

## **AEROplus Wind deflector**

Test Report

January 9, 2012

### **Introduction:**

The aerodynamics of your towing combination determines among other things how safe and smooth your towing experience will be, if so. Air currents around your "van in motion" plays an important role in the stabilization or un-stabilization of your towing combination and that can lead to potential road handling problems. In theory a wind deflector fin can significantly improve the situation and ensure that your towing combination tows more stable and secure with more peace of mind. The link below gives you a good idea of how it actually looks when you analyze the air flow over a towing combination.

<http://www.youtube.com/watch?v=QmwkrQbTgNQ>

### **Purpose of the test:**

To practically test, investigate and report the performance of the AeroPlus wind deflector under normal towing conditions on behalf of the WegSleep Forum members and readers, as it is a point of discussion on the WegSleepforum.

### **Assumptions by the manufacturer :**

1. That the deflector will deflect the airflow over the towing vehicle in such a way that the airstream will move over the caravan and not swirl between the towing vehicle and the caravan.
2. That the deflection of the airstream over the caravan will put the caravan in a slipstream behind the towing vehicle that will cause better stability to your towing combination.
3. Given the caravan is now moving in a partial vacuum, the towing vehicle should use less power to keep the caravan at a constant speed or to accelerate and consequently use less fuel.

### **Test Method:**

Towing combination: 2003 Mitsubishi Pajero SWB . 3.2 D - ID towing a 1998 Jurgens CI Escape that is as usual overloaded.

The wind deflector was mounted on my towing vehicle and I towed the combination with the deflector for a distance. The deflector was then removed and several kilometers were towed without the deflector.

A towing speed on the open road was 100-110 km/h continuously maintained as the circumstances allowed.

I use a Yellow Blade stabilizer when I tow.

Mounting Method: followed the manufacturer's instructions.

### **The Ride Itself and Specific Observations:**

From Johannesburg the deflector was used on our trip to Knysna where we went to camp. South of Johannesburg there was a fairly strong tailwind blowing accompanied by heavy rain, with occasional interruptions and that continued until just before Bloemfontein. It was noteworthy that the water on the caravan's windshield made puddles not as usual, without the deflector, where the water

immediately blows upwards to the top of the caravan. As the puddles increase in size the water runs down. That was a clear sign that there definitely was less wind turbulence between the caravan and the tow vehicle.

It was immediately noted when we took the open road, the towing combination took less effort and power to move forward. The trip to Bloemfontein, where we slept the night, was definitely more relaxed and I can not recall one incident where the airstream from other vehicles from the front or from behind overtaking us made any significant movements on our towing combination. In fact, in most cases I did not even feel anything. Only when vehicles pass us from behind a slight tilt of the caravan to the left was felt, but so little that no counter steering measures were needed.

South of Bloemfontein we had a wind diagonal from the front, all the way up to Beaufort West, where we slept over the following night. The wind blowing pretty hard, occasionally. Even the grass along the road was blown sideways. On this trajectory there was only one incident where the air turbulence of a big truck driving at high speed passing us from the front that caused movement to our towing combination. It felt like the caravan tilted slightly to the left, but again no fishtail movement or any counter steering was needed.

From Beaufort West to Knysna there was only one incident where a bread delivery truck passed us from the front at a reasonable speed on the narrow road between Oudtshoorn and De Rust. The towing combination again ever so slightly tilted to the left, but no counter steering was required.

During the ride down to Knysna I deliberately at times for long distances sat behind other caravan combinations for the purpose of watching the movement of their towing combination whenever vehicles pass us. There was definitely a noticeable difference between their swinging caravans and the straight running of mines. At one point, I was driving behind a guy when a truck passed from the front with a speed. His car fishtailed at least 5 times, while mine hardly felt it.

The same happened with the other caravaners when vehicles passed them from behind.

On route back to Johannesburg I towed without the deflector fin for a number of kilometers from Knysna to Colesberg. There was definitely a noticeable difference in the stability of the towing combination that causes more stress on humans. From Johannesburg to Colesberg the deflector fin was used again.

#### **Fuel consumption:**

Average fuel consumption with the wing = 6.7 km / litre.

**Without** the wing = 6.3 km / litre. Measured on a windless day.

The only significant uphill there and back was the Outeniqua Pass (800m above sea level). According to the car's altimeter one only really started to climb on the return trip from Colesberg. Thus, the return journey without the wing on that specific distance and the increase in altitude, in my opinion was not a factor that would have significantly influenced the fuel consumption on that trajectory.

#### **Findings:**

1. There was definitely less air turbulence observed between the towing vehicle and caravan. Refer to the note on the accumulation of puddles on the trailer's windshield.
2. There was definitely a noticeable improvement in the stability of the towing combination. This was particularly observed with vehicles overtaking from behind, and with the pass of vehicles from the front. The crosswinds also definitely had a smaller effect on the stability of the towing combination.

3. The above fuel consumption figures speak for themselves. Especially considering that most of the test with the deflector was conducted with fairly strong winds diagonally from the front, while the part of the test without the deflector occurred on a windless day.

**Conclusion:**

The AeroPlus wind deflector certainly meets the demands set by the manufacturer. It definitely improves the stability of your towing combination and you use less fuel. I therefore believe that the device is an asset to your towing combination and your fuel budget.

Your nerves certainly rest better with the deflector than without. Watch out that you do not fall asleep at the helm.

After you have mounted the roof bars, it takes + - 5 min to mount or remove the wing.



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