

Atomic Hot Rod Hovercrafts

2021 Regulations

In AHRHC, you will manage a team of futuristic racers through a high speed Tour of the Galactic Racing Circuit. Will your racer reign supreme? Or will you be left a burning heap on the side of the track.

Craft Design

Before the start of the season, each constructor will design 2 hovercrafts that will compete as a team. Each Hovercraft is made up of a number of components:

- Chassis - Affects minimum speed and craft fragility, it comes in 3 flavours
 - Streamlined - Fast & Flimsy
 - Neutral
 - Cubic - Slow and Sturdy
- Reactor Type
 - Fission - ole reliable
 - Fusion - fuel saver, occasional speedster
- Thrusters - Affect top speed
- Steering - Affects top speed in traffic
- Fins - Affect your ability to keep speed though the turns
- Sensors - Affect your ability avoid damage while in danger
- Reactor Efficiency - Affects fuel consumption and recovery
- Coolant - Affects fuel consumption
- Diagnostics - Affects pit speed
- Afterburners - Bonus speed!

For each of these components on a new car, you can adjust the values between 0 and 110. There higher the values though, the more complex your craft is and the more likely you are to wreck!

Race Plan

A craft will also have a pit plan, which includes 2 indicators on when to pit.

- The minimum amount of fuel you you'll pass pit lane with
- The maximum amount of damage you'll pass pit lane with

Your race plan will also include your racing tactics and pre-race snack.

- Tactics:
 - Psycho - Attack (passing) bonus, defense penalty
 - Cautious - Defending bonus, attack penalty
 - Team Player - Don't defend teammates. Equal attack and defense

- Solo Flyer - Equal attack and defense.
- Pre-Race Snack
 - Porridge - For the consistent driver.
 - Ice Cream - Your average driver's favorite snack
 - Senor Asimov's Entropy Nachos - Your guess as to what will happen is as good as mine.

Tour

The tour will consist of 10 grand prix (races). Cars will do a 3 lap qualifying trial to determine pole position prior to the race. Points will be awarded for each grand prix based on the number of crafts participating in the tour:

- 12 or less
 - 9,6,4,3,2,1
- 14 or more
 - 25,19,15,12,10,8,6,4,2

Additionally, 1 bonus point is awarded for Pole Position or fastest lap.

Modifying your Craft

Between races you are allowed to sacrifice points to change up your craft.

- Each component may be replaced 1 time for free, additional replacements result in a 3 point penalty for the tour
- In between each race, you may tune each component between the minimum and maximum values
 - To tune beyond minimum and maximum, you must replace the component
 - 110 and 1 are absolute maximum and minimum
- Exchanging chassis and reactor type cannot be changed
- The race plan can be changed between races without any cost.

Classified Information

Teams will only be able to see the reactor type and chassis type for their opponents.

Data and Practices

Craft can be tinkered with and tested prior to each race as much as a team wants. Data will be provided after each race.

Bugs and Feature Requests

If there is a data point you want access to, or an issue you notice with the way the races are calculated, send me a message or make a request on GitHub.

FaQ

"What does the best craft look like?"

I have no clue, I have intentionally made the movement program tricky and opaque so that figuring out the optimal settings would be tricky.

In general, higher settings mean you'll be more likely to wreck but that you'll race better.

We did run a practice league to figure out some example craft, see the grid scoring spreadsheet to find this info.

"Can I look at these specifics of how the game works?"

Yes, the code is all on GitHub and can be downloaded and viewed at your own leisure. If you can't read python (or don't want to navigate the miles of spaghetti code) then feel free to ask questions!

"I have an improvement!"

Feel free to fork the GitHub link to work on the racing and garage scripts.

Things we want to add (and might before the 2022 season)

- ~~A "fastest lap" point~~
- Graphical output
- Colors for cars
- Data on dice rolls
- ~~Diagnostics affects repairs~~
- ~~More data~~
 - ~~Speed data~~
 - ~~Average speed?~~
 - ~~Top Speed~~
 - ~~Bottom Speed~~
- ~~Fuel customization~~
 - ~~Uranium~~
 - ~~Plutonium~~
 - ~~Radium~~