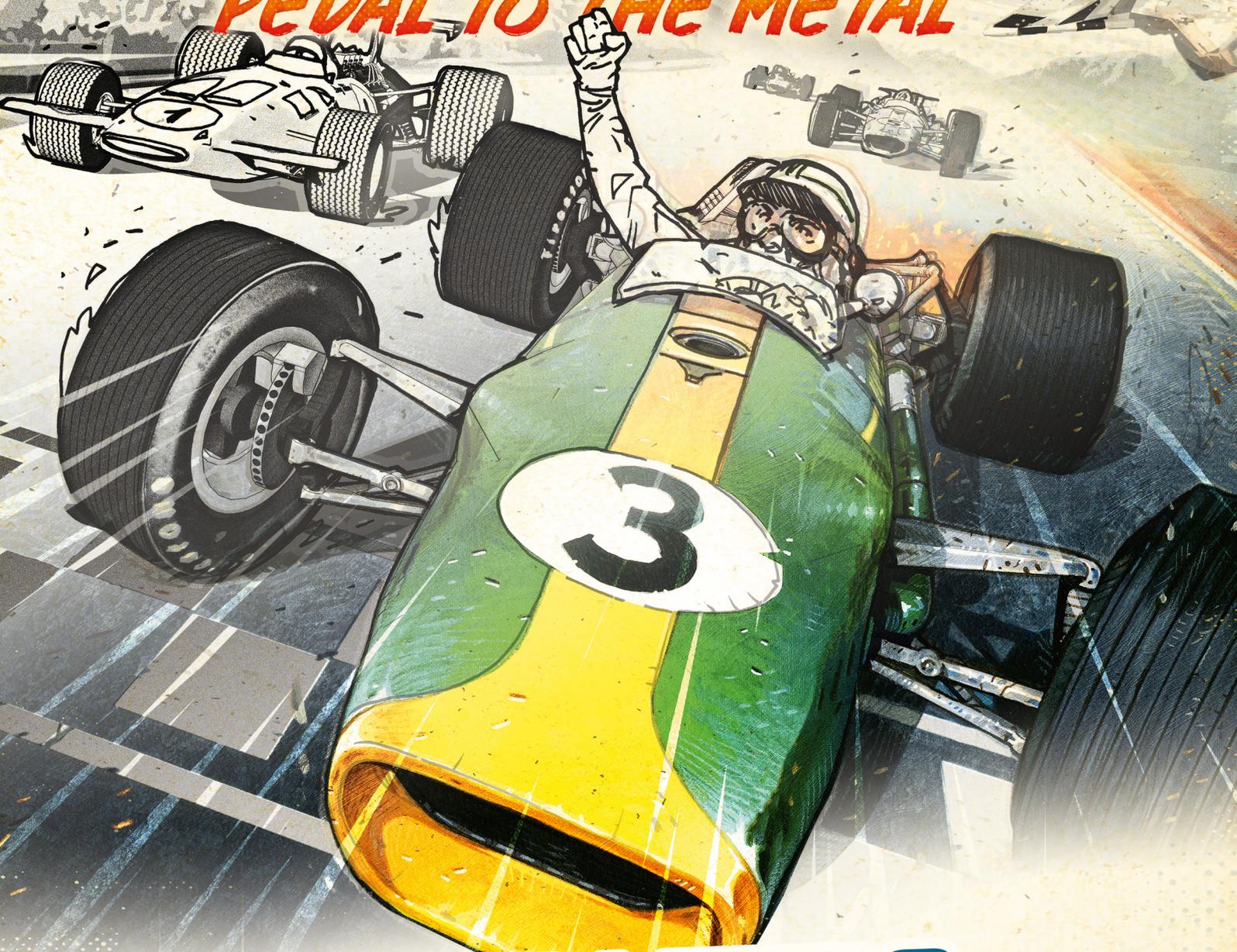


ASGER HARDING GRANERUD

DANIEL SKJOLD PEDERSEN

HEAT

PEDAL TO THE METAL™



FROM ZERO
to **SIX PLAYERS**

DAYS OF
WONDER®

INTRODUCTION



Daniel and I have been designing games for quite some years by now, and it is extremely rare that you feel you "know" you have a hit. Moreover we have had that feeling a couple of times, where we just end up being flat out wrong, so "knowing" might also be somewhat of an exaggeration (the reality = you never know). Normally we shop our prototype designs around at fairs to lots of great publishers, but **HEAT: Pedal to the Metal** just had something about it since the very first tests in the summer of 2018. Thus we have only ever pitched it to a single publisher, and we even contemplated publishing it ourselves if that fell through. Thankfully **Days of Wonder** agreed with us not long after we pitched it at Essen Spiel 2018. They even wanted to proceed with our artist of choice Vincent Dutrait, whom we had already contacted.

