



# UniSA Australian HPV Super Series

## Product Innovation Design

### Fact Sheet

The UniSA Australian HPV Super Series consists of two 6-hour races at Victoria Park in June and July and one 24-hour race in Murray Bridge in September. Here are some tips to make your Pedal Prix car more efficient using Product Innovation Design.



#### **What are the major differences between a good and bad Pedal Prix car design?**

A well designed Pedal Prix vehicle is light weight, comfortable for the rider, efficient (both aerodynamically and mechanically) and handles corners and bumps in a stable and predictable way. With good planning, research and building techniques any school or group is able to produce a fun and safe Pedal Prix vehicle.

#### **What shape is the most aerodynamic?**

Traditionally the most aerodynamic shape is the tear drop design. This can be seen both in nature (fish and birds) and with engineered objects such as aeroplanes and solar racing vehicles. It is important to try and avoid harsh angled corners and large holes and gaps within the body design to help maximise aerodynamic efficiency.

#### **What is the most lightweight material to use for the frame and fairings?**

The most effective materials for Pedal Prix vehicle designs are composite materials such as fibreglass and carbon fibre. However, these materials can be expensive and difficult to work with. Many successful vehicles have been made in a backyard shed using lightweight steel and corflute signage board. Good design planning and implementation can allow anyone to create a lightweight vehicle with only basic workshop tools.

#### **Does the width, profile and tread pattern of the tyres affect speed?**

Good tyre choice is important to ensure the vehicle can both roll efficiently and smoothly along the ground, as well as grip effectively through corners. Pedal Prix vehicles should always use a 'slick' tyre with minimal tread pattern to ensure they roll smoothly on the road (think of a knobby mountain bike tyres versus a skinny smooth road bicycle tyre). There are many good tyre choices available and often it is a good idea to contact one of the faster teams and find out what they are using. They are more than happy to share (a few) of their secrets!

#### **Other tips and tricks**

Make sure the design, building and racing of the vehicle is a challenging but ENJOYABLE experience! Keeping a schedule for the design and build of the bike will help to avoid a last minute rush before a race. Doing proper research into existing successful designs can also help provide inspiration for your next creation!

*For more information on the UniSA Australian HPV Super Series visit [pedalprix.com.au](http://pedalprix.com.au)*

*For more information about studying Product Innovation Design at UniSA visit [unisa.edu.au](http://unisa.edu.au) Search 'Product Innovation'*

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