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Frankfurt/Main, den 23.09.00

Meeting on Battery Monitoring Interface

on January 18, 2001

at Ford, Dearborn

Participants: see separate list (also on VEI web-site)

There was consensus on the need and the usefulness of a battery monitoring interface to provide static information about the battery for use in a battery condition monitoring system, as well as on the need for measuring the battery temperature.

Tom Dougherty (JCI) stated, that for a fairly good model of a new battery the following 7 parameters would be needed:

- Nominal capacity
- Peukert exponent
- open circuit voltage of fully charged battery
- acid to paste ratio (translates into soc-dependance of open circuit voltage)
- acid to conductor ratio of internal resistance (for temperture dependance)
- internal resistance of the fully charged battery
- current acceptance

(all parameters for room temperature and new battery).

JCI thinks of coding every parameter into a letter of the alphabet, i.e. 26 different steps. For aging characteristics at least one other parameter would be needed. This information could be represented by roughly 40bit of digital information. A use of relative numbers (devide by nominal capacity and or nominal voltage) might further reduce the amount of information needed.

For the transmission of the information to the battery several technical solutions were discussed shortly. As an interesting simple alternative for providing the static battery parameters (all besides temperature) it was proposed to detect a battery change by the vehicular battery monitoring system and then only allow the starting of the vehicle if a (plausible) value for all 7 parameters (i.e. an 8- or 12-letter word) has been dialed into some input device (radio, multifunctional display, ...).

The MIT consortium could take the task of develloping a battery simulation model, which as well could be fed with such an 8- or 12-letter word to parameterize it. The model could be used to design a system, to verify the battery behaviour on-line (for detecting ageing effects) or as an aid to extract the parameters from battery measurements.

MIT will also call for other companies to participate. Meetings will preferably held as virtual conferences in order to reduce travelling cost and time.

Hans-Peter Schöner