Obviously that brief introduction makes it sound like a smooth ride to the present day. It never is smooth, and it wasn't here. Though some very core elements never really changed, the number of iterations that have been tested are staggering. We will try to take you through this journey today.

*Daniel: It has been a long journey indeed, and Covid didn't help. Over the years **HEAT: Pedal to the Metal** has been tested hundreds and hundreds of times by us here in Copenhagen, online and travelling with it to L.A, New York, London, Warsaw, Aarhus and Paris to name a few places (and Franck from DoW has done the same with even more travels). One of many memorable test days was playing with Quinns and Matt from Shut Up & Sit Down at the Danish con "Fastaval" back in 2019. At the time we thought the game was pretty close to completion. Oh the naivety, we still had the turbo die back then. Quinns and Matt shared their experience in episode 95 of their SU&SD podcast. **HEAT** was called Auto back then.*

<https://www.shutupandsitdown.com/podcast/podcast-95-the-danish-crisis>



INSPIRATION

Through **Flamme Rouge** we had seen that an accessible racing game had the potential to gain an audience, including a dedicated fan group on Boardgamegeek. We figured that there could be a similar market for a car racing game. Obviously the market is already saturated with such games, but personally I'm not a huge fan of the roll and move element of the biggest one out there (**Formula D**), and many other games in the category are racing themed, but combine it with betting elements or similar. We figured it was the right time for a new racing game to take pole position. From the beginning it was a clear premise that we wanted a pure racing game, where first across the line would be the winner. I wrote some similar thoughts in my designer diary for **Flamme Rouge** back in 2016, and most of that also applies here.



WHAT MAKES IT DIFFERENT

The elephant in the room that is already being discussed, is what makes **HEAT: Pedal to the Metal** different from **Flamme Rouge**. The simple answer is hand management vs. deck management. For me, the most fundamental design dogma of **Flamme Rouge** has always been that a card is only ever played once. As soon as it has been played it is permanently removed from the game. This represents the fact that energy is being depleted as you race towards the finish line, and it is why I have described it as a deck thinning game in the past. The remaining cards are discarded and eventually become available again. **Flamme Rouge** is essentially about managing your energy over time, and jockeying for positional benefits along the way. Draw 4 cards, play 1 and save the rest. Hand management from turn to turn, about current priorities and chances, with decisions that always have consequences **down** the line.



However, a car obviously doesn't get "tired" in the same manner as a bicycle rider. Sure these early racing cars could overheat, malfunction, have tires run **down**, and a number of other issues. Thus the fundamental design dogma of **HEAT: Pedal to the Metal** isn't about thinning your deck, it is about managing it as the same cards cycle past your hand again and again. Overheating and cooling **down**. The large hand size allows more immediate control as you don't discard the round's leftover cards. The timing of how you handle the cycling of the deck represents both the various mechanical issues that you have to react to, as well as preparing for the corner or straight coming up. The cards you choose not to play isn't the energy you are saving for later in the game, it becomes part of what choices you may have access to on the very next or the following turns. Should I hold on to a high speed card when there are still two corners to navigate before the long straight, or should I rather discard it for more flexibility in the short run? My mindspace becomes about more than just clearing the next corner/straight, the hand and deck management forces me to constantly prepare and look further ahead.

