



■ README.txt — AI Pit Control Lite - Phase 1 (v2.0)

AI Pit Control Lite — Phase 1 (Offline Racing Only)

Fuel Estimator + Pit Tracker for Assetto Corsa

Version: 2.0 (Lite Edition)

Author: Gavin2

This app is not suitable for quick jump-in-and-race sessions.

AI Pit Control requires **practice and qualifying sessions** to collect the data it needs to work correctly.

■ What is AI Pit Control Lite?

AI Pit Control is a specialised utility for Assetto Corsa designed to fix one of the sim's oldest problems: unreliable AI pit strategy. By moving away from the game's default fuel-based triggers, it gives the AI a realistic, distance-based strategy that mirrors professional motorsport.

The core philosophy is simple — distance, not fuel, should trigger a pit stop. The app reads track length directly from the ``ui_track.json`` metadata (or via the CSP API) and divides your race into equal-distance stints based on your chosen settings. Rather than hoping the AI notices it is low on fuel, AI Pit Control uses a three-stage nudge system to bring each car into the pits at the right moment.

The Three goals

Every design decision in AI Pit Control is built around three goals:

1. All AI cars must complete exactly the number of pit stops set by the player — no extra stops.
2. All AI cars must complete the race without running out of fuel.
3. The result must match real-world racing as closely as possible within the constraints of Assetto Corsa.

These aims can only be achieved if AI Pit Control can read the information it needs from the sim. Two requirements are non-negotiable:

Fuel consumption must be enabled in Content Manager or Assetto Corsa settings.

Per-car fuel consumption data matters — the more accurate the car data, the better the result.

Requirements and Responsibilities

Before your first race with AI Pit Control, make sure the following are in place:

Your race weekend must include **practice and qualifying sessions**. The app uses these sessions to measure each car's fuel burn rate before the race starts. Without that data, fuel loads and stint calculations will be inaccurate.

Player car `data.acd` must be unpacked. It is strongly recommended to unpack all AI car data files as well. Cars with locked data will fall back to estimated values.

Player fuel loads are the player's responsibility. The Fuel Estimator window shows the recommended load for your chosen strategy, but loading the correct amount is up to you.

The main Settings window includes an option to enable or disable AI Pit Control entirely. When disabled, no fuel sync, drain triggers, or pit tracking are active.

Important: All text displayed in red in any AI Pit Control window represents an unresolved issue that requires your attention. Red warnings must be resolved — or consciously accepted — before racing. The app will work best when all indicators have cleared to blue, yellow, or green.

The Two Modes

F1 Cars Only — Sync AI to Player Fuel

A specialised mode tuned for Formula 1 and high-performance single-seaters. F1 cars often have tightly matched fuel-burn characteristics, and this mode synchronises all AI fuel loads to the player's chosen start fuel, with small individual variations applied per car. A field compatibility check runs during practice to identify any cars whose burn rate falls outside the expected range — those cars are flagged by name so you can decide whether to include them.

Independent Strategy — Distance-Based

The primary mode for most racing categories. The app calculates total race distance and divides it into two or three stints depending on your preference, fuelling each AI car based on its own measured burn rate from practice. Cars with higher consumption get more fuel; efficient cars get less. The result is a field where each car is running its own strategy rather than everyone mirroring the same number.

Support for additional stint configurations (3–8 stops) is planned for Phase 2.

Natural Pit Stop Spread

One of the subtler features of AI Pit Control is that pit stops are deliberately staggered across the field. The app applies a built-in $\pm 2\%$ random variation to each AI car's stint distance trigger, so cars do not all pit on the same lap. In a typical race this produces a natural spread of two to three laps, with the field arriving in waves rather than a single queue — much closer to what you would see in real motorsport.

The Pit Tracker

The Pit Tracker window is a live race dashboard covering every car in the field simultaneously. At a glance you can see:

Current fuel load — per car, updated every frame, showing real remaining fuel as each car burns through its stint

Laps remaining estimate — calculated from that car's own measured burn rate, not a generic field average

Laps completed and pit stops taken — so you always know where everyone is in their strategy

Retirement status — cars that have stopped permanently are flagged immediately and remain flagged for the rest of the race

On the final stint, each car's laps-remaining figure gains a confidence indicator — SAFE, MARG, or RISK — so you can see at a glance which cars have comfortable fuel margin and which are likely to struggle to the flag.

Expanding any car's entry shows its full pit stop history: the lap it stopped, how much fuel was added, total stop duration, and the actual measured time spent stationary in the box receiving fuel. That last figure is particularly useful — it shows you clearly when a short refuel time gave a rival an advantage that had nothing to do with strategy.

AI Pit Control Lite is a free Assetto Corsa app. The Pit Tracker, Fuel Estimator, and distance-based pit strategy system are all included in Phase 1.

