

Touring Car Challenge

Premise: The executives of your car company have been enticed with a raft of new technical regulations introduced that encourage competition, have decided to enter a works team into the National Touring Car Championship. You have been placed in charge of this project, and will oversee both the production car for homologation, as well as heading the racing division that will aim for championship glory!

PHASE ONE – PRODUCTION CAR

The first phase will involve producing a car for market. As you are first and foremost a car company, you will produce a new model to sell to the public – win on Sunday, sell on Monday, after all. These production cars must be 2 litre engines, with a minimum wheelbase of 2.5m. They must either be FWD or RWD. These cars are being released into a competitive marketplace, so your executives are looking to sell at no more than £17,500 in the dealership. These cars will form the basis of your track version, but they still have to meet road safety standards and maintain the quality image of your company. Therefore the car will be judged against the competition on the following factors:

SAFETY

COMFORT

RELIABILITY

MILES PER GALLON

COST (lowest is best) (tiebreaker is material costs, then production units)

Minimum Quality Slider: -1

MAXIMUM Performance Index: 100

Cars can be N.A. or Turbo-charged at this stage: Your choice.

Cannot be a soft-top

Minimum of four seats

91 RON Unleaded

Must have Catalytic Converter and Muffler, as well as Power Steering

We'll be comparing each of these stats to the other cars, and will earn points for each depending on where they rank on the basis of 5-4-3-2-1 for each (I.e the cheapest car earns 5 points, whereas the most expensive car earns 1), which will count towards the total from the races.

PHASE TWO – RACING CAR

Next you will be taking the production model off of the production line and preparing it for the track. The regulations state that you must have:

SIX SPEED MANUAL SEQUENTIAL TRANSMISSION

TYRES: 265 WIDTH/660 DIAMETER, R18 SLICKS (OR MAXIMUM TYRE WIDTH IF NOT POSSIBLE) (265 is per tyre, not per side, all tyres must be the same width though)

MINIMUM WEIGHT: 1250KG FWD, 1300KG RWD

MAXIMUM P/W RATIO: 0.21 FWD, 0.2 RWD

SUSPENSION: DOUBLE WISHBONE FRONT AND REAR

DIRECT INJECTION FUEL (100 RON UNLEADED)

MUST HAVE CATALYTIC CONVERTER AND MUFFLER

You cannot reduce the quality sliders of your car, such as interior (though you may reduce the number of seats to one) or safety. You may not have adaptive or active suspension, though all other options are available. You may have a maximum of three aero fixtures, including one on the front and a rear wing. You are not permitted a diffuser. (mirrored is one). You may not remove external fixtures, though you can add extra ones to make it look cool. In addition, you are allowed to make advanced trim alterations to flare wheel arches to make the tyres fit better, as well as lower the ride height, but nothing else.

ENGINE RULES

You may not change your engine size or type. You cannot change the number of heads and valves, and may not add/remove VVT/VVL. You cannot change the quality of your cranks, conrods or pistons, and must have an engine with 0 stress on it.

There is no budget restriction for this. However, the executives have two requests – one, that your car's livery best represents the company – with company branding and company colours (suppliers sponsors are permitted) And secondly, this represents a significant investment for your company, and they expect results. The points from your races will be compared against the cost of materials for the car – earning points 5-4-3-2-1 for cost divided by points, highest to lowest.

RACE RULES

We will start with a one lap qualifier, then race for race one (aiming for ~15/20 minutes). The results will earn points 20-17-15-13-11, and the finishing order will determine the grid for race two. Race two will see ballast added to the cars with 1st gaining 48kg, then 2nd 36, 3rd 24, 4th 12 and none for fifth. Race two will be the same length as race one. Ballast is reapplied following race two in the same way, before a reverse grid race for race three. All points will then be tallied and a winner declared.

Whilst racing, contact is permitted, and light blocking/running wide acceptable. If a driver/drivers crash too badly, the 'safety car' will be called to slow the pack down and allow a respawn of the car, which must restart from the pit lane from a standing start once the pack comes back around to the grid.