E-CHALLENGE USER-FRIENDLY MANUAL

This is a competitor manual for the upcoming E-Challenge championship. It is written in a user-friendly and entertaining manner, so it is easy to understand the brand new racing concepts.

More serious description of actual event procedures follows in the second half of the document.

Above: E-Challenger Evo – the official competition vehicle

So... What the hell is E-Challenge?

E-Challenge is an electric singleseater racing championship held annually in the Live for Speed online racing simulation. It is significantly inspired by the FIA Formula E World Championship, although for technical and practical reasons some traits are altered.

It utilises several interesting concepts to blow the sterile nature of Live for Speed.
Let's have a look:

Energy management

Motto: Those who use the brain don't have to endure the pain.

What do you mean I have to manage the energy to make it to the finish?

In E-Challenge (as well as in Formula E) there is limited amount of energy to be used. While it essentially exists for technical reasons that were present when electric racing series were being established, it turned out to be a great strategy element.

But can I stop for recharge?

Pit stops are allowed (and sometimes desired), but recharging is always disabled. You simply have to use wisely the resources you have. So does everyone around you.

Ok, so how do I race efficiently?

There are three golden rules to follow:
1) lift and coast before major braking zones - this will cost you few tenths in the laptimes, but will save huge amount of energy you would otherwise use for getting into the corner as quickly as possible.
2) avoid wheelspins - freely spinning wheel doesn't transfer spent energy into useful acceleration - try to maintain maximum traction for maximum efficiency.
3) avoid lockups when braking - stationary wheel doesn't turn the momentum back into energy. Luckily for you currently only the rear wheels are responsible for energy regeneration, so you don't have to worry much about this rule.

But how do I figure out how much fuel I should be using per lap?

Well, that's fairly easy – unlike the last year, the race distance is determined in laps instead of time. You will be notified about how many laps the race is well ahead of the event. The lap count however isn't fixed, as Safety Car or Virtual Safety Car periods do add extra laps to the total distance when deployed, so the energy consumption target stays same/similar).

In the end, all you have to do is to divide the 100% of the energy you will start with by the amount of laps announced (or if you need to update your energy target mid-race, divide whatever amount of energy you have left by the amount of laps left to complete). This will give you the amount of energy you can spend on average per lap. It is wise to not strictly follow the target as sometimes you need to advance forward while another time it is wiser to stay calm and save some energy here and there. But as soon as your energy hits zero, you are out of juice. Plan wisely so you run out of it on the final straight.

Moral: Luck stands with those who are prepared; do your math homework before the race and you will not get unlucky.

Attack boost

Motto: Struggling to advance? You can charge forward, free of charge.

Erm, what?

Ever heard of rallycross joker lap? It is essentially a mandatory disadvantage you have to take at some point. The attack boost feature is the exact opposite - it gives you temporary speed advantage you can use... to your advantage.
For those familiar with Formula E, attack boost is essentially a Fanboost (only lasts for respective straight) but everyone can take it three times per race duration.

So a speedboost? How???

Yep. Like the one you know from TrackMania games. But here we are essentially abusing the game mechanics a bit.

So how does it work?

Each track has a long strip of speed bumps placed usually at the beginning of the longest straight. By driving over this strip your acceleration (and speed) will be slightly enhanced. Not by much, but it can help you to overtake, break away or save a bit of energy. You can use this boost three times, anytime except for the first two laps or under SC/VSC periods. Over(under)use will be penalised.

In the race the strip will be covered with dedicated vehicle mod, so it looks like an actual booster device and flashes green when you can activate it.

When is the best time to activate it?

To be fair, no-one knows. You will have to figure it out yourself. Essentially you will want to take it when it gives you some lasting advantage (overtake). Go outsmart your opponents!

Moral: It's not a bug, it's a feature!

PowerUp Wild Card

Motto: 300 kiloWatts not enough? Here’s 350 on your disposal!

Now we can talk!

Other than boosts, there is also another special feature that will make up for some interesting action. For one of the ten championship races you can preselect one, in which you can run at full power of 350 kW instead of otherwise mandatory 300 kW. This will however come at a cost - as more powerful car will eat your precious fuel (energy) more quickly. It is almost like bringing a minigun into a gun battle, but everyone has only ten bullets – at the time you fire, everyone shall take a cover, but your ammo will be quickly gone and you will remain vulnerable. With full power you can accelerate harder, but will have to coast sooner and for longer to keep up with the energy target.

