

Bob Jane Study (Australia)

Bob Jane T-Marts is very pleased to prove absolutely that using nitrogen reduces fuel consumption depending on which tyre and which car. The following information is a preliminary report on the testing of tyres for roll resistance including the differences in tyre pressures and the use of atmosphere versus nitrogen. We have also used additives for both oil and fuel and measured the effect of different energy / green tyres versus normal tyres. Over the last 6 months we have been developing a three car test unit, later to be extended to four or five including 4 x 4 vehicles, to test various scenarios and we will consider a national tour of Australia with these cars to promote Bob Jane T-Marts Roll Resistance and Fuel Economy in early 2007.

Before we go into our test results, let's understand that the car manufacturers world wide together with the tyre manufacturers and motoring organizations such as AAA, RACV and VACC have all reported for decades that the lack of attention to tyres results in 70% of all cars having less than the recommended manufacturers tyre pressure on their vehicles.

We start with atmosphere or air that gets pumped into the tyres, the air leaks from the tyre over 2 -3 months and without proper re inflation and therefore runs at pressures that are 5-8% under the recommended pressure, with that type of scenario and the lack of care in cars, we end up with between 3-8% higher fuel consumption. With the lower tyre pressures and dangerous handling of the car, coupled with the rapid wear and tear of the tyre. A dangerous blow out can result from this situation.

The tests have proven that the difference between tyre pressures with atmosphere and tyre pressures with nitrogen are significant and can result in fuel efficiency. Below is a summary of our results.

- [Jump to Holden Monaro](#)
- [Jump to Holden Astra](#)
- [Jump to Ford Falcon](#)



[Test Vehicles: Holden Monaro, Holden Astra and Ford Falcon](#)

Holden Monaro

Test 1. Vredestein 235/45 17

Table 1. Fuel Economy

	Front 28 PSI / Rear 24 PSI	% Difference
AIR	10L/100km	
NITROGEN	9.75L/100km	2.56%

Table 2 Fuel Economy

	Front 26 PSI / Rear 32 PSI	% Difference
AIR	9.7L/100km	
NITROGEN	9.5L/100km	2.10%

Cumulative Results

AIR PSI 28/24 to NITROGEN 36/32: **5.26% Difference**

Using the Vredestein tyres, increasing the tyre pressure and using nitrogen can get up to a 5.26% difference in fuel economy.

Test 2. Maxxis 235/40 18

Table 1. Fuel Usage

	Front 28 PSI / Rear 24 PSI	% Difference
AIR	10.6L/100km	
NITROGEN	10.4/100km	1.92%

Table 2 Fuel Usage

	Front 36 PSI / Rear 32 PSI	% Difference
AIR	10.4L/100km	
NITROGEN	10.2/100km	1.96%

Cumulative Results

AIR PSI 28/24 to NITROGEN 36/32: **3.92% Difference**

The Maxxis tyres gave us up to 3.92% in fuel economy with the higher tyre pressures and the nitrogen.

Holden Astra

Test 1. Maxxis 195/65 15

Table 1. Fuel Economy

Tyre PSI

	20	28	35
AIR	8L/100km	7.75L/100km	7.6L/100km
NITROGEN	7.85L/100km	7.65L/100km	7.45L/100km
DIFFERENCE	1.91%	1.30%	2.01%

Cumulative Results

AIR PSI 20 TO NITROGEN 28: **4.57% Difference**

AIR PSI 20 TO NITROGEN 35: **7.38% Difference**

In the Astra, the results were considerably more evident, with tyres at 35PSI using nitrogen, we achieved up to a 7.38% in fuel economy.

Ford Falcon

Test 1. Bridgestone 216/60 16

Table 1. Fuel Economy

	Tyre PSI		
	30	34	38
AIR	8.7L/100km	8.7L/100km	8.6L/100km
NITROGEN	8.55L/100km	8.50L/100km	8.40L/100km
DIFFERENCE	1.75%	2.35%	2.40%

Cumulative Results

AIR PSI 30 TO NITROGEN 34: **2.35%**

AIR PSI 30 TO NITROGEN 38: **3.57%**

The Bridgestone tyres provided a smaller fuel economy result however the difference in PSI was only 8 therefore relatively considerable.

Test 2. Michelin 216/60 16

Table 1. Fuel Economy

	Tyre PSI		
	30	34	38
AIR	8.25L/100km	8.1L/100km	8.0L/100km
NITROGEN	8.1L/100km	7.95L/100km	7.7L/100km
DIFFERENCE	1.85%	1.90%	3.90%

Cumulative Results

AIR PSI 30 TO NITROGEN 34: **3.77% Difference**

AIR PSI 30 TO NITROGEN 38: **7.14% Difference**

The Michelin tyres came out on top in the Ford Falcon experiment with a fuel economy

reading of up to 7.14%.

Summary Table

HOLDEN MONARO

Vredestein 235/45 17	AIR PSI 28/24 to NITROGEN 36/32	5.26%
	AIR PSI 28/24 to NITROGEN 36/32	3.92%

HOLDEN ASTRA

Maxxis 195/65	15 AIR PSI 20 TO NITROGEN 35	7.38%
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FORD FALCON

Bridgestone 216/60 16	AIR PSI 30 TO NITROGEN 38	3.57%
Michelin 216/60 16	AIR PSI 30 TO NITROGEN 38	7.14%

The principle benefits of nitrogen over air can be described as follows: the breakdown of air is - 78% nitrogen, 21% oxygen and 1% other. With a minimum nitrogen purity of 95%, most concerns of air only inflation are addressed. The majority of these are the introduction of moisture into the wheel and tyre assembly, and the increased rate of permeation of air through the rubber of the tyre leading to a far greater rate of natural deflation. Both of these facts are well documented through various industry and non industry texts.