

Idle Fuel Consumption Test Ford Police Responder Hybrid Sedan (Prototype) vs. Ford Police Interceptor Sedan

On February 23, 2017, Ford conducted testing to compare the fuel consumption at idle of a 2016 model year 3.7L AWD Ford Police Interceptor Sedan to the new 2.0L HEV FWD Police Responder Hybrid Sedan. The Police Responder Hybrid Sedan used for the test was a prototype representative of the intended production configuration. Both vehicles were driven approximately 18 miles on the highway and then taken to an indoor test facility for the idle testing. Both vehicles were idled for approximately two hours while fuel consumption was measured using Ford data collection equipment. During the idling test, electrical loads were placed on both vehicles to simulate typical real-world operating conditions for police cars. For both vehicles, the climate controls were set to the following: A/C "on" at full cool; fan "on" at medium speed setting; panel and floor vent recirculation "on". Audio systems were also set to "on" at 33% of the maximum volume. In addition, using an accessories load box, another 32 amps of load was placed on both vehicles' batteries to simulate the active use of emergency lights, a computer, and a police radio while idling. These loads were based on responses to an accessory usage survey e-mailed to Ford Police Advisory Board members on January 27, 2017. The idle testing was conducted at approximately 80 degrees F. Additional testing details are shown in the charts below. The results show that the Police Responder Hybrid Sedan prototype used approximately 58% less fuel than the Police Interceptor Sedan under the tested conditions.

A 2010 model year Crown Victoria Police Interceptor 4.6L RWD was also tested using the same test methodology, and the results are also shown below. These results show the Police Responder Hybrid Sedan used approximately 67% less fuel than the Crown Victoria Police Interceptor under the tested conditions.

Ford test data from 2/23/17 idle-fuel consumption test

Fuel Density = 6.0723 (lbm/gal)	Fuel Used (lbm) Total	Time Measured (hrs)	Fuel Used Volume Per Hour (Gal/hr)	Fuel Savings vs. Police Interceptor Sedan	Fuel Savings vs. Crown Victoria Police Interceptor
Police Interceptor Sedan, 3.7L AWD	5.767	2.010	0.472		
Police Responder Hybrid Sedan, 2.0L HEV FWD (Prototype)	2.409	2.008	0.198	58.20%	66.99%
Crown Victoria Police Interceptor, 4.6L RWD	7.271	2.001	0.598		

Test Conditions

Vehicle	Police Interceptor Sedan	Police Responder Hybrid Sedan (Prototype)	Crown Victoria Police Interceptor																
Tag #	301W828	564W799	567T326																
Engine	3.7L V6	2.0L I4 FHEV	4.6L V8																
Drivetrain	AWD	FWD	RWD																
Mileage	4,625	5,345	19,742																
Climate Settings	A/C On Full Cool Fan Speed at 4 of 7 Panel and Floor Vent Recirc. On	A/C On Full Cool Fan Speed at 4 of 7 Panel and Floor Vent Recirc. On	A/C On Full Cool Fan Speed at 2.5 of 4 "Max AC Mode" (Recirc. On)																
Audio	On Volume at 10 (33% of Max)	On Volume at 10 (33% of Max)	On Volume at 6 (33% of Max)																
Test Facility Ambient Temp	79 F	81F	80 F																
Equipment	<table border="0" style="width: 100%;"> <tr> <td>Accessories Load Box</td> <td>AVTRON, Model K492</td> <td>32 Amp draw based on accessories loading survey</td> <td style="text-align: right;">←</td> </tr> <tr> <td>Multimeter</td> <td>CEN-TECH Digital MultiMate</td> <td>Amps: Emergency Lights = 25, Computer = 3, Police Radio = 4</td> <td style="text-align: right;">←</td> </tr> <tr> <td>MyCanic</td> <td>Model (VEMC MC-14)</td> <td>Connected to OBD II port for data collection through CAN signals</td> <td></td> </tr> <tr> <td>PTDIAG</td> <td>Software v MC.21.47</td> <td>Data collection software</td> <td></td> </tr> </table>			Accessories Load Box	AVTRON, Model K492	32 Amp draw based on accessories loading survey	←	Multimeter	CEN-TECH Digital MultiMate	Amps: Emergency Lights = 25, Computer = 3, Police Radio = 4	←	MyCanic	Model (VEMC MC-14)	Connected to OBD II port for data collection through CAN signals		PTDIAG	Software v MC.21.47	Data collection software	
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Notes	Vehicle driven on I-94 for 18miles prior to bring into VEMC garage for idle measurements Vehicle hood left open due to equipment installed to 12V battery Front two windows down during testing																		