On wings of Etihad

Fast cars, fast planes. Now you can have a chance to be part of the festival of speed. Go on, join the contest.

»Wings ... were introduced as a significant technical development that changed the face of F1 racing«

Objective: One reason for the 2009 revisions to F1 cars is to make things more exciting and increase the popularity and spectacle of the sport.

MENTION the phrase "F1 world champions" and a bright scarlet supermachine, synonymous to the word Ferrari springs to mind.

Over the last five seasons, the Italian marque has bagged the F1 GP constructor's championship thrice, winning it for two consecutive seasons in 2007 and 2008.

In March last year, a relatively young airline announced a sponsorship deal with the Scuderia Ferrari F1 racing team. With the word "Etihad" prominently displayed on the rear wing of the new 2009 Ferrari F60, the marriage between Ferrari and Etihad Airways – the national airline of the United Arab Emirates, will continue through the next two seasons.

But what do a commercial airline and an F1 car have in common?

Both travel at very high speeds.

An F1 car whose top speed can exceed 320kph (200mph) is capable of overtaking a Boeing 777 at take-off, at which it reaches some 290kph (180mph).

In fact, with all the aerodynamics and technology in place, an F1 car has more in common with a jet plane than the car in your driveway.

Just like an airplane, an F1 car makes use of wings because at such high speeds, aerodynamics play a key role in the design of both.

In terms of aerodynamics, a Formula One car designer has two primary goals – creating downforce, which helps push the car's tyres closer to the track and minimise turbulence from the track's surface – which causes the car to slow down.

The F1 car has to hug the ground, with minimal disruption to airflow. But at such high speeds, steps have to be taken to stop the car from "taking off."

Enter wings.

While a plane's wings help lift it up, F1 wings are designed to push the car into the ground. A modern F1 car is capable of developing over three and a half times its own weight in aerodynamic downforce.

Considering the new 2009 Ferrari F60's weight at 600kg, the maximum downforce is like the weight of a rhinocerous sitting on the car.

The level of downforce created varies as a function of speed.

The vertical force generated by the wings increases the grip from the tyres, allowing the car to corner quicker. On the other hand, wings with a lot of downforce increase the resistance to forward movement causing drag, thus reducing top speed.

Therefore, it is important to optimise the design of the wings to maximise the positive elements (downforce) while minimising the negative ones (drag.)

Wings, also known as aerofoils, were introduced as a significant technical development that changed the face of F1 racing. Cars could go faster and were less liable to spin off the track.

Their initial introduction brought hazards though.

In 1969 at the Spanish Grand Prix, drivers Graham Hill and Jochen Rindt were involved in a horrific crash resulting from a lost wing on the track. This crash actually forced wings to be banned from the rest of the championship year. The wings were later re-engineered and reintroduced.

Today, the circuits on which the 17 Grand Prix are held vary in their downforce requirements. They go from tracks, with many corners, requiring a lot of downforce, such as Monaco, to ones that have long high speed straights, like Monza. To deal with the variety of conditions, teams produce some four types of wings so they can find the right compromises.

Malaysia's own Sepang circuit is regarded as medium in aerodynamic downforce requirements.

Moving into the 2009 season, changes have been made by the FIA in the design of the cars to increase overtaking opportunities, reduce the role of aerodynamics in the cars' performance and keep lap times in check.

Etihad's partnership takes Ferrari, one of the fastest cars on the F1 track, through the 2009 F1 season and ends most aptly with the Etihad – Abu Dhabi Formula 1 Grand Prix in November this year.

A chance of a lifetime

ETIHAD Airways and Ferrari are giving one lucky reader of *StarMotoring* a priceless opportunity to experience the Malaysian F1 GP qualifiers on April 4 in a VIP box at the paddocks! The winner will also be given an exclusive tour of the Ferrari pit. Answer the following three questions correctly and the lucky winner will be randomly selected from all-correct entries received.

1. When did Etihad Airways announce its sponsorship of the Scuderia Ferrari team?
2. According to the article, what do wings do for an F1 car?
   a. Provide downforce for the car
   b. Enables the car to slice faster through the air
   c. Both a and b
3. When is the Etihad – Abu Dhabi F1 GP scheduled?

Mail in your answers on a postcard together with your full name, IC number, mobile number, email address and mailing address to:

The Etihad-Ferrari
"Chance of a lifetime"
contest
Unit 301, 3rd floor, Block D
Pusat Dagangan Phileo
Damansara 1
9, Jalan 16 / 11, Off Jalan
Damansara
46350 Petaling Jaya,
Selangor.

Alternatively, you may fax your entries to +603 – 7493 5589.
Closing date for entries is March 27, 2009.