Range Rover ECU's in an SD1 Efi.

A question seen quite frequently is whether a Range Rover ECU will work OK in a regular flapper type SD1 Efi system. In order to try and get a resolution I purchased several Flapper ECU's at quite low cost on Ebay last summer (2005) and tested them under identical conditions in my TP. My car's resident ECU is the Mark Adams Tornado unit (since 1994), so that was my benchmark. These tables show that the car actually ran OK on one of the Range Rover ECU's and had idling problems on 2 others. The RR numbers refer to the ECU Model/Part No. The other Vitesse ECU behaved normally.

Most tests in 4th gear with Cruise Control "On" over the same test track (Yes! Cruise is retro-fitted on my TP)

	run 1	run 2	run 3	run 4	run 5	Results/Comment
Vitesse Tornado (non-adjustable) Ex Mark Adams						Resident ECU, OK
cruise on	yes	yes	yes	yes		
ave speed	46.2	46.9	46.5	46.7		
ave mpg	31.9	31.3	31.8	31.6		
miles	8.7	8.7	8.7	8.7		
RR 7440						Strangely low idle speed
cruise on	yes	yes	yes	yes		
ave speed	46.2	46.6	46.2	46.3		
ave mpg	30.7	25.1	30.3	30.3		A weird result on one run
miles	8.7	8.7	8.7	8.7		
Vitesse ECU						OK
cruise on	yes	yes				
ave speed	46.9	46.9				
ave mpg	32.1	32.2				
miles	8.7	8.7				
RR 4764						OK? But lower idle speed
cruise on	yes	yes	yes			
ave speed	47.6	47.6	47.6			
ave mpg	31.6	31.5	31.5			
miles	8.7	8.7	8.7			
RR 7440						OK - idle speed normal
cruise on	yes	yes	yes			
ave speed	46.4	55.3	65.2			
ave mpg	32.7	33.7	31.5			Best economy?
miles	8.7	4.3	8.7			
gear	4th	5th	5th			

My provisional conclusions were that the idle speed problems on the Range Rover units might possibly be overcome by adjusting the system variables such as idle speed and mixture control, but probably not the throttle pot settings.

I did not run the car flat out (obviously) so it was not possible to establish if the upper speed performance was limited in any way but in all practical sense, the upper speed is pretty much going to be a function of whether the top rpm is affected and I redlined the engine in a lower gear for each ECU and could not detect any high end limitation or acceleration differences from the resident ECU.

For an accurate assessment I suppose one would need to do the tests on a rolling road? I did not have any qualms about fitting a "wrong" ECU in the Vitesse as I had already established (by asking around) that they were practically identical in function, with relatively minor changes in tuning and performance.

I did not try to adjust out the idle speed problems during the experimental process as the car was running fine with its resident ECU and the propensity for messing things up was high. Also - Unless the resident ECU gives up the ghost the experiment remains currently "on hold".

Out of interest My ECU is rigged for quick change-over as its cradle is removed from the car and the ECU resides (otherwise well protected) in its usual location.

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