

Front-4 Time Attack & Race Series Rules

Version 2020-03-26 – 2020 Updates Highlighted in Blue

Copyright © 2020 Front4 Club

Official Website: <http://Front4.Club>

Introduction

This series / class is all about building and racing similar low-cost cars together, and promoting challenging and rewarding competition, without taking ourselves too seriously. It's meant to welcome and encourage new competitors, while also providing a challenge for experienced racers. We will compete at events hosted by other sanctioning bodies, but this series is a separate privately-owned entity with its own points competitions, records, rules, and intellectual property.

Our rules are intended to be kept light and simple. In the event of any ambiguity or confusion, honor the spirit of the rules, rather than trying to exploit a loophole that you might think you see. You may also ask our series directors, or post in the Front4Club Facebook group, for clarification or additional discussion.

We do not want people to have to spend all kinds of money to be competitive here, and any future rules or adjustments will be made with that in mind. If you try to exploit the rules, or otherwise have something that gives you an advantage over others, then you should expect a rule change that takes that away.

The series directors will have the ultimate say and discretion on rules interpretation, enforcement, exceptions, and any other matters within this series.

Rules

1) Format

- a. This series will score both Time Attack (TA) competitions and Wheel-to-Wheel (W2W) racing for cars and drivers who adhere to these rules.
 - i. Time Attack (TA) competitions enable both street cars and W2W race cars to compete together in this series, based on each driver's best official lap or run time of the day, excluding warm-up, practice, or fun run sessions. Time Attack may utilize different courses and formats, such as a road course lap time competition, an autocross, or another designated course or challenge.
 - ii. Wheel-to-Wheel (W2W) racing is for drivers who compete against each other for finishing position, during certain sanctioned races. Eligibility is limited to cars and drivers that meet the requirements of the sanctioning body hosting the event (typically NASA).

- iii. TA and W2W points will be separate competitions, with individual event results and series points posted on our website. By competing in W2W racing at an event where the TA competition is based on road course lap time, you would then automatically also be competing in TA and gaining season points in both competitions.
- b. This series will use events hosted by other sanctioning bodies, such as NASA, and is not officially endorsed by, or affiliated with, these host sanctioning bodies. Vehicles and drivers will need to also conform to the host sanctioning body's rules and requirements.

2) Safety

- a. All safety matters, safety rules / requirements, safety technical inspection, liabilities, insurance coverages, etc., shall be the domain of the host sanctioning body.
- b. If a safety rule or requirement of the host sanctioning body conflicts with any of our rules, then the host sanctioning body's rule or requirement shall take precedence. This is limited to safety matters only, and is not for competitive advantage.
- c. Safety violations, driver / crew conduct, or on-track incidents may result in penalties within this series as well, at the discretion of our series directors.

3) Results and Season Points

- a. Time Attack and Wheel-to-Wheel will be separate competitions, each with their own season points, but will otherwise use the same scoring system.
- b. The schedule of scored competitions, and any alterations or additional details, will be communicated on the official website and/or by our series directors.
- c. Individual competition results will be based on the host sanctioning body's results, but only ranking the drivers who had opted to join this series and are in compliance with these rules.
- d. Time Attack Only: For Road Course events, when a competitor does not have official lap times provided by the host sanctioning body (typically using an AMB transponder), it is permissible to use lap times recorded by the TrackAddict app, when paired with a 5 Hz or higher GPS under good reception conditions. In this case, the competitor must submit his entire raw data recording for that session, the normal start/finish point for event's the track configuration must be used, and any data or GPS connection/reception irregularities may invalidate the results. On a limited case-by-case basis, certain other data acquisition products may also be allowed, but you must check with the series directors first.
- e. 1000 points will be given to the driver who is ranked first place for the event, and then 25 less for each position thereafter, until reaching zero.
- f. There will be 1 drop for every 4 scored competitions, rounding up to the next whole number. This means that if there are 8 competitions in the season, then there would be 2 drops, so each driver's 6 best finishes would then count towards the season

championship. If there are 10 competitions, then the number of drops gets rounded up to 3, thereby scoring each driver's 7 best finishes for the season championship.

- g. For road course events, there will also be lap records, based on any lap that is eligible for our Time Attack competition.
- h. **Mechanical Hardship Points, AKA "the Chris Rule":** Competitors who attend the event with their Front4-legal car but are prevented from competing due to mechanical issues or another hardship (as judged by the series directors), will be awarded a finishing position and points equivalent to last place. This shall be 1 position after all scored competitors, not to exceed 850 points (7th place). If there are multiple competitors getting points via this rule, they will all receive the same number of points.
- i. Any driver who has been disqualified, or repositioned to last place, in 3 or more events over the course of a season due to rule violations will be ineligible for season points.

