track. When the car is always turning the same direction, it helps to have larger tires on the outside of the car. This helps save on tire wear and it makes handling the car easier.

However, you have to use some judgment on how much to stagger your tires. Stagger between the tires on the inside and those on the outside usually ranges anywhere from no difference to three inches. In order to make a good decision you must consider your driving style and the characteristics of the track.

If your outside tires have a larger diameter than your inside tires, your car will tend to pull to the inside. This is good on the turns, but it can make the car difficult to handle on the straightaways. If the straightaways are long, this could be a problem. If they are relatively short, you may be able to handle the pull.

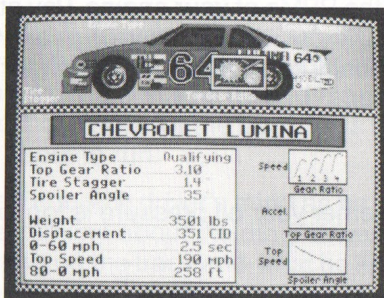
Consider your driving abilities, the length of the track, and the general handling of the car. Adjust the tire stagger until you are comfortable and there is no danger that you will lose control.

### Bill's Tips

*If the car is loose (the back end wants to come around in the turn) you'll need to adjust the stagger. If the car is pushing (the front end want to go towards the outside wall, even though you're turning the wheel to the left through the turn) you'll need to loosen it up with a different stagger.*



## Top Gear Ratio



Gear ratios indicate the revolutions per minute of your drive wheels divided by the revolutions per minute (rpms) of your engine.

A low gear ratio will yield the fastest top speed, but it will give the slowest acceleration. If you like to accelerate coming out of curves, you will probably want a higher gear ratio. If you tend to keep a steady speed without much acceleration, you will work better with a lower gear ratio.

Setting gear ratio properly is a skill that may take some testing before you get it right for your style of driving. If you drive with gear ratios that

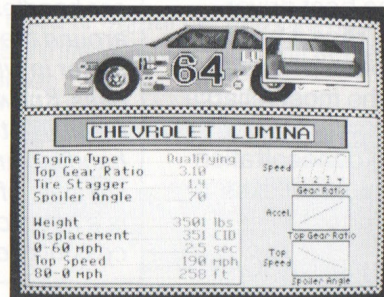
### Bill's Tips

*When drafting, the lead car will be running with the accelerator wide open, the cars in this draft don't have to use as much accelerator, yet they run as fast, as a result of the vacuum that's created by the air coming off of the back of the lead car. Essentially, when the opportunity presents itself, you can use the remaining accelerator to sling-shot around the car you're drafting, because he's already running at full throttle.*

are too high, your engine suffers extra stress and engine failure is a possibility. If you drive with gear ratios that are too low, you don't properly utilize your engine's full power.

You can set the gear ratio at any increment between 2.00 and 4.57.

## Angle of Spoiler



The spoiler is a metal strip attached to the trunk lid that helps control air flow, downforce, and drag. If you increase the angle of the spoiler, you generally help your car's cornering ability. This is called "adding more spoiler." Less spoiler, or decreasing the angle, aids speed on the straightaways.

The spoiler can be set at any angle between 20° and 70°. Once you are familiar with your driving style, you will be able to make spoiler adjustments that maximize your skills.

## How to Drive Your Car

You may drive your car using either a joystick or the keyboard. See the Loading and Playing Instructions booklet for specific instructions on how to drive your car.

Good NASCAR racing is the result of a successful combination of driver and machine. The best driver cannot win a race if his car fails or has been prepared poorly. And the most reliable car cannot make up for a driver whose concentration wavers or whose reflexes are not superior.

Truly successful NASCAR drivers know their cars inside and out. They develop a sixth sense about their cars and form a kind of psychic rhythm so that the two work in perfect harmony. The more you drive your car, the better you will know how it handles.

## Dashboard

The dashboard of your car looks like this:



### Bill's Tips

*Knowing where your car handles best around the track is a factor in when you pass. Knowing how the car in front of you is handling and the driving style of that driver is a key factor in a successful and clean pass.*

## Tachometer

Shows you the RPMs of your engine. Pay attention to this so you know when to change gears. In racing, gears are usually changed at a tachometer reading of 8500 RPMs.

