

# Outlander PHEV – Outstanding Performance



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Our first Performance Review article covering the Mitsubishi Outlander Plug In Hybrid Electric Vehicle – PHEV appeared in the February / March 2016 edition of the AAEN Magazine.

In that article we outlined some of the technologies employed within the PHEV such as plug in to recharge capability, the cooling coefficients of the on-board generator and electric drive motors, the use of the regeneration system, use of air conditioning and aspects of the recharge data.

After some 12 months of operation, primarily in the high end of the urban drive cycle (less than 10% total distance covered in country driving) we now have some meaningful data in regard to fossil fuel consumptions and overall driving economies.

The PHEV has covered 13,560 kilometres in just under the first 12 months of operation and delivered an outstanding set of economies:

- Overall fossil fuel consumption was 167.96 litres across the 13,560km of travel in the 12 months – equates to around 33.6litres of ULP each of the 5 petrol station visits in the 12 months. In other words, the PHEV visited the petrol station every 73 days only!
- The overall fossil fuel consumption came in at a very respectable 1.17L/Klm!

This company allocated Outlander PHEV has shown that with careful EV driving habits across a full 12 month period that the SUV can deliver a better economy than estimated, however this car did operate at a high level of urban transit trips.

The on-board ECO calculator displayed many times the full “green leaf” eco driving habit and performances.



The excellent test results are also due in part to the use of the AeroVironment Level-2 EV Charger facility being available at both ends of the daily journey. A simple plug in on arrival delivered in many recorded cases an EV travel distance of 80 plus kilometres – significantly higher (>40%) than the OE Mitsubishi specification. This higher EV travel distance is brought about by the special EV charge cycle development contained within the AeroVironment EV charger, which uses frequency and current modulation to allow full 100% cell balancing of the PHEV high voltage battery pack – and delivering the extra EV travel capability.



Image showing the EV travel distance on the PHEV dash board instruments.

There are a number of ways to charge the HV battery pack in the Outlander PHEV

- By pressing the CHARGE button on the console – uses the ICE driven on-board generator
- By allowing the PHEV to automatically charge as driving conditions allow – uses on-board generator – typically as used in country driving
- By using the provided charge cables – charge from 5-7 hours depending on SOC, SOH and temp.
- By connecting to an AeroVironment Level-2 Charge Station – charges in 149 minutes from 10%SOC.

Overall consumptions data is noted below:

- Longest EV only drive – 71Klm
- Using Regeneration paddles between 3-5 settings
- Best recharge travel distance – 87Klm
- Recharge 2.5hrs – 90% Wh capacity increase using a Level 2 EVSE from AeroVironment
- Noted highest energy transfer was 3.9kW – 16.25A
- Typically in urban driving, when the ICE is engaged we record fuel consumption readings in the 1.1-1.4L/100Klm – approximately 256 miles per gallon in the imperial measurements

For more information contact GELCOservices at [www.gelcoservice.com.au](http://www.gelcoservice.com.au)