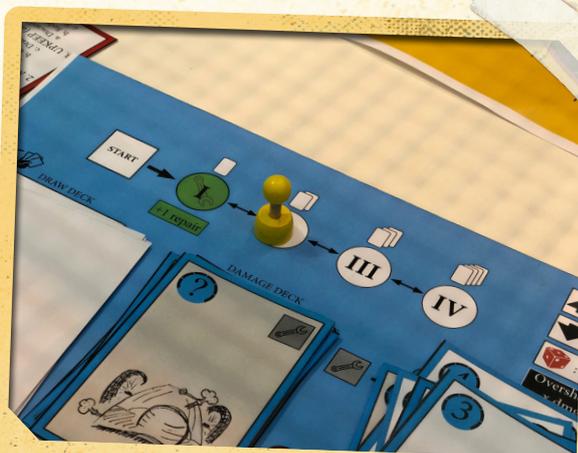


CORE DESIGN

We felt that using a card deck per player coupled with simultaneous play could give us a unique racing experience, which crucially should deliver a full play through within the hour. From these simple premises and all the inspiration around it, lots of elements flowed naturally, and never really changed:

- ⊗ We knew we wanted to implement gears, and decided that the gear determined the number of cards you had to play. A higher gear would equal more cards resulting in a higher speed. Perfect to gain momentum on straights.
- ⊗ Corners would obviously force you to lower your speed, depending on how sharp they were.
- ⊗ In between corners we would need straights where you could really reach peak speed.
- ⊗ Different cards would have different speed values.
- ⊗ We wanted some way of 'pushing' the limits of your car, so that deciding when to time the push would be interesting.

Our expectation was that the above should create tension between when you would want to be in lower gears (corners) or higher gears (straights), and that the different speed values would result in both hand and deck management causing additional tension. All this within a streamlined and intuitive card play that made sense thematically.

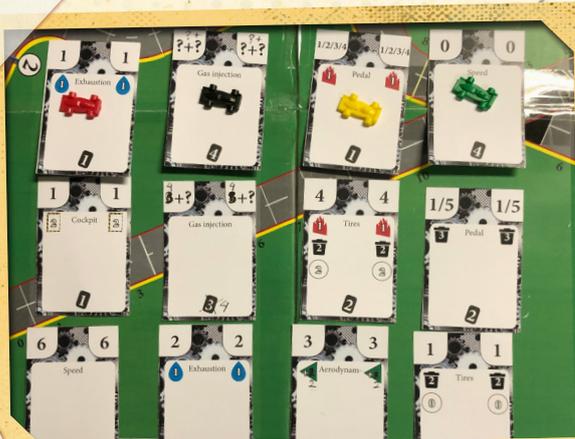


*Daniel: The gear = the number of cards mechanism was always part of **HEAT: Pedal to the Metal**. This image is from Spiel 2018 while first showing the prototype to **Days of Wonder**.*

LEFT ALONG THE ROADSIDE

During that initial process, several elements we thought would be essential, ended up being removed. Initially we had different types of severity of 'damage', as well as brake cubes as a separate element. Eventually all of these were streamlined into the abstracted 'Heat' card. Pit stops were also an initial design goal, which proved to be too cumbersome to implement. The rules for pit stop could be pretty straightforward, but balancing it for an interesting experience inside the two laps a race lasts, proved outside our capabilities and/or the design's boundaries.

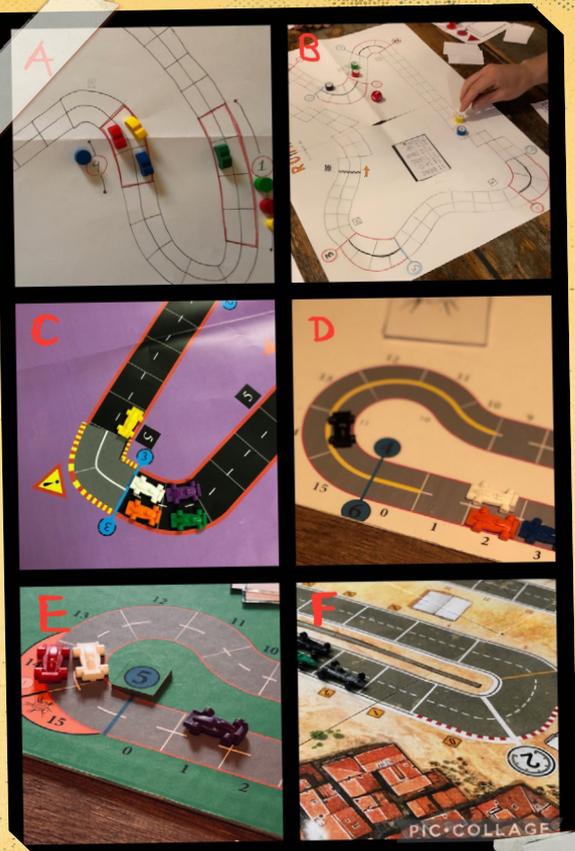
Initially we had a die that we used for the turbo boost, before removing it and using the draw deck as a randomiser. Even that feature went through iterations where all cards had a "flip value", until we simply just tied it to the core speed cards. Often when we design we are looking for the simplest rule to implement that still achieves the desired results, but just as often there are several contradictory dilemmas in what is "simplest". This is a great example where we initially wanted the game flow to be as fast as possible (roll one die), then changed it along those lines (flip one card). The result was that in order to avoid flipping many cards for the sake of game flow, we added new values to all cards. When we eventually ditched that ambition, the new rules removed graphic complexity and rules confusion from ALL cards, while the "cost" of occasionally flipping a few extra cards, actually became a feature not a bug. In many ways it ended up adding more randomness to the consequence of the boost, and even changed our stance on whether or not you could check what was in your discard and draw piles (you cannot). In all versions the actual boost to your speed had almost identical consequences from a pure mechanical point of view, but even small developments sometimes end up having cascading effects.