## Oil Gauge

Tells you whether your oil pressure is too low or too high.

## Damage Warning Light

Informs you that your car has some damage that must be repaired. This requires a pit stop.

## Fuel Warning Light

Lets you know when you are low on fuel and must make a pit stop to refuel. You can go about 100 miles on 22 gallons.

## Temperature Gauge

Shows the temperature of your engine. Qualifying engines overheat very quickly. Normal racing engines should not overheat if they are run properly.

## Fuel Gauge

Shows you the amount of fuel you have. Your tank holds a maximum of 33 gallons.

## Gear Shift

You may shift gears manually or have the computer do it for you. The gear shift appears only when you are changing gears.

## The Race

All of a NASCAR driver's preparation comes down to the start of the race. The driver hopes his machine is in optimum condition, that he and his crew have configured it correctly for the track he is on and the race he is about to run.

What goes through a driver's mind as he starts a race? He's thinking about the other drivers. He's concentrating on the track and what he knows about it. He's thinking about the grueling laps that lie ahead. And he's hoping nothing goes wrong, no mechanical failures, no crashes.

Most drivers know the importance of the start of the race. A poor start can lose the race for the best and fastest of drivers.

As your race is about to begin, you see the cars lined up. Then you enter your own car and you hear the famous words, "Drivers, start your engines." Your engine starts.

NASCAR races start with the pack moving at about 80 to 100 mph in two columns behind the pace car. When the green flag falls, the race is on.

### Bill's Tips

*The ability to pick and choose how and when you pass a car is the key in passing. Obviously, you want to get around the slower cars as you move to the front. Once you've gotten in position to run with the leaders, your passing becomes even more critical.*

As you circle the track lap after lap at speeds that can reach over 200 mph, you have to remain alert to a variety of factors that affect the race:

- Flags
- Pit stops
- Accidents

## Flags

Flags are used to signal certain events and track conditions. While you race, you will see a flag in the top left corner.



## Green Flag

The green flag is used to start the race and to signal restarts after a caution period. At the beginning of the race, when the green flag is given by the starter, cars must maintain their positions until they have crossed the starting line.

### Bill's Tips

*When green flag pit stops are made, everyone will pit about the same time, so the running order will return to about the same after all the stops if everyone has good clean stops.*

## Yellow Flag

The yellow flag signals a possible hazardous condition on the track. When you see the yellow flag, you must slow down and maintain a reasonable speed. All cars must fall into a single line and retain their positions.

## Black Flag

The black flag is given when your car has sustained serious damage and you are a hazard to the other drivers. When you see the black flag, you must make a pit stop and get the damage repaired.

## Black Flag with a White Cross

If you fail to enter the pit for damage repair when you are given the black flag, you are given a black flag with a white cross. This means you are disqualified and you lose the race.

## White Flag

The white flag is displayed when the leader of the race has started his last lap.

## Checkered Flag

The checkered flag signals that the winner has completed his last lap and the race is over.

## Pit Stops

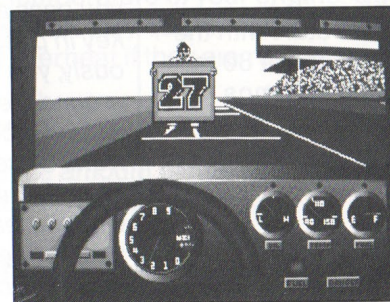
Pit stops are some of the most fascinating occurrences in NASCAR racing. In a matter of seconds, a driver's pit crew changes tires, refuels the car, checks for problems or damage, and cleans the windshield. Pit stops usually average about 20 seconds.

