

### **What's new in V 1.3 (05/11/2006)**

- Soft tyres are reaching optimum temperature a bit more easier. They should be able to work well even with the lowest ambient and track temperatures.
- All wet and intermediate tyres have new grip curves that gives them better control and a bit more grip.
- All wet and intermediate tyres gain temperature harder than before.
- All wet and intermediate tyres have more grip when cold.
- All wet and intermediate tyres are more grip sensible with pressure.

### **What's new in V 1.2 (29/10/2006)**

- Safety car that doesn't appear on dedicated server fixed
- Fixed a tyre temperatures bug on Yokohama tyres
- Added the option to lower down the POV to see the motec on 16:9 monitors and to have a more realistic view
- Engines modified for leagues that wish to use Timed Scaled Damage option. Please contact [www.simleague.net](http://www.simleague.net) admins for additional information.

### **GTR2 Advanced Physics Mod**

*Jon Denton introduces 'NAPMod', the GTR2 physics mod that comes with this month's AUTOSIMSPORT*

This mod provides updated physics for Simbin's GTR2 as a provision for those in the community who seek a more 'hard core' experience from the sim. The mod can be found bundled with AUTOSIMSPORT in the ZIP package.

### **Installation**

The package contains two key files when extracted:

*GTR2\_NAP\_1.3.EXE*—This is the main installation file. Double click this to install, and point it to the location of your GTR2 installation (if it cannot be located automatically).

*GTR2\_OP\_1.3.EXE*—This executable, when run, will uninstall the NAPMod and restore the 'stock' physics for GTR2.

The package also contains some car setup files for certain cars, which need to be copied to the relevant directories under your GTR2 installation in order to be used. We would strongly recommend doing so.

### **Fundamentals**

Because this mod changes some fairly fundamental aspects of the driving model, it is strongly advised that you read through the following guidelines before jumping in with both feet.

Don't rush into the fastest car and hit the track! You wouldn't do this in reality, don't do it in the sim either!

It would be advisable to start out with one of the NGT cars at first, I would suggest the Ferrari 360 Modena NGT or, if you feel you can handle a trickier manual gearbox, the 911 RS NGT. Unique setups have been created for these cars specifically with the intention of making them a little more predictable and reasonably fast to drive.

When you hit the track, try to ignore what you have learnt with the 'old' physics; start slow and build up speed as if it were real-life and you do not want to get hurt! Drive the car fast but conservatively, and work your way up to the tyres' limits over the course of a few laps; this will prevent any frustration from 'wall time'.

Once you have become familiar and comfortable with the NGT cars at speed, you can move on to the much quicker, and harder to drive GT cars, which are far more sensitive to setup changes than their NGT cousins.

Choose the same track you where driving with the NGT cars and start out, ideally, with the 'drift king', the Chevrolet Corvette. Enjoy the forgiving nature of the Corvette's chassis and allow yourself to feel the tyres' slip curve and drop-off point. Once you have had enough fun with twirling the steering wheel around with monster slides, take a look at the Ferrari 550 BMS car, another front-engined beast that is manageable on the limit, but can deliver healthy doses of adrenaline with its 'buzz saw' V12! Enjoy the show, but remember that although fun, driving sideways all the time is not fast, nor does it do any good to your tyres. Once again use the provided setups to start with, as they will give you a good base.

Before trying the Maserati and the Saleen, we suggest that you read the setup guidelines below to better understand how to setup a car with complex underbody aerodynamics.

## Setup Guidelines

'NAPmod' physics mod has tried to use realistic values where possible in order to recreate the complexity of modern-day racing cars.

To get the most out of these amazing racing cars, and to feel the formidable amounts of grip they can generate, you need to understand that, *being* racing cars, they are very sensitive to setup changes both aerodynamically and mechanically. The tyres are also very sensitive to temperature, pressure, and loads. If you correctly adjust the setup of the cars, and the tyre pressures, you will experience a considerable level of grip and nice, predictable handling characteristics. Conversely, if you're *not* able to set the car up properly, you will experience poor handling, unpredictability and frustration.

In this section, then, some general guidelines on how to setup the cars for getting the most out of them in racing conditions will be offered to help you avoid getting behind the wheel of a fidgety and nervous 500BHP monster.

## **Tyre Pressures**

Keep your tyre pressures and temperatures correct, and you will be a happy driver! Start by doing sets of three-to-four constant laps, and check the tyres' pressures and temperatures across all four wheels. Ideal pressure for hot tyres is about 200kPA, so start with 150-160kPA static pressure, and work with them over short runs with the aim of equalizing (across all corners) the hot pressures as close to this mark as possible.