Installation

Download and extract the ZIP file

Copy the apps folder into your AC directory:

SteamLibrary\steamapps\common\assetto corsa\apps\lua

You should end up with:

SteamLibrary\steamapps\common\assetto corsa\apps\lua\AI_Pit_Control_Lite

enable AI_Pit_Control_Lite in Content Manager/settings/assetto corsa/app

windows

Go race

AI Pit Control Phase 1 setup - F1 Cars Only

- * Complete normal race setup in C/M (must select Race Weekend)
- * Start session
- * Entry car setup screen

Main UI

- * Enable Track Physics
- * Select F1 Cars Only (Disable Independent Strategy)
- * Uncheck Manual Tank Size Override (use if Max_Fuel: is not available)

- * Set AI Retirement to 100 and Ai Pit Grace to 30 (good starting point)
- * Uncheck Manual Track Length override (use if Track Length: is not available)

Fuel Estimator

Race Laps Auto set from C/M

Select required Stints

Practice session

- * Enable AI Pit Tracker from side bar
- * Player must complete 4 clean Laps (Sets Fuel Estimator - Fuel per Stint amount)
- * Allow AI to lap until True Field Check completes (may take some time depending on track length and number of cars, will carry over to qualifying if needed)
- * Requires a minimum field of 6 AI cars to activate True Field Check.

The task for True Field Check is to check that each AI cars fuel consumption is with-in a certain percentage of the field median fuel consumption to prevent AI cars from requiring more pit stops that the player set for the race.

It is the user's choice to run the race **BEFORE** True F1 field check has completed, there is no fall-back option available, the result maybe that some car's may fail to complete the required number of pit stop's or complete more pit stop's than set by user in Fuel Estimator

The app will write a text file to C:\\Users\\username\\AppData\\Roaming\\AI Pit Control Lite (this file will be deleted when player starts new session) so player will know which cars to remove from grid.

Failed cars will also be displayed in pit tracker.

After True Field Check completes the player may skip practice or qualifying .

In setup screen Fuel Estimator will now show fuel required for stint 1

Player now sets their car fuel to that amount ie: 44.34L set fuel to 45L

Race start

- * At lights out The pit tracker will reset (and away you go)
- * Remember player managers own fuel, the amount to add at each pit stop is shown at the bottom of the pit tracker.
- * If cars with low fuel consumption (lean) reach end of stint 1 with too much fuel the app will force them to dump fuel, this also fires in Independent Strategy mode
- * The app will handle AI fuel for remaining stints, all AI will finish race with approx 1.5L - 2.0L spare in tank.

F1 Cars Only known issues

- * Hockenheim - AI cars may not leave pits in practice (breaks F1 field check)
- * Monaco - tight track hard to get clean laps - app struggles to read pit exits

AI Pit Control Phase 1 setup - Independent Strategy

Main UI

NOTE: In pit setup screen F1 Cars Only mode must be enabled to set number of stints per race.

- * Enable Track Physics Select
- * Once number of stints has been set enable Independent Strategy mode (Disable F1 Cars Only mode)
- * Uncheck Manual Tank Size Override (use if Max_Fuel: is not available)
- * Set AI Retirement to 100 and Ai Pit Grace to 30 (good starting point)
- * Uncheck Manual Track Length override (use if Track Length: is not available)

Fuel Estimator

- * Race Laps Auto set from C/M
- * The following text box will replace ****Fuel Estimator****:
- * Player Car data.acd Must Be Unpacked
- * Player Car Fuel Loads Per-stint is controlled by player
- * Uncheck F1 Cars Only option
- * Practice: complete 4–5 clean laps (exclude out lap)
- * Allow AI to run until Fuel Model is locked
- * If AI Burn incomplete, continue in qualifying until AI Burn is locked
- * Set player fuel to the Estimator per-stint value
- * Start the race

Practice session

- * Complete all practice requirements (Player data collection/AI burn range/AI burn/fuel model collection)
- * may take some time depending on track length and number of cars, will carry over to qualifying if needed

Example: Track Length:5.864km/22 cars/Time to complete all checks approximately 15min

- * Once all checks have been completed player may skip practice or qualifying

The app has now written two text files to

C:\\Users\\username\\Documents\\Assetto Corsa\\logs named:

AI_Pit_Control_Practice_Fuel_Burn

AI_Pit_Control_Practice_Fuel_Samples

These files are used by AI Pit Control to control AI fuel loads per stint.

Fuel Estimator (after practice/qualifying)

- * In setup screen Fuel Estimator will now show fuel required for stint 1
- * Player now sets their car fuel to that amount ie: 44.34L set fuel to 45L

Race start

- * At lights out the Pit Tracker will reset (and away you go)
- * Remember player managers own fuel, the amount to add at each pit stop is shown at the bottom of the pit tracker.
- * The app will handle AI fuel for remaining stints, all AI will finish race with approx 1.5L - 2.0L spare in tank.

Known Issues

Pit tracker may show delta fuel for cars for the following reasons:

- * Cars that retire from race until the tracker retirement code fires
- * When refueling until they leave pit lane
- * Because A/C can :) (but you will not notice that because you will be too busy racing)

Enjoy
Gavin2

Created by Gavin2 AI behavior logic, refuel models, pit tracking & fuel estimator UI developed from scratch.