## Entering the Pit

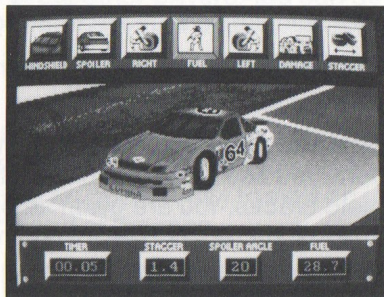
You enter the pit by steering your car into pit row which is on the left side of the track. You must avoid the walls of the pit as well as other cars. If you crash going into the pit, the race is over. When you enter the pit, move to the far left and follow the white stripes on the pavement. A crew member will hold up a sign with your racing number to indicate where you need to stop. Stop directly in front of the person holding the sign.

### Bill's Tips

*With a few exceptions, everyone will pit for fresh tires (4) and gas during a caution period. When you pit under green flag racing getting right or left side tires and gas is the most you can do and still maintain a good track position.*



If you pass your pit area you will not be able to back up. You will have to continue forward and enter the race again. This could be very harmful to your race, especially if you needed to refuel or if tire wear is extreme.



## Stopping in the Pit

Pit stops are a vital key to success in NASCAR racing. The faster your crew can perform the maintenance needed, the faster you can get back on the track. Seconds count. Pit stops can make the difference between winning and losing.

When you make a pit stop, you must decide quickly what needs to be done.

### Bill's Tips

*Pit strategy is a key factor in winning or losing, running well, running up front or in the back of the field.*

### Bill's Tips

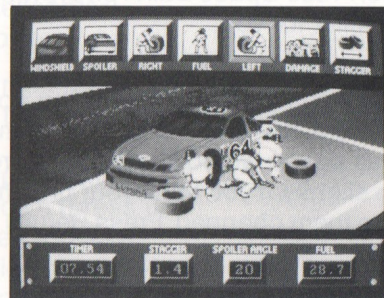
*On a superspeedway, seconds lost in the pits can equal the distance of 2, 3, 4, or more football fields. With competition as tough as it is in NASCAR, that could be the difference in winning or losing at the end of the race.*

## Maintenance Procedures

When you stop in the pit, the view you see on the screen changes. You can choose to perform any of the following maintenance procedures on your car:

- Adjust tire stagger
- Refuel
- Change right side tires
- Adjust spoiler angle
- Change left side tires
- Repair minor engine damage
- Clean the windshield

Move the highlight to the procedure you want to change, and press Enter.



### Adjust tire stagger

If you have found that the handling of your car requires an adjustment to the tire stagger, change it. Select this procedure, then use the up and down arrow keys to change the tire stagger measurement. Press Space Bar. Two pit crew members change the tires on the right side to comply with your request.

## **Refuel**

Your gas tank holds a maximum of 33 gallons.

## **Change right side tires**

If your tires are worn, you may be having trouble handling your car. The tires may begin to lose their grip going around curves. Excessive tire wear can be dangerous. If you think your tires might be worn, have them changed. Press Return to change them.

## **Adjust spoiler angle**

If you are having troubling handling the car on turns or holding it steady on a straightaway, you may want to try a new spoiler angle. Select this procedure, then use the up and down arrow keys to change the spoiler angle. Press Space Bar. A pit crew member moves the spoiler for you.

## **Change left side tires**

If your tires are worn, you may be having trouble handling your car. You may not be able to maneuver a pass as well as you would like to. Worn tires may begin to slip slightly. If you think your tires might be worn, have them changed. Press Return to change them.

## **Repair damage**

If you have sustained any damage during the race, you can have it fixed. A pit crew member makes some adjustments and fixes the damage.

## **Clean the windshield**

It's important to be able to see clearly as you drive around the track at incredible speeds. Have a pit crew member wipe off your windshield.

Press Space or the joystick button to leave the pit and resume racing.

## **Accidents**

Unfortunately, accidents are an inevitable part of NASCAR racing, and some of the most spectacular crashes in racing have taken place in NASCAR races. The high speeds, the heat generated on tires and engines, mechanical failures, as well as driver fatigue and unpredictability, all contribute to accidents. Of course, drivers do what they can to avoid them, but sometimes they are unavoidable.

You are susceptible to two kinds of accidents: fatal and non-fatal.

A fatal accident ends the race. If you are involved in a fatal accident, you see a spectacular collision and your windshield cracks. You are given an opportunity to view the instant replay (see instant replay page 23).