## **Temperature**

Ideal tyre temperature is about 80 degrees Celsius for slick tires, and about 90 degrees for grooved tyres (rain and intermediate). In all circumstances, you should aim to have a good spread of temperatures between I.M.O (Inside Middle Outside) of the contact patch. There is no need to have ten degrees of difference—as some believe: Just try to maintain as much of an equal spread as possible.

## **Wear**

Tyre wear—and consequently management—is fundamental to endurance racing. In the FIA GT Championship, it is not rare to see cars going through two stints of fuel without changing the tyres at the pit stops, thus gaining time. However, to do this you need a very neutral setup on your car, coupled with very good and smooth driving.

## **Camber**

Depending on the tyre and car suspension configuration, you'll need more or less camber to get the maximum grip. Usually the front tyres give the maximum lateral grip at  $-4$  to  $-3$  degrees. What needs to be made clear here is that you should exercise caution, chiefly because more negative camber means less longitudinal grip for braking and traction.

Find the ideal compromise. Rear tyres are more focused on traction and wider, so they need less camber.  $-3$  to  $-2$  are good values to play with. Dunlop tyres seem to like big amounts of negative camber, while Michelins lower. Pirelli are between those two. Experiment in order to find the optimum setting not only for your car, but for your individual driving style as well.

## **Aerodynamic stability and efficiency**

With the previous version of GTR, drivers would use softer suspension to gain as much mechanical grip from the tyres as they could with no concern for the aerodynamic balance of the car at high speeds.

This is an aspect that has definitely changed with the NAPMod physics mod. The front splitter and rear diffuser are now much more sensitive to pitch, yaw and rake. This means that, while softer suspension can make the car easier to drive at low speeds, it could result

in aerodynamic unpredictability of the car at medium and high speeds. This is because the softer suspension will cause the car pitch and roll as it progresses through braking, apex and exit, and these forces will effect the ride heights while on track on an almost constant basis. This creates a disturbance in the underbody airflow. When changes to rake occur due to pitch, the effectiveness of the diffuser is compromised, which can then have as large effect on the overall downforce being generated from the floor of the car. Obviously, the last thing anyone wants is for downforce levels to vary wildly during a lap.

When a very stiff setup is used, on the other hand, the car becomes much more predictable, grippier, and precise at medium and high speed; this is because it pitches and rolls much less. This keeps the chassis 'flat' to the ground, keeping ride heights, rake and wing angles consistent. Keep in mind though that the car will be harder to control at lower speeds, due to the stiffer setup. Again, you must find the correct compromise for every track.

## Ride Height

With the NAPMod changes, some GT cars are able to run very low ride heights. Using low ride heights will benefit aerodynamics, and will also lower the center of gravity of the vehicle. It is, of course, not advisable to run the car too low on tracks with lots of compressions and bumps. Raise the car accordingly from the minimum values that you will find as default in the garage screen. Static ride heights and packers should be adjusted, and on-track ride heights monitored to achieve optimum rake at high speed to maximize underbody downforce as well as overall aerodynamic efficiency.

A little background on intent

The makers of NAPMod hope that you will enjoy the new depth and complexity of the physics mod, and have many hours of fun trying to get the most out of your preferred car.

In creating the NAPMod physics patch, the makers tried not to compromise the original grid performances of the cars. Each car, although different in behavior from the 'stock' physics, should perform equally in relationship to each other, as they do in the original sim. Lap times with the NAPMod are now much closer to real life, and, at some tracks, virtually spot on. Only true 'aliens' will be able to better them, but beta-tests have shown that even *they* only best real-world times by a second or two. And this is obviously explainable by not only their unerring talent, but by the fact that they have no fear!

The makers' sincere hope is that this patch does not result in flaming and futile discussions in the community. You are encouraged to test it, but, if you don't like it, just ignore it and try not to flame. The makers are not trying to convince anybody about the authenticity of their mod, they 'just did it' because it is what they wanted in their sim.

Next month, AUTOSIMSPORT will feature a far deeper discussion on what has been changed from the stock physics, and how the makers came to these conclusions. If you

have any feedback you would like to give the authors of this mod, please send them to:  
[Jon Denton.](#)

### Credits

NAPMod's authors would like to thank: SimBin, Blimey! Games for the amazing software that is GTR2 which is a great base to work from, SimLeague GTR2 Italian Championship, for beta-testing and support, and AUTOSIMSPORT, for all their support and the publishing of the mod.