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OLD MAN EMU ESC COMPATIBILITY TESTING

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Safety, predictability and reliability are at the heart of each development project undertaken by ARB's Old Man Emu engineering team. It goes without saying then, that ensuring compatibility with modern vehicle safety features is of paramount importance.

With electronic stability control (ESC) now a mandatory fitment to all new passenger vehicles sold in Australia, it is vitally important that during development, Old Man Emu (OME) engineers ensure the fitment of OME suspension components does not negatively influence the performance of this important safety feature.

As part of each new development project, OME engineers perform a number of tests using both computer modelling and real world driving to assess the impact of aftermarket suspension components, raised ride heights and additional weight, on ESC.

Not prepared to rest on their laurels, however, ARB has recently invested significantly in extensive computer aided testing with Bosch, Australia's experts in ESC, at the Australian Automotive Research Centre (AARC) in Anglesea.

Testing aimed to assess the effects of aftermarket modifications on Sine with Dwell manoeuvres, the compatibility of OME suspension components with ESC in accordance with Australian Design Rule (ADR) 35-03, and to validate the in-house OME development and testing procedures.

Testing was undertaken over 3 days (September 23 – 25, 2013) and involved three different vehicle configurations, each with differing levels of applied load and accessory fitment (see following page).

Using a combination of Bosch's specialised in-house measurement equipment and a VBOX SL3 GPS data logger, Bosch engineers measured a number of vehicle parameters during controlled manoeuvring exercises including:

- FL, FR, RL, RR wheel speeds
- Lateral and longitudinal vehicle acceleration
- Vehicle yaw rate
- Steering wheel angle
- Vehicle roll angle
- Vehicle speed
- Side slip angle

Customers can take comfort in the knowledge that ARB remains committed to extensive research and development.



Preparing the outriggers for testing



Sine with Dwell verification testing with Bosch



Capturing the action at the AARC in Anglesea

Results from the testing confirmed that the Sine with Dwell performance in each of the three vehicle configurations complied with the relevant requirements described within ADR 35-03.

Testing also revealed an increase in performance, particularly on heavily loaded vehicles.

After receiving the test results, Old Man Emu engineers performed extensive work to further validate ARB's in-house development procedures to ensure an ongoing compatibility between OME suspension, ARB accessories and ESC.

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Designation Vehicle Configuration	ARB1	ARB2	ARB3
Vehicle Type	Ford Ranger PX 4X4 High Ride		
Engine/Transmission	3.2L Diesel 6AT		
Tyre	Dunlop AT22 Grand Trek 265/65/R17 112T		
Tyre Pressures	Front: 35psi (241kpa) Rear: 35psi (241kpa)		Front: 38psi (262kpa) Rear: 44psi (303kpa)
Vehicle Mass	(Unladen) Front Axle: 1440kg* Rear Axle: 1220kg Total: 2660kg	(Unladen) Front Axle: 1460kg* Rear Axle: 1220kg Total: 2680kg	(Laden) Front Axle: 1600kg* Rear Axle: 1740kg Total: 3340kg
Vehicle Suspension	Original Equipment	50mm Lift Kit (Medium Rate)	50mm Lift Kit (GVM Upgrade)
Additional Accessories	ARB Canopy ARB Rear Step Tow Bar ARB UVP Test Outriggers	ARB Canopy ARB Rear Step Tow Bar ARB UVP Test Outriggers	ARB Canopy ARB Rear Step Tow Bar ARB UVP ARB Bull Bar Test Outriggers Loaded to GVM

* Bosch outriders fitted to front of the vehicle during testing added significantly to the listed front axle loads

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About ARB

Founded in 1975 in Melbourne, ARB 4x4 Accessories is now Australia's largest manufacturer and distributor of aftermarket 4WD accessories. With products including bull bars, protection equipment, Old Man Emu suspension, Air Lockers, roof racks, canopies and recovery equipment, our primary mission is to prepare vehicles for the remote and harsh conditions typically encountered off road. ARB currently has 47 stores and over a hundred stockists located across Australia, an office in Seattle, USA, and an export network reaching more than a hundred countries.