

Virtual ECUs Used to Develop Renault's Engine Management Software



In 2016, Renault started to use virtual Electronic Control Units to aid the development of engine management software. Developers of the OEM can now simulate and calibrate the entire engine control

AUTHORS



YANNICK PICHT
is Development Engineer for
Powertrain Control Software Tools at
Renault S.A. in Paris (France).



DANIEL NICĂ
is Expert in Powertrain
Control Functional Architecture
at Renault S.A. in Paris (France).



ANDREI DASCALU
is Engineer at OTronic
Software S.R.L in
Cluj-Napoca (Romania).



DANIEL MIHAI
is Managing Director at
OTronic GmbH in Berlin
(Germany).

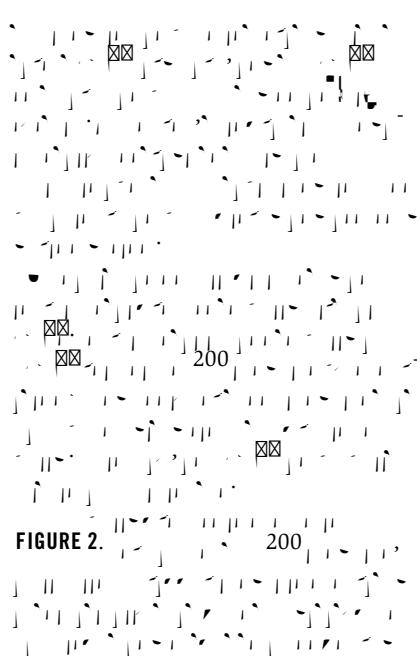
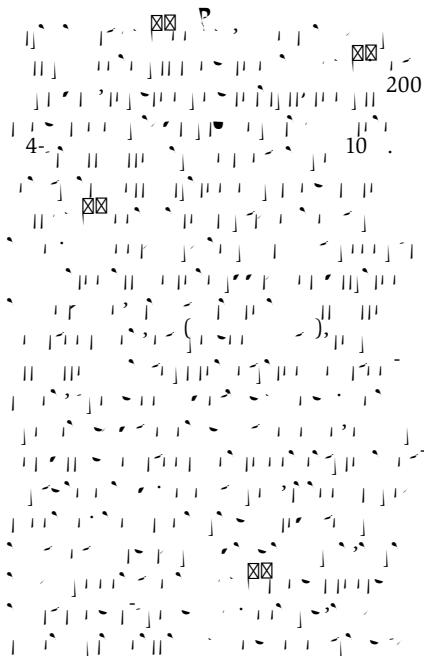