Daniel: The flip speed made so much sense... until we removed it and nobody missed it.

CORNERS

The corners are probably the single design element that went through most iterations. We wanted a solution that slowed down players but also allowed for creative play and ways to sometimes break out of those restrictions. Considering the simplicity of the final implementation, this may seem surprising. We have tried to show many of the different versions in the photo below, but we are sure we have missed at least a few. There were a lot of minor and major iterations, and even some we can't remember the rules for! Often we find a rule that we are happy with, but still try to deconstruct it in as many ways as we can. For a car racing game, there really couldn't be a feature we needed to consider more thoroughly than the corners. We even tested versions we assumed would not work, just because we have found our assumptions to be wrong more times than we can count, and wanted to be certain.



Daniel: Let me see if I can remember these old corner designs.

- A) A very early design. You had to stop in the corner zone and lower your speed to the required number, either as you enter or exit. The marker is there to help you remember when a corner is cleared. Not very elegant!
- B) I had completely forgotten about this iteration. One speed limit for entering and another for exiting.
- C) I am not sure what is going on here, but it is obvious from the huge exclamation mark that this corner is super dangerous.
- D) Two separate lanes. The inner lane is shorter but requires a lower speed to not spin out.
- E) Here we are close to the final design but with an orange spin out zone where you move your car to slowly re-enter the circuit.
- F) The final design. Just a number and a line.

HAND MANAGEMENT



Daniel: I love how Vincent Dutrait expresses speed across the numbered cards. It was an idea we played around with in early hand drawn prototypes that I am really happy survived to the final product.

Each player has a deck of cards, and each deck has 12 speed cards with three each of the numbers 1-4. The deck also has three Stress cards, which adds uncertainty because their speed will be decided by a flipped card from the top of your speed deck. Normally cards can be discarded at will by the end of your turn, but the Heat and Stress cards are exempt from this, meaning you have to consider how and when to get rid of them. Time it well, and you are driving smoothly.

HEAT CARDS

Speaking of Heat cards, not only are they so central that they became the name of the game, they are also the central mechanism used for breaking the core rules. Want to move a little faster with a boost? Spend a Heat card. Want to speed through a corner? Spend Heat cards. Want to skip a gear? Spend a Heat card. Once you start tuning your own cars, several of the upgrades will also require you to... spend Heat cards.

The trouble with Heat cards is that spending them isn't a freebie. Once spent they move into your discard pile, and when your draw deck runs out, your discard pile becomes your new draw deck. Thus eventually these Heat cards end up in your hand, and when in your hand they can neither be played nor discarded. This means they stay in your hand as a "dead" card, reducing your effective hand size, and thus reducing your control. So how do you get the excess Heat that keeps building up, out of your hand? Through the lower gears or specialized upgrade cards, you get access to cooldown. Cooldown allows you to move Heat cards from your hand, back in the available Heat reserve, ready to be used again. The trick is not to avoid using Heat cards, it is to use them cleverly, and as much as you can without overheating. Time it well, and you will be driving fast and breaking boundaries.

Unsurprisingly this effect entails that timing once again matters. If you have just shuffled a lot of Heat cards into your draw deck, you could be in big trouble. You could draw several Heat cards into your hand, at a moment where you want to be in a higher gear playing many cards. On the other hand, if you're heading towards sharp corners and would be using the lowest gears, this might be a great opportunity for you to actually replenish your Heat reserves. Managing how and when you push your car that little bit extra is a big part of the game.