Non-fatal accidents include such things as scraping the wall or bumping another car. You see signs of minor impact when it happens. If you chose Normal Damage on the race setup screen and you are involved in a non-fatal accident, your car is damaged and this affects your possible top speed as well as the handling of your car. You may make a pit stop to repair the damages and then return to the track under normal conditions.

If you chose No Damage on the race setup screen, non-fatal accidents have no serious effect. They may simply cause you to slow down. However, they may also lead to a fatal accident if you lose control of your car.

## Instant Replays

Instant replays are a natural part of any sports event on television and that includes NASCAR racing. Instant replays allow you to view the same events from different angles and different distances. As a driver, you can learn a great deal about your own technique as well as learning more about the characteristics of the other drivers. You can devise new strategies when you know what went wrong or what went right with the strategy you were using.

During the race, you can take time out to view instant replays of the last 20 seconds of action. To pause the race and view an instant replay, press Tab. You are also given an opportunity to view an instant replay of the end of the race.



When you choose to view an instant replay, you are shown a sophisticated control panel which is similar to that of a VCR. The flexibility provided in the camera angles and functions allow you to view the action from virtually any point of view, any distance, and from any car on the track.

There are six camera positions. Press F1 to cycle through the different views:

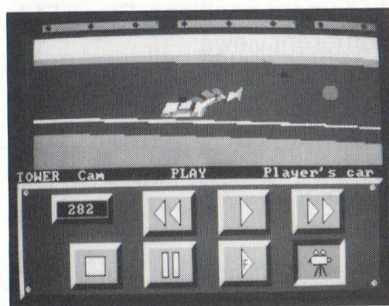
- In-car
- Rear
- Follow
- Behind
- Helicopter
- Tower

There are multiple and variable camera angles. You can move the position of the camera in the following ways:

- Up (press [)
- Down (press ])
- Left (press a)
- Right (press A)
- Zoom in (press Z)
- Zoom out (press z)

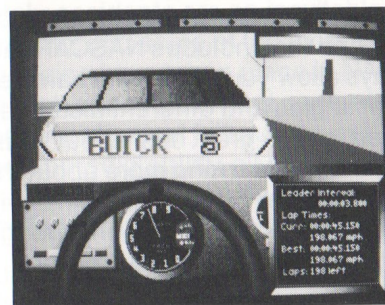
You can also view the action from the perspective of any car on the track. This function gives you a chance to get into the minds of the other drivers and understand their methods. Press .> to scroll through the various car perspectives.

The VCR-like functions of the instant replay mechanism make it easy to use. You can view the instant replay in a variety of ways. You can see it at regular speed or in slow motion. You can rewind the "tape," fast forward, and pause the action. You can move the "tape" one frame at a time. Use the instant replay as a tool to assess your strengths and weaknesses and improve your driving skills.



Use the arrow keys or the joystick to select a video tape function. Or use the Hot Keys (see the Quick start Loading and Playing Instruction booklet) to perform the video tape functions. Escape resumes racing.

## Leader Board



You can view the leader board at any time while you are racing. See the Loading and Playing Instructions booklet for the Hot Key that brings up the leader board. The leader board shows you the race time, your best and current lap times, the number of laps raced so far, and your current position time behind the leader or leader interval.



## Finishing the Race

When the leader of the field has one lap left to go, a white flag is waved. The race ends when the leader crosses the finish line after having run the required number of laps. The checkered flag is waved for the finish of the race.

When the race is over, you may view an instant replay if you like. Or you may press Enter to see the race statistics.

The statistics board shows you the statistics for all drivers as well as the race time and the average mph for the winner. Press Enter to continue.

### Bill's Tips

*When you're running in a draft behind a car, you're using less gas than the lead car in the draft. This, along with the other factors, can become a key factor in strategy at the end of the race.*

## Championship Season

If you are racing in a Championship Season, which includes all 8 official NASCAR tracks you see a board which shows your statistics for the season to date for each track you have run, and a board which shows the points standings for all drivers to date.