4) Vehicles & Modifications

- a. Vehicle must be a Front-Wheel Drive (FWD) mass-produced passenger car originally intended for street use. No custom or tube-frame chassis will be allowed. It is permissible to convert AWD to FWD, provided that the rear driveshaft, differential, and axles are removed.
- b. Engine:
 - i. Engine must be 4-cylinders and Naturally Aspirated
 - 1. No turbos, superchargers, nitrous, pressurized tanks, etc.
 - 2. Engine modifications, swaps, and tuning are otherwise allowed, subject to the dyno limits and vehicle weight requirements defined by these rules.
 - ii. Engine Output is calculated as: $(\text{Peak_HP} * 0.66) + (\text{Peak_Torque} * 0.32)$
 - 1. Use the calculated result provided in your Driver Profile / Competitor Registration on the official website.
 - 2. These are as measured at the wheels by a DynoJet dynamometer, subject to the following requirements:
 - a. SAE correction factor applied
 - b. "Smoothing Factor" of 5 or less
 - c. Dyno plot must be full throttle from before 3000 RPM, up to within 500 RPM of the engine's rev limiter
 - d. Must be with the same type of fuel that you compete with
 - ~~3. This calculation is used as the basis of the "Minimum Weight" rules.~~
 - a. **Temporarily suspended/replaced for 2020 season; see "Minimum Weight" section for details.**
 - 4. Engine Output must not exceed 160, regardless of vehicle weight.
 - 5. A restrictor plate and/or tuning may be utilized to comply with the Engine Output limit or to reduce the required minimum weight.

6. A dyno variance of 2 will be permitted for any on-site dyno testing.
- iii. All competitors must submit recent evidence of engine horsepower and torque, in one of the following forms:
 1. An approved dyno plot within the past 12 months, after the last tuning change, [other-than-minor](#) engine modification, or engine replacement, whichever is more recent. See dyno requirements in the sub-section above.
 - a. [For the 2020 season, dynos up to 24 months old will be accepted, due to the lack of pre-season dyno availability during the COVID-19 crisis. A new dyno is still required if there have been changes.](#)
 2. For stock or lightly modified engines only: If you also have the stock unmodified computer (no engine tuning), then you may instead use the engine's manufacturer advertised horsepower and torque, multiplied by 0.90 each (e.g. 150 crank hp * 0.90 = 135 estimated whp). However, you must be able to adequately show that these are reasonably accurate numbers, and only minor engine modifications are allowed.
 3. [The definition of "minor" engine modifications is limited to the following items:](#)
 - a. Intake filter / pipe (excluding throttle body and manifold)
 - b. Exhaust (anything after the header)
 - c. Flywheel
 - d. Clutch
 - e. A/C system removal (no other belt or chain driven components may be removed or disabled)
 - iv. The series directors may also opt to use any reasonable method at their disposal to verify engine compliance, including but not limited to inspection, data logging, on-site dynamometers, or requiring a participant to obtain and submit a new dyno plot.
- c. Wheels & Tires:
 - i. Maximum tire width is 225, as indicated by the size on its sidewall.
 1. Any tire exceeding 205 will result in a vehicle weight penalty; see the "Minimum Weight" rules for details.
 - ii. Any widely-available 100 treadwear or higher DOT-rated tire may be used.
 - iii. Wheels must be single-piece metal construction, weighing at least 11 lbs each (without tires or balancing weights).
 - iv. When the vehicle is parked with the steering wheel pointed straight ahead, neither the top edge of the tire, nor the top edge of the wheel rim, may extend more than 0.25 inches beyond the widest part of the fender bodywork for that wheel.

1. See the “Aerodynamics & Body” section for rules on fender rolling or otherwise extending the original bodywork.

d. Minimum Weight:

- i. The required Minimum Weight for the vehicle with driver is calculated in pounds (lbs) as follows:
 1. ~~17 x Engine Output (as calculated in the “Engine” rules)~~
 - a. ~~If less than 2200 lbs, then that will be used instead.~~
 - b. The above Minimum Weight calculation is temporarily suspended and replaced for the 2020 season, on a trial basis to be more inclusive of a wider variety of cars. It is replaced by the “2020 Weight Calculation” posted on <http://Front4.Club>
 - i. Competitors are strongly warned that intentional violations of this generosity will not be tolerated, and this change may be revoked at any time if it becomes a problem. Also, violators may be tarred and feathered.
 2. If the largest tire size (as indicated by its sidewall) exceeds 205, then the Minimum Weight is increased by the following penalty calculations:
 - a. Base Number: $10 \text{ lbs} \times (\text{Tire Width} - 205)$
 - i. 215 Tire Width = 100 lbs
 - ii. 225 Tire Width = 200 lbs
 - b. Penalty: $((2600 - \text{Minimum Weight}) / 400) * \text{Base Number}$
 - i. This is based on the minimum required vehicle weight (calculated based on Engine Output), rather than the actual vehicle weight.
 - ii. At 2200 lbs, a 225 is penalized by 200 lbs
 - iii. At 2400 lbs, a 225 is penalized by only 100 lbs
 - iv. At 2600 lbs and up, there is effectively no penalty
 - v. Any result that’s negative shall be treated as zero
 - c. ~~Use the calculated result provided in your Driver Profile / Competitor Registration on the official website.~~
 - d. This is intended allow more tire for heavier or lower-powered cars that can’t get down to their Minimum Weight, while discouraging others from exceeding 205.
 - e. The maximum tire width rule still applies; see the “Wheels & Tires” rules.
- ii. This weight requirement applies to the vehicle “as raced”, at its lightest point on track during competition. This would typically be its weight with driver at the end of each track session, unless there had been refueling.

- iii. Weights may be added to any location inside of the vehicle to meet this requirement, provided that they serve no other function, and are attached safely and in compliance with any applicable host sanctioning body rules.
- e. Suspension and Chassis:
- i. Unless otherwise allowed in this section, suspension components must only use the factory attachment points. Reasonable reinforcement of these points for safety and durability is allowed, but they must not be moved.
 - ii. Shocks may be either non-adjustable, or may have a single adjustment control (ie Koni Yellow / 8041, KYB AGX, etc.), but must not have more than one adjustment control each, and must not have any external reservoir or other fluid connections.
 - iii. Suspension arm bushings / bearings must be non-metallic. Spherical or "pillow ball" bushings / bearings are prohibited. This applies to control arms, trailing arms, camber arms, and other arms or linkages that see substantial force or movement during suspension compression. Rubber, hardened-rubber, polyurethane, and delrin are acceptable. These may only contain or utilize metal components if, and where, the original factory part did.
 - 1. The following items are excepted from this rule:
 - a. Unmodified factory parts, or replacement parts of the same material, design, dimensions, and performance.
 - b. Steering components and toe arms / links.
 - c. Sway bars / anti-roll bars and their end-links.
 - d. Radius rods / traction bars.
 - e. Spring / shock top hats.
 - iv. Factory or bolt-on front radius rods / traction bars and engine torque dampers are unrestricted.
 - v. Bolt-on chassis stiffening connectors (strut bars, tie bars, etc.) may be attached anywhere, provided that they serve no other purpose.
 - vi. Welded chassis stiffening is prohibited (including seam / stitch welding), except for roll bars / cages that adhere to all applicable safety rules, sunroof removal / roof reinforcement, and legitimate structural or safety repairs. A lateral connection between the rear shock towers in conjunction with a roll bar / cage is permitted.
- f. Brakes: Unrestricted, except that any ABS in use must be the unmodified factory system for the same vehicle model and generation (sub-model swapping is allowed, disabling or removing is allowed). It is very strongly recommended that you have suitable brake pads and fresh high-temperature fluid for road course use.
- g. Transmission & Differential:
- i. Transmission must be a conventional manual transmission with a stick shift. Sequential shifters are prohibited.

- ii. Dog Box transmissions and/or any use of straight-cut gears (except for reverse) is prohibited.
- iii. Gear ratios are unrestricted, except that gear ratios (including final drive) may only be changed once per season. This is meant to discourage drivers from trying to optimize gearing for each track.
- iv. Differentials are unrestricted. Limited Slip Differentials (LSD) are allowed.

h. Aerodynamics & Body:

- i. All aerodynamic components must be non-adjustable, and may not be designed to move while driving.
 - ii. No body or aerodynamic modifications, including fender rolling, may exceed any of the following limits by more than 1 inch, relative to the vehicle's original body contour at that point:
 - 1. Taller than the vehicle's roof
 - 2. Wider than the vehicle's body (limit is per side, excluding mirrors, as viewed looking downward from directly above the vehicle)
 - 3. Further forward than the front edge of the front bumper cover
 - 4. Further back than the rear edge of the rear bumper cover
 - 5. Entire fenders may be widened/rolled based on the widest part of the original bodywork's fender, rather than being limited based on the original body contour.
 - iii. Underbody trays / panels, lips, and similar aerodynamic components may not be located in, or extend into, the area behind the front axle. They must be entirely ahead of the front axle; rear diffusers are not allowed. For the purposes of this section, the location of each axle shall be defined as the center line of the corresponding wheels.
 - iv. Factory-optional body parts are allowed and will be treated the same as the vehicle's original body. Sub-model swapping, model year updating/backdating, and USDM/JDM/Euro/etc swapping of factory body parts are also included, but only if the swap is within the same model generation. Aftermarket body parts will be treated the same as factory parts if they are replicas of the same design and dimensions.
- i. Controls: No person or system shall have any way make changes to the vehicle's mechanical configuration, engine tuning, suspension, aerodynamics, or brakes while the vehicle is in motion.
- i. Unmodified ABS, traction control, and stability control systems may be used or added, as long as they are factory parts for the same vehicle model and generation (swapping between sub-models is allowed); these may also be disabled or removed.
 - ii. Engine tuning "piggyback" devices and similar external devices are included within the definition of "Engine Tuning", and are therefore allowed, as long as there is no human control while the vehicle is in motion.