In the end it will not make you necessarily faster, but will give you more freedom in where to use the energy you have – and that can be a critical advantage in given situation.

Moral: With great power comes great responsibility.

Live weather

Motto: We will make your pants wet – with a rain or with a sweat.

Wait, there is weather in LFS?

There is no rain in LFS and it's safe to say there won't be any for quite a while, but we can pretend it is raining anyway.

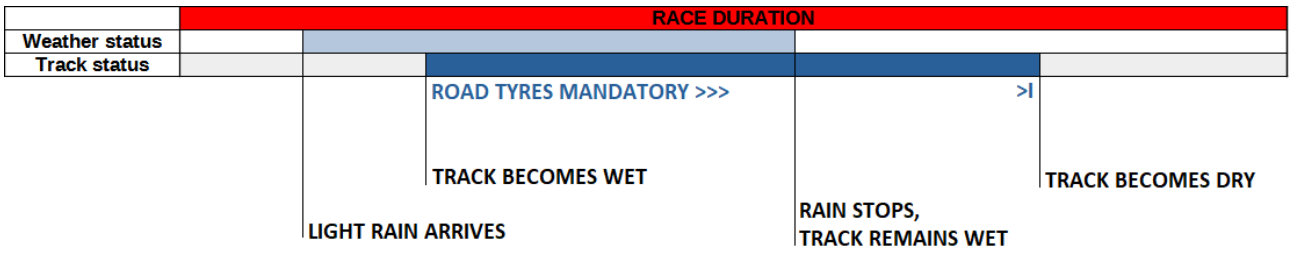
How?

Just like we did the last time in the E-Challenge, we will take advantage of different tyre compounds to simulate different grip levels.
Unlike the last time where the weather was fixed for the duration of entire sessions, this time we will attempt to step up and introduce a dynamic weather system.

There will be three levels of weather conditions (**NO RAIN, LIGHT RAIN, HEAVY RAIN**) and two levels of track conditions (**DRY** and **WET**). For DRY conditions slick compounds can be used, for WET only the road tyres are permitted.
The weather will realistically affect the track condition (light rain may turn the track wet eventually; heavy rain would turn the track wet almost immediately. Wet track may turn dry if there is no rain for some time).
The weather will be predetermined for each race, but only the race director will know it exactly (and no, we won't tell you no matter how many candies you promise).
When the track condition changes from DRY to WET, competitors will have a limited time to pit for road tyres (essentially you will have to pit at the nearest opportunity). For WET to DRY track change pitting back to slicks will not be enforced (but recommended in most cases).

Ermmm...

A simple diagram is worth thousand words - here's one for you:



It is not as complex as it seems, you shall get used to this system naturally, just approach it as a real world race we are trying to simulate.

Moral: When she's wet, use the knurled rubber.

Telling your pit crew to prepare different tyre compound can be sometimes difficult in LFS. Luckily there is a way to prepare and automate these tasks, so you can concentrate on the important bit - the driving.
LFS allows to take advantage of custom scripts - simple lines of code that do the tedious work for you. For full info about the method please visit the following LFSManual link:
https://en.lfsmanual.net/wiki/Script_Guide

We have prepared a simple script system, that allows you to switch between pre-planned tyre strategies with a simple press of a single controller button. There are three scripts prepared:
NO_TYRE_CHANGE (repairs enabled (or disabled if run twice))
DRY_SLICK_TYRES
WET_ROAD_TYRES

Each of these three scripts shall be assigned to your controller button, so you don't have to manually adjust values in the F12 menu while driving. Simply go to your LFS settings and set three buttons of your choice (we strongly suggest to use F1-F8 buttons) to call "*/run 'scriptname'* " - this will trigger the instructions from the named script which has to be stored in *yourLFSfolder/data/script* directory.

Before the race you might need to adjust the values in these scripts so they work the way you intend.
You can open and edit the script with a simple NotePad app.

The **No tyre change** script disables the tyre change and enables repairs only. If you run it twice, the repairs go back to disabled.
The **Dry slick tyres** script will tell your crew to prepare slick tyres for you next stop and adjust their pressures if desired.
The **Wet road tyres** script will tell your crew to prepare road tyres for you next stop and adjust their pressures if desired.

If you wish to adjust the scripts, please keep in mind that they work on the "adjust the current value" basis, which may not be very intuitive at first.

