Howell, Rosa

From: McHenry, Stephen
Sent: Thursday, January 26, 2006 10:11 AM
To: Howell, Rosa
Subject: FW: Request for technical information EA 05-021

Rosa,

Please enter this into the public file for EA 05-021, both the e-mail and the attachment.
Thank you.
Steve

From: McHenry, Stephen
Sent: Thursday, January 26, 2006 10:07 AM
To: 'Lidgett, Diana (D.L.)'
Subject: Request for technical information EA 05-021

Diana,

Attached is a request from our Vehicle Research Testing Center in Ohio to obtain some detailed technical information regarding the operation of the ETMs. Do you think you could have someone answer their questions please?
Thanks as always for your help.

Yours truly,

Stephen McHenry
Investigator
National Highway Traffic Safety Administration
NVS-213 Room 5326-B
400 7th Street S.W.
Washington, D.C. 20590-0001
202.366.4883
1.800.986.9678 x64883
Fax 202.366.1767

It would help us to understand the Volvo Electronic Throttle Module's (ETM) operation much better (and to help identify and solve problems with the ETM) if we had the following information:

1.0 ETM:

The objective is to understand how the ETM operates and how the ETM hands off functions and operations if there is a partial failure or loss of input signal.

1. Schematic of the ETM (Also a block diagram, flowchart, and/or state diagram of the ETM operation).
2. The overall logic (requirements) of how the ETM operates and senses problems (e.g. "IF the Throttle Position Sensor 1 (TPS1) fails to send a signal for 10 clock cycles, then TPS2 signal is used and the ETS Drivers warning light comes on").
3. Analog and CAN Bus inputs and outputs to/from the ETM (e.g. what signals does the Accelerator Pedal Position sensor sends to the ETM (or the Engine Control Module (ECM), and what signals does the ETM sends to the ECM?).
4. Are the accelerator pedal position signals that are fed into the ECM crosschecked to each other as a validity check? More generally, what are the fault checking/tolerance of the accelerator pedal position sensor signals?

2.0 Control Area Network (CAN) BUS:

The objective is to be able to quickly read Engine RPM, Engine Temperature, Pedal Position, and Wheel Speed.

1. What are the Device ID codes (or Identifier) for the CAN Bus Frame (data packet)?
2. What are the conversion formulas for the actual data (i.e. RPM may come as 12 bit data and need a formula to change it to RPM units)?
3. Are there any special queries needed to read the data?
4. Is the CAN Bus associated with the ETM 8, 12, 04 16 32, 64 bit?
5. Is the Can Bus packet layout based on Intel or Motorola architecture?
6. What are the Data Codes for the CAN Bus Frame?
7. What is the format of the data packets?
8. Storage Type: Is data signed, unsigned or Pseudo Signed?
9. What else is needed to read performance figures of merit (e.g. filters or frequency rates)?

3.0 SPECIAL QUERIES FOR ETM PERFORMANCE:

1. Are there any other networks involved with the ETM and ECU?
2. What are the Error Codes or status queries for the CAN Bus Frame?
3. Is there anything else needed to query the system or read engine operation data through the On Board Diagnostic (OBDII) connector?
4. What are the responses to diagnostic test messages?
5. Are there any other unique parameters or set up values needed to capture vehicle operational data with the CAN bus?
6. Are there any operational messages that are transmitted and received by electronic modules attached to the bus in order for the vehicle to operate properly?