FIGURE 2. 200 10



FIGURE 3. 200 10

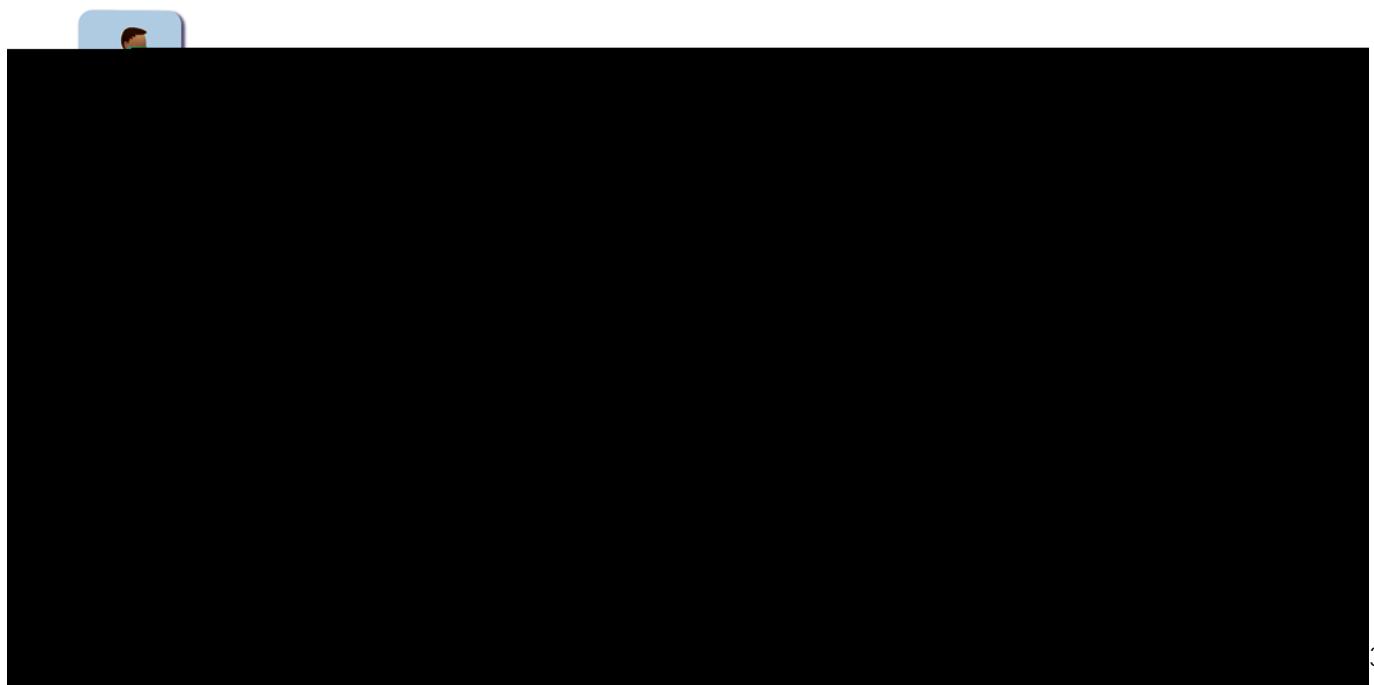
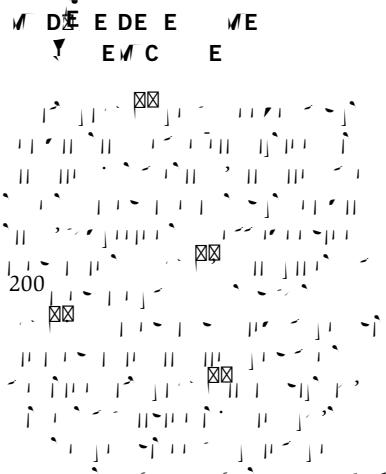
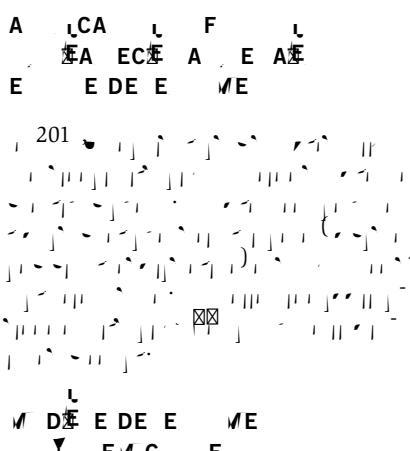
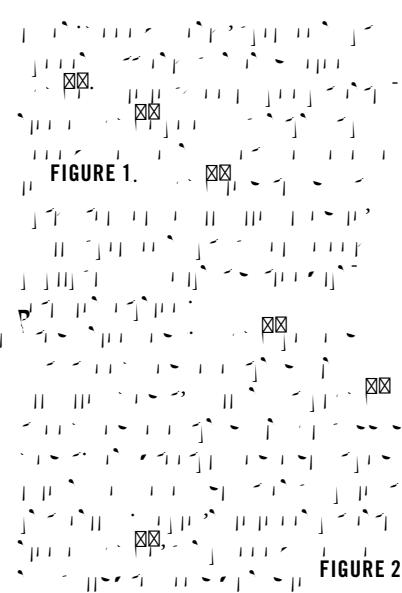
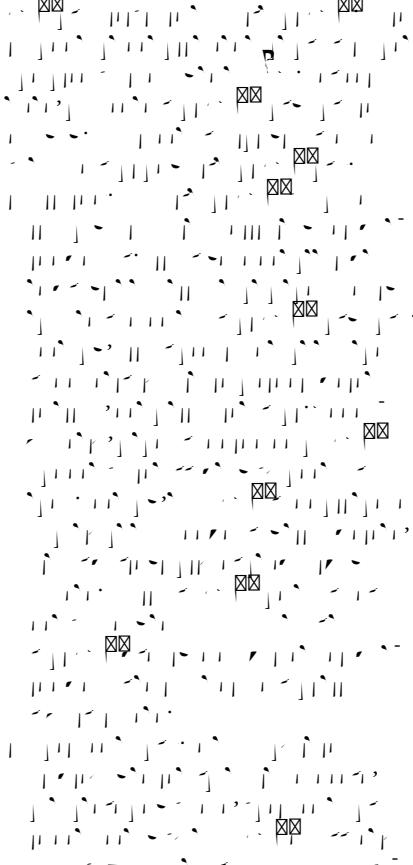
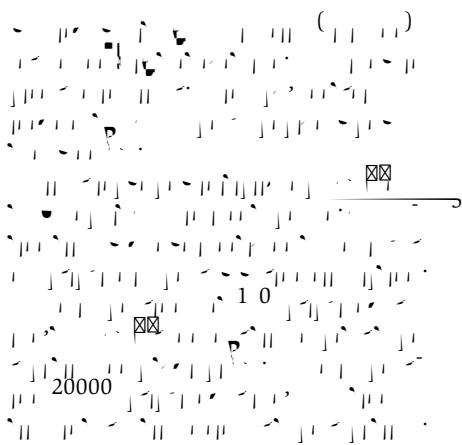