5) Penalties

- a. This is a fun opt-in series, with a group of racers who generally don't take themselves too seriously, so please don't be the person who makes us invoke this part of the rulebook!
- b. In the event of non-compliance with these rules, penalties can range anywhere from a simple "fix it before the next race" to finishing position and/or points reductions, or even disqualification entirely. This is entirely at the discretion of the series directors, will be evaluated on a case by case basis, and is not open to appeal.
- c. Generally, if a host sanctioning body applies a penalty to the results of an event, then this series will automatically do the same.
- d. The minimum penalty for sandbagging a qualifying session or race that sets the order for an inverted race start is wet tortillas left on the offender's car overnight.

6) Additional Definitions and Clarifications

- a. Stay reasonable and don't try to be creative with the rules. For example, if the rules say you can attach a "chassis stiffening connector" anywhere, that doesn't mean that you can repurpose a strut bar to serve as an otherwise illegal aero component, or to directly brace the drivetrain or suspension arms. It would no longer be primarily serving as a "chassis stiffening connector" in those cases, and therefore wouldn't be considered as such.
- b. "Factory Part" means a part that came on the vehicle as it was originally manufactured, or that was available from the manufacturer as an option or on another year/sub-model within the same model and generation. If you could order the car from the manufacturer with X part, then X part is considered a "factory part". Any updated parts intended by the vehicle's manufacturer as a direct replacement shall also be considered a factory part. However, vehicle dealers are not the manufacturer / factory, so dealer-installed accessories and upgrades are not automatically included in this definition.
- c. "Factory Attachment Point" refers to the locations where, and the methods by which, the factory parts were originally installed on the vehicle.
- d. "Engine Tuning" includes:
 - i. Any adjustment, modification, or replacement to the engine control unit / module (ECU / ECM) that could affect the effective ignition timing or fueling at full throttle.
 - ii. Any installation, removal, adjustment, or change to an external or "piggyback" device which modifies its input and/or output signals.
 - iii. Any other method that effectively alters the engine's ignition timing, fueling, or camshaft or valve timing/lift/duration, at full throttle. This includes distributor retiming, adjustable cam gears, offset woodruff keys, VTEC modifications, etc.

Rulebook Change Log

These are only brief summaries of the most notable changes. Competitors are responsible for reading the updated rule book to ensure that they have a full understanding.

Mar 26, 2020 (changes for 2020 season)

- Added Mechanical Hardship Points / “the Chris Rule”, awarding last-place points (instead of zero) to competitors who attended the event with their car but were unable to compete due to mechanical issues.
- Temporary suspension/replacement of traditional Minimum Weight Calculation, and 2200 lb absolute minimum weight. Replaced with a more in-depth calculation posted on <http://Front4.Club>, for the 2020 season only.
- Dynos are good for 24 months during the 2020 season (assuming no engine mods, tuning changes, etc.), due to limited pre-season dyno availability during the COVID-19 crisis.
- Restructured slightly to more clearly define the allowed minor engine modifications that don’t require a new dyno.

Nov 23, 2018 (changes for 2019 season)

- Updated “Format” and “Results and Season Points” sections to support separation of PPIR Time Attack and NASA Time Attack season points, removed provision for added drops due to schedule conflict (no longer an issue), and established that the calculated number of points drops is rounded up to the next whole number.
- Clarified “Vehicles & Modifications -> Wheels & Tires” to state that the wheel/tire width limit is based on the fender width for that wheel, clarified that fender rolling falls under the “Aerodynamics & Body” modification rules, and clarified that the body widening limits are based on the actual body width and not the side mirrors.
- Clarified allowance of engine modifications / swaps / tuning, and that “piggyback” devices are considered tuning.
- Rearranged dyno requirements to be more clear.
- Updated rulebook header / introduction, and added rulebook change log.