Points are awarded based on finishing positions. The first eleven place drivers receive the following points: 175, 170, 165, 160, 155, 150, 146, 142, 138, 134, 130. Any driver who officially leads during a race receives an additional five points. The one driver who leads the most laps gets another five points. If the driver with the most lead laps is also the winner, he or she gets another ten points for a total of 185.

Therefore the maximum number of points you can achieve per race is 185.



## Glossary

**aerodynamics**—The study of airflow and the forces of resistance and pressure that result from air flowing over, under, and around a moving car.

**apron**—The paved portion of a racetrack that separates the track itself from the infield.

**banking**—The sloping of a racetrack, usually at a curve. The degree of banking refers to the height of a track's slope at the outer edge.

**chute**—The straightaway on a racetrack.

**downforce**—The pressure of the air on a car as it moves. Downforce increases with velocity.

**drafting**—When two or more cars run nose to tail, almost touching. The lead car displaces air in front of it and creates a vacuum between its rear end and the following car's nose. The second car is actually pulled by the first.

**drag**—A resisting force exerted on a car parallel to its airstream and opposite in direction to its motion. The more aerodynamic the car, the lower the drag.

**dyno**—Short for Dynamometer, a machine used to measure an engine's horsepower and test and monitor its overall performance.

**EIRI**—Stands for "except in rare instances." It is used by NASCAR to enforce its decisions when there may not be a specific rule or regulation to cover such a decision.

**esses**—A series of sharp left and right-hand turns on a road course.

**factory**—Refers to the big three auto makers, General Motors, Ford, and Chrysler.

**groove**—The best route around a racetrack for a particular driver. The high groove takes a car closer to the outside wall for most of a lap. The low groove takes a car closer to the apron.

**handling**—A car's general performance. Handling depends on tires, suspension, geometry, aerodynamics, and other factors.

**Jack the Bear**—A car is said to be running like Jack the Bear when it is running at optimum efficiency.

**loose**—A car is said to be loose when its rear wheels break away from the pavement and its rear end swings toward the outside wall. This is also called oversteer.

**magnaflux**—Short for magnetic particle inspection. This is a procedure for checking all steel parts of a car such as suspension pieces, connecting rods, cylinder heads, etc., for cracks and other defects. It uses a solution of metal particles and fluorescent dye and a black light. Surface cracks appear as red lines.

**P & G**—The procedure for checking the cubic inch displacement of an engine.

**pits**—The area of a racetrack off the racing surface where cars stop for servicing.

**pushing**—When a car's front end tends to push toward the outside wall on a corner, it is said to be pushing. This is also called understeer.

**ragged edge**—You are driving your car on the ragged edge when you push it to its extreme limits. Going over the ragged edge can result in loss of control.

**rear-steer**—A car in which the steering components are located behind the front axle.

**right combination**—Describes why a car, team, and driver have performed well or won a race. This includes factors such as engine horsepower, tire wear, weight distribution, performance of the driver on the track and the crew on pit stops.

**short track**—A speedway that is less than a mile long.

**slick**—A condition of a track which makes it difficult for the car's tires to get good traction. A slick track is not necessarily wet or slippery because of water or oil.

**slingshot**—When the second car in a draft suddenly steers to the left breaking the vacuum. This provides an extra burst of speed that allows the second car to pass the first.

**spoiler**—A metal strip that helps control airflow, downforce, and drag. There is a front spoiler under the front end of the car near the axle. The rear spoiler is attached to the trunk lid. If you add more spoiler, you increase the angle of the rear spoiler in relation to the rear window. This aids a car's cornering ability. Less spoiler aids straightaway speed.

**stagger**—The difference in size between the left side and the right side tires.

**stroking**—A driver is said to be stroking when he lays back and isn't aggressive. A driver may stroke in order to conserve fuel or equipment before the end of the race, or he may have enough season points that he doesn't have to win the race.

**superspeedway**—A racetrack that is a mile or longer. This includes road courses.

**tri-oval**—A racetrack with a "hump" or "fifth turn" in addition to the standard four corners.



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