



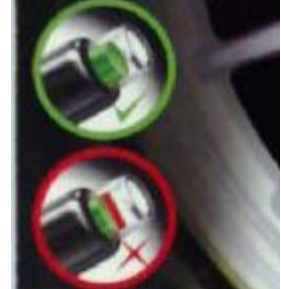
BP5: PTW Design and Protective Equipment

Reference: BP5 005	Title of Project:	Tyre Pressure Monitors
Version: 1	Website:	http://monash.edu.au/muarc/reports/muarc260.pdf
Brief Description of Project:	<p>Incorrect tyre pressures significantly affect the braking and steering of PTWs and compromise collision avoidance. There are a number of active tyre pressure monitors on the market which provide a visual warning of falling tyre pressures. Electronic remote monitoring systems with in-vision display are also available.</p> <p>Air Alert electronic valve cap pressure monitor.</p> <ul style="list-style-type: none"> • A simple device that monitors the tyre pressure and activates a flashing LED if the tyre pressure falls 4psi below the calibrated correct pressure - it is an active bright warning that alerts the driver as they approach the vehicle. • Self Calibrating - Simply fill the tyre to the correct pressure (as per vehicle log book or manufacturers specifications) remove the safety sticker on the base of the valve cap and screw it onto the properly inflated tyre valve - the valve cap then memorises the pressure in the tyre and starts monitoring the tyre pressure. • Universal fitment - the valve cap will suit any standard Schrader type valve (Car / Motorcycle / Truck / Bicycle etc) - and can monitor any pressure between 10 and 150 psi. • 100% self contained - with onboard batteries. The batteries are good for 2 years of standby use or 3+ weeks of active use. • Designed to last and can withstand the toughest of conditions, the valve cap body is made from Chrome plated Brass with a polycarbonate lens. it is approximately 3cm long and weighs less than 5g. 	



Tyre Alert pressure valve cap monitors.

- Lightweight yet tough plastic construction.
- Suitable for any Schrader valve (typical automotive valve).
- Self calibrating pressure range 20-42psi (1.4 - 2.8 Bar).
- Simple and effective visual indication of your tyre pressures.
- Easy to use and re-calibrates each time the valve cap is used.



Tyre Pressure Monitor valve cap monitors.

The tyre pressure monitors work on a simple "Traffic Light" system. When the tyre pressure monitor is firmly screwed onto the valve stem of a cold tyre at the correct tyre pressure, the see through dome at the top of the monitor turns GREEN. . When the tyre pressure drops 3 to 6psi, the AMBER indicator starts to become visible, and it is now recommended that you top up this tyre with air. When the tyre pressure drops more than 5 psi the RED indicator starts to become visible. At 6 to 10 psi drop in pressure, the red is very visible, and this indicates a seriously under-inflated tyre which should be re-inflated immediately.

Remote tyre pressure sensing.



Systems involving the constant monitoring of tyres pressures with output displayed in-vision for the rider.

Monitoring Data:

It is difficult to identify collision/casualty based evaluation of tyre pressure monitoring. Performance testing indicates that deviations of around 4psi or more can significantly affect PTW handling and braking.

The European-wide MAIDS(Motorcycle Accidents In Depth Study) project found that a tyre or wheel problem (usually a puncture) was a cause in 3.7% of all the motorcycle accidents they studied (MAIDS: Table 4.26).

An estimate based on replacement of punctured tyres suggests that 11% of all tyres sold are to replace punctures.

<http://www.maids-study.eu/>

Results:	None available.
Key Effective Conclusions:	<p>Collision/casualty based results are difficult to identify but the negative effect on braking and steering from incorrectly inflated tyres indicates that maintaining correct tyre pressures will prevent some loss of control collisions and avoid a reduction in collision avoidance performance.</p> <p>Theft of the indicating device may be an issue.</p>
Projects for Comparison:	Vehicle diagnostic systems.
Justification:	<p>There is sufficient empirical research to establish the importance of maintaining correct tyre pressures. There are several low-cost options for providing active monitoring of tyre pressures. There do not appear to be any concerns over accuracy or operational difficulties.</p> <p>The measure appears to meet the eSUM objective for WP3, BP5 in contributing to the reduction in risk of injury in a collision through technological improvement in PTW design.</p>