Example: The currently requested tyre pressure value is let's say 160 kPa. The script is supposed to increase the value to 200 kPa. The script doesn't tell LFS "set value to 200 kPa". Instead it assumes the current value is 160 and tells LFS to "add 40 kPa" to the desired value (The same way you adjust it manually via F12 menu).
The next script assumes the new current value is at 200 kPa after the previous script was executed. In our case it will most likely return the requested value back to 160 kPa by telling LFS to "remove 40 kPa" from 200 kPa.

Same system applies to the tyre compounds, although the "add/remove" value is the amount of compounds between the current tyre compound and the requested compound in the F12 menu.
For example from slicks R4 to the road tyres it is just one click to the right, from R2 to roads it is three increments to the right.

Besides that you can also adjust the wheel-related setup of your car - cambers, are adjustable in the pitlane. This however will automatically trigger the vehicle repairs (if there are any to do) regardless of what the actual instruction is - this may unintentionally cost you a bit of precious time in pits if you are unaware, so adjust your cambers wisely (not enabled by default).

We strongly recommend to test all scripts ahead of the first race, so you can set your controller button, get familiar with how they work and check if they perform the tasks you expect correctly.

For example if you start the race with repairs disabled ("no" instead of "yes"), activation of a script that is supposed to turn repairs off will actually enable them (as both options are next to each other and cycle-able in the F12 menu)

This is cool, I'm in!

Aaaalright, we got thru all the new and complex stuff from the upcoming E-Challenge edition using the Tigerfibel-style narration. Hope you liked it :)

Now a more dull explanation of the actual event format follows. We highly recommend to read these as well, as it will make you fully prepared for the action.

After all:

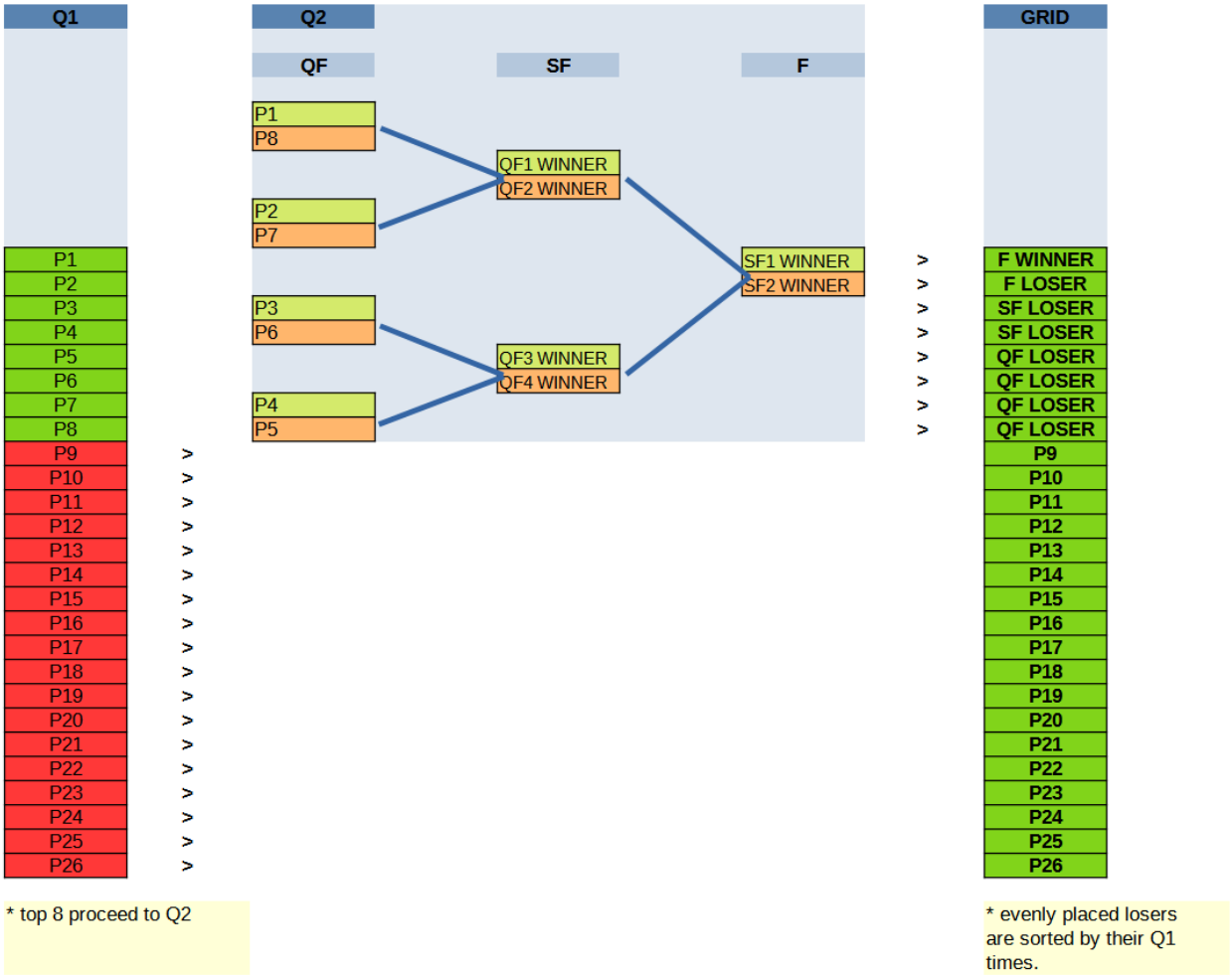
Motto: You train hard, you fight easy.