Daniel: I have often described HEAT: Pedal to the Metal as '13 Days' the racing game, and only half jokingly. In 13 Days you aim to push your agendas during the Cuban Missile Crisis more so than your opponent, but without going to DEFCON 1 starting a nuclear war. In HEAT: Pedal to the Metal you want to drive your car faster than your opponents around the track but without overheating and spinning out. The Heat cards are there in front of you to be used, but be careful!



Daniel: When things go wrong you end up with a handful of Heat cards. This is extremely unfortunate on a long straight section where you want to go in high gears (insert evil laughter).

UPGRADES

Daniel: This is where I step in and admit that I preferred player powers over upgrades for the longest time. I saw player powers as an opportunity to create stronger in-game characters. If the blue race car is always Tango Silva, then he'll be racing regardless of a player or the bots being in control.

So how did the game end up with 48 unique upgrade cards and no player powers? The big push came when we visited DoW in Paris in late 2019 to work on the game in their office. We saw several people being frustrated by playing a character that didn't perform well on the chosen track, even though it would outperform the other characters on the next. We always take it seriously when people start blaming the game for their ill fortunes, and want to address any underlying issues. The issue at hand was that player powers couldn't be both unique and mechanically interesting while also fairly balanced across the different race tracks. We had all these thoughts as we walked back to our hotel. The next morning we had decided to go all in on upgrades, and had sketched the first 20-25 rough designs before we left Paris the next evening.

The final game has 48 unique upgrades (two of each for 96 total). You draft 3 upgrades before each race in the advanced game, giving players thousands of combinations to explore across the various race tracks. I reckon we have probably tested twice as many upgrades and selected the best, thinking that many of these would only ever be introduced in a future expansion if the game was successful enough. When DoW decided to publish the big box we were ready with a lot of true and tested concepts.

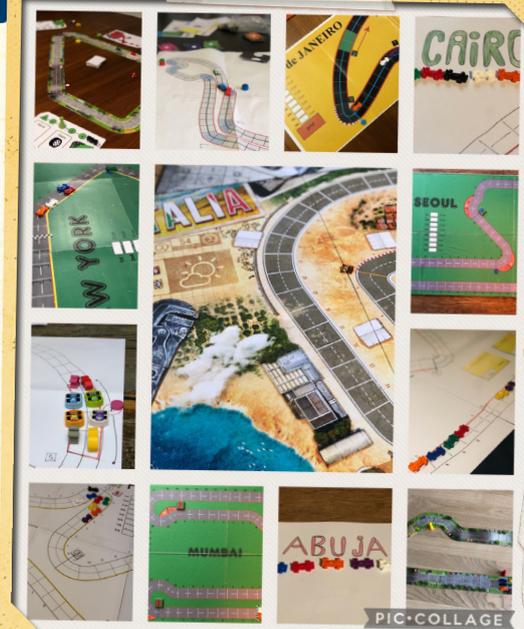


Daniel: During development we often laid out all upgrade cards on the table, using coloured cubes to mark cards we considered too strong/weak/not interesting enough (left image). To the right the 48 upgrades that made the final cut.

RACE TRACKS

As soon as we settled on a 1960's car racing setting, we knew we wanted to create circuits where you can race multiple laps. We also knew we wanted a modular component to keep the challenge fresh if you play the same track 20 or 50 times. The solution is the weather and road condition tokens, that modify corners or straights, and provide a new randomised setup every game. For example: That 4 corner you used to speed through is suddenly extra dangerous. Or one sector is providing more slipstream opportunities to overtake other cars. Or it is raining and you shuffle Heat cards into your draw deck at the beginning, giving you a car that is harder to manage from the start line.

There are 4 unique race tracks in the box. The design goal for each of them was to offer the best play experience which is why we have created our own tracks from the ground up and not modelled them around real-life tracks where our game system did not fit. They are asking you different questions, like: USA: Can you go into the last chicane still in contention and with 4 Heat cards in your engine? Great Britain: Will you time your speed and slipstream to clear multiple corners in a turn? Italy: While it is



Daniel: The very first prototype used Flamme Rouge tracks (lazy designers) but we quickly concluded that our game would need a proper game board where you can run laps.

tempting to shoot through the corners, be careful not to end up with a handful of Heat cards on the very long straight. France: Can you cycle through your deck fast enough to be able to reuse Heat cards multiple times? I am sure there are loads of ways to explore new track designs in the future - and hopefully there'll be a community who can challenge and inspire us.