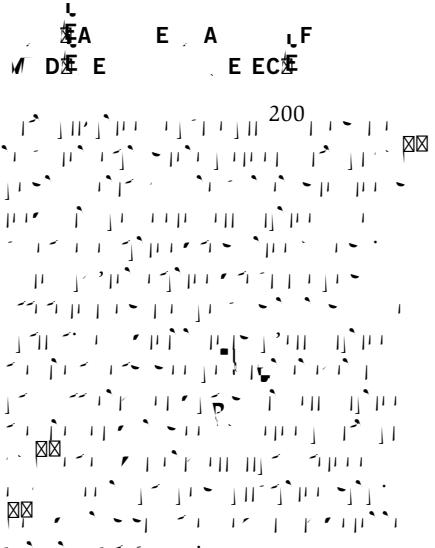
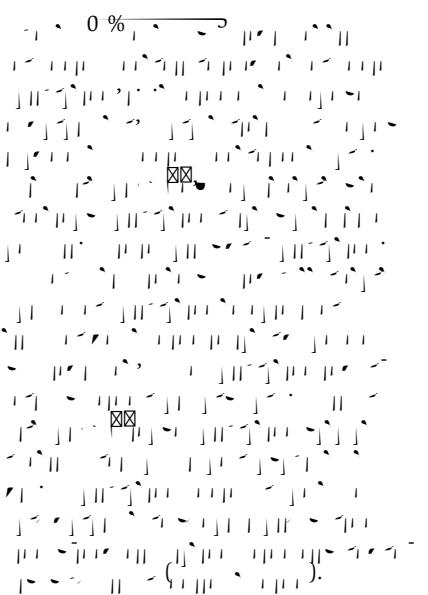


FIGURE 2 A



As can be seen from the timing diagrams, the bit sequence of the messages is identical. The difference is the timing between the start of the bit sequence and the start of the frame. This is due to the fact that the messages have different lengths. The first message has a length of 12 bits, while the other three messages have a length of 11 bits. The difference in length is due to the fact that the first message contains a header field, while the other three messages do not.