Let's go!

Qualifying

The qualifying session is split into two parts. The first part is a semi-open qualifying (experienced LFS racers will recognise the term "TBOC-style"). The Q1 is 10 minutes long and each competitor can begin up to two timed laps at any point of the time limit. Fastest 8 competitors then proceed into Q2, which utilises a tournament-like FormulaE-style duels. Pairs of drivers compete in head to head duels - The faster in the duel proceeds to the semifinal/final. For evenly placed head to head losers the Q1 times determine their relative grid positions.

Here is a diagram of how the grid is determined:



Pre-start procedure

The race does not start with the usual "lights out" event. When lights turn green, all cars shall remain stationary in their grid spots, soon the special Grid Presentation Vehicle drives slowly thru the grid from the front to the back, creating unique grid presentation for the broadcast. There is no warmup lap; after the presentation is completed, the insim lights appear and perform the usual start lights procedure. When these lights go green, the race is officially started.

IMPORTANT: Cars in LFS turn off their engine after approximately 40 seconds of inactivity. We strongly suggest to let the car "die" during the presentation (steering wheel dashboard turns off) and turn the power unit back on (default button is "I") when insim lights are called out. Last year we had issues with cars stalled on the grid, so make yourself familiar with this system to avoid the same troubles.

Above: The Grid Presentation Vehicle

Race procedure

After lights turn green, it's all on you!
Each race is approximately 30 minutes long. The Safety Car and Virtual Safety Car are active, just like in the real life. Usual procedures follow when these are deployed, VSC speed is set to 80 km/h (usually a pit limiter speed, although this year due to full usage of custom layouts you have to stay under the given speed limit manually). After SC/VSC ends, extra laps are added to the total race distance to ensure the need for energy management.

Post-race procedure

After the race is finished, slow down well below the racing speed and proceed to the parc ferme area (specified before each event), or to the podium if you have finished among top 3 (podium position specified ahead of the event as well).
If the race 1 has just finished, stay alert for the race 2 coming shortly (usually within 10-15 minutes).
In the meantime you can refresh yourself, visit the toilet or the commentary booth to share your thoughts with the world.

Race 2 is similar to race 1, although the layout may be slightly different. No qualifying session will be held - The grid order for race 2 will be the finishing order of race 1, except top 10 is reversed. Same grid presentation and start procedure are performed ahead of race 2.

After the race 2 is completed and cars are parked in the parc ferme area or the podium, the championship round is officially over. You are welcome and encouraged to visit the commentary booth to share your thoughts and feelings with the broadcast audience.

Post-event activities

After the race you may be upset about some specific event you encoutered – if you are aware of some wrongdoing that was not penalised during the race, feel free to fill a protest in a relevant LFSForum thread we will open for a short period of time after each championship round.

Other than that, feel free to discuss the championship at the LFSForum or at LFS or Master Race car discord servers.

If you did read all the way to this point - well done, you are truly determined to learn everything important about how the E-Challenge works and this effort should reward you on the track.
If you still have any questions, feel free to contact us, we will be more than happy to help you.

On behalf of the organisation team and everyone involved,

[MRc] Michal Málek