Daniel: How does weather and road condition tokens affect gameplay? Here's an example. Weather forecast is rain. You may draw Heat into your hand early game (bummer), but you can always cooldown Heat on the very long straight (left image). Bad asphalt in the corner. The speed limit is reduced to 1! But on the sector leading up to the corner you may slipstream extra spaces, allowing you an advantageous position as you approach the corner (right image).



LEGENDS

- From early days we knew we wanted to create bots to allow for more cars to compete against at both low and high player counts. We were also looking for a solution where one player could easily control several bots without having to manage multiple decks and flow charts, essentially playing the game of the bots and not their own which isn't much fun. Solution: A single deck of cards for all bots. Reveal a single card each round.

Second design goal was for the bots to behave like a human player in its most simple sense (we had to cut a few corners). That means if they are close enough to the next corner they'll attempt to clear it, but only sometimes making it through. If they are on a straight they want to move as fast as possible towards the next corner, but their top speed may vary.

Third design goal was for the bots to actually be playable by others than the two of us. More than once we made a new iteration for it to fail miserably when met with real life testers. In theory they should work fine but as players didn't understand how to run them we had to come up with a better solution. Slowly we made them simpler and more intuitive with the above constraints.

Final design goal was to balance them. We wanted them to be a real challenge, and also control their performance to avoid having too many outliers of very strong or very bad play. A friend of ours helped us program a bot simulator so we could tweak values and run hundreds of thousands of tests to tune their performance on a given track, tracking the distribution of rounds they would take to complete a race.

The bots are still designed primarily for players of some experience - which is why they belong to the advanced rules - as we want new players to only think about learning to drive their race car. But anyone reading this is likely to be completely fine using them from game 1!



Daniel: I have run countless solo tests against bots to get the feel of opponents right. The bots are of course a bit stronger on some tracks (I'll let you discover for yourself). Luckily, the difficulty level can be adjusted by increasing or decreasing their top speed.

CHAMPIONSHIP

We made an expandable core system, and from the get go DoW were interested in making it possible for potential fans of the game to dive deep, if they felt inclined to do so. This is why so much content was ready while we for a long time thought it would be an almost simultaneous release of two boxes. As DoW decided to go with a single bigger box from the beginning, we and the team ended up having to decide what should go in it and what shouldn't, while trying to keep the price point as accessible as possible. Never perfect for everyone, and always hard to find the right balance.

However the idea of adding a campaign style experience to the game was possible without being too costly. We knew that a series of games could be linked as in the real world, with a points system based on your finishes across several races, but we wanted the experience to be a little grander so didn't stop there. Each such race would have an event adding a race wide special rule to the game, and the 10 such events in the game can be shuffled and played as you wish. However, they can also be played in order across the 1961, 1962 & 1963 seasons, combining the three championships into a tailored campaign to see who would be the GOAT.

When playing in the campaign mode you gradually improve your car from race to race, starting off worse than the cars in the ordinary races and eventually ending up stronger. You fight for points in the championship, and you aim to please potential sponsors by catching the press attention when racing. Sponsorships provide one use bonus cards that could help you win if used at the right moment.

When you combine variability of the upgrade cards, with the weather and road conditions you've already got millions of potential playthroughs. With events and sponsorships on top, that number moves into the trillions before you would expect a repeat setup.



The official US release date for HEAT: Pedal to the Metal is November 25th. We hope you will enjoy playing HEAT: Pedal to the Metal as much as we have enjoyed making and playing it. We truly believe in it, and the job DoW has made on production value is as always through the roof. Finally we leave you with two quotes from some of the early days of racing. Quotes that we think fully apply to the spirit of HEAT: Pedal to the Metal.

ANY CAR WHICH HOLDS TOGETHER FOR MORE THAN A RACE IS TOO HEAVY.

-COLIN CHAPMAN

IF EVERYTHING SEEMS TO BE IN CONTROL, YOU'RE NOT GOING FAST ENOUGH.

- MARIO ANDRETTI