E-CA B A



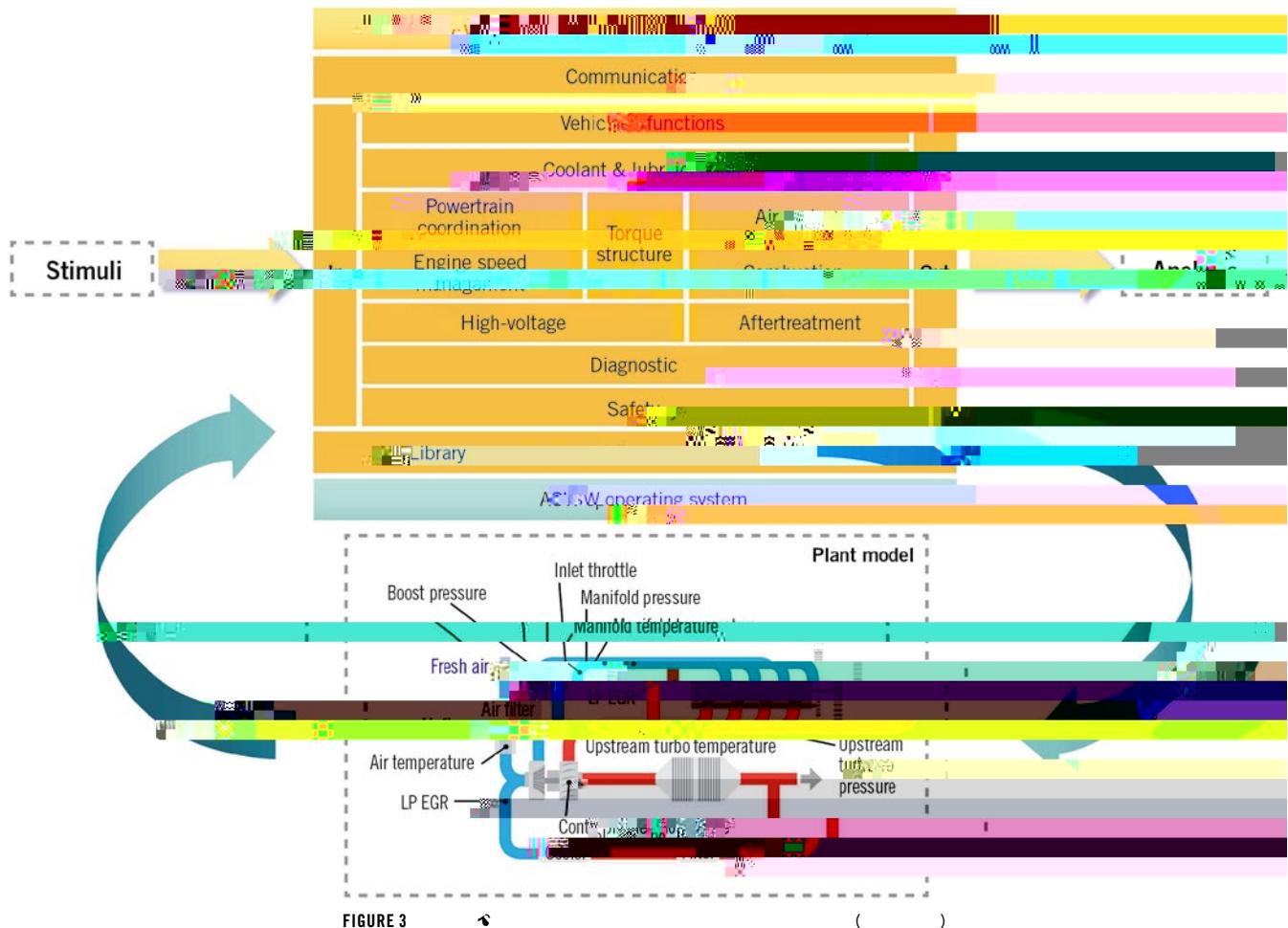
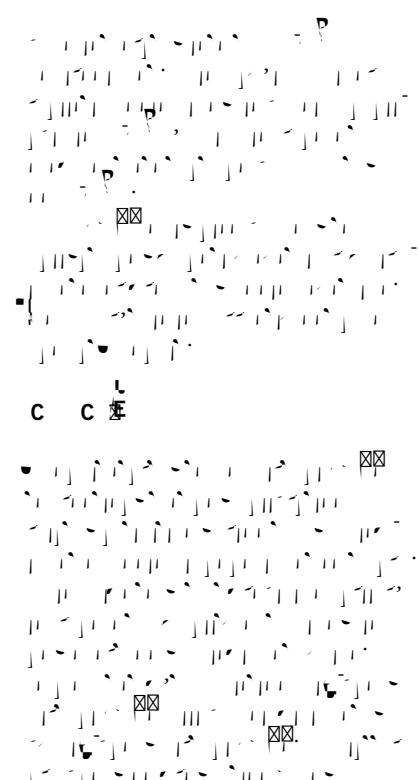
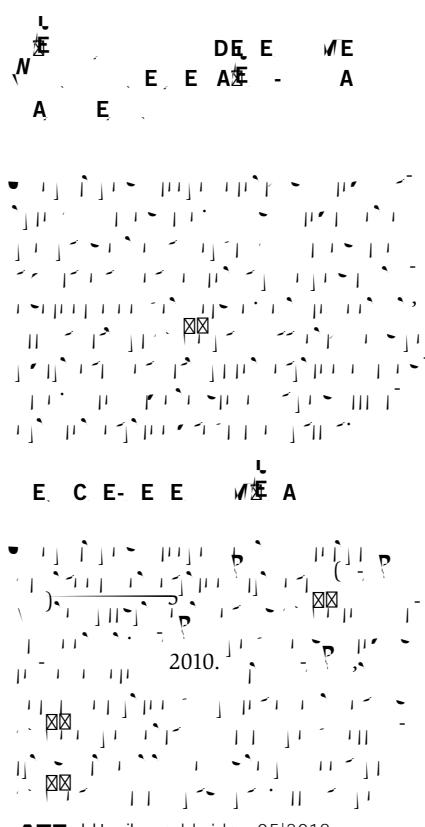


FIGURE 3



EFE E CE

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4 von Wissel, D.; Quelin, J.-M.: Industrial use of HIL Engine Management System validation. 9th Symposium Automotive Powertrain Control Systems, Berlin, September 20 to 21, 2012

5 Watanabe, A.; Sotome, A.: Functional Development Methodology for On-Board Distributed ECU Systems for Production Vehicle Application. In: SAE Int. J. Passeng. Cars – Electron. Electr. Syst. 5(2):492-500, 2012, <https://doi.org/10.4271/2012-01-0929>