

Meeting Minutes

42V PowerNet Battery Connection System Specification Workgroup

5-16-01 at SAE (Troy, MI)

From: Norman Traub, Director of 42V Initiatives, SAE Strategic Alliance

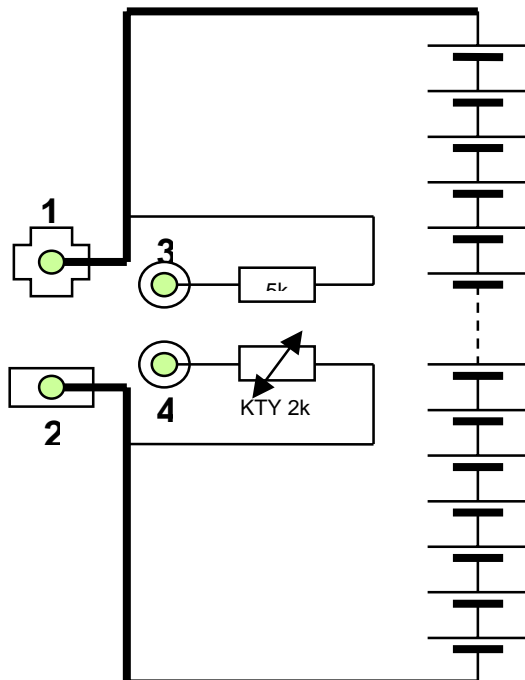
Battery Connection QFD

- QFD has been started to assure best design input for the 42V battery connection
- QFD is being lead by battery manufacturers (Rick Johnson) with support from vehicle OEMs and connection manufacturers
- First level matrix relating the Customer Needs to the Product Features is scheduled to be completed by June 1, 2001
- Second level matrix relating the Product Features to individual Components and Processes to be completed by June 22, 2001

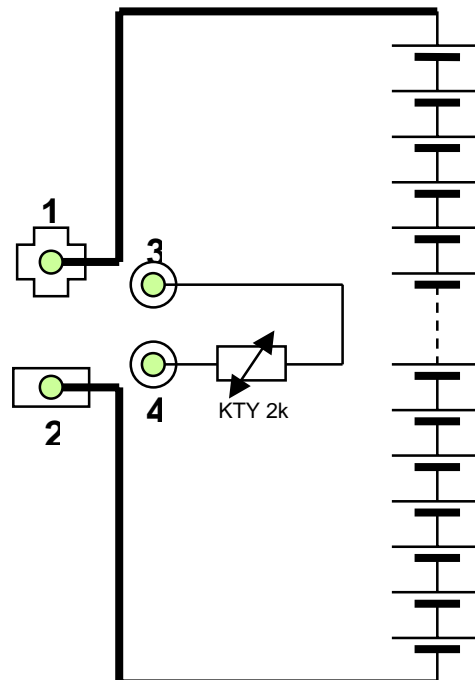
Status report – signal pins for battery disconnect and temperature sensing

- Continued discussion on two proposals for disconnect and temperature sensing
 - A. 5K resistor connected between pins 1 & 3 for disconnect sensing and 2K thermistor connected between pins 2 & 4 for temperature sensing
 - B. 2K thermistor connected between pins 3 & 4 for disconnect and temperature sensing

Proposal A



Proposal B



Proposal A

- two independent contacts for disconnect detection
- higher reliability against false disconnect detection - both contacts must open
- voltage of battery and voltage drop on main contacts may be measured / monitored
- preassembly also possible

Proposal B

- no risk of shorts at sense pins, no pull up resistor necessary
- no connection to main contacts needed in the battery
- thermistor and pin 3 and 4 may be preassembled (higher quality)
- separate connector assembly possible
- lower cost solution
- temperature sensing and disconnect detection are not separated

Decision: Proposal B has been chosen as the best method of disconnect and temperature sensing based on the manufacturability into the battery. The 2K thermistor will come preassembled as a module and plug into the battery side connector. Feedback is needed from all vehicle OEMs agreeing to this approach as the standard.

Status report – Connector design

- Reviewed connection designs for three designs:
 - Pin – Radsoc design
 - Pin – AFL design
 - Blade – Delphi design
- DaimlerChrysler has a requirement that the height of the connector can not exceed 22 mm.
- None of the designs are currently capable of meeting a maximum height of 22 mm when mated
- Continued design improvements will be needed to reduce the height of the mating connectors.
- The lever arm used to lock the connector is currently the tallest part of the connection.
- Discussion on maximum size of the battery cable – most participants believe that 50 mm² is too large.

Action item: All vehicle OEMs are to evaluate whether 35 mm² can be specified as the maximum battery cable size.

- Proposal made to evaluate a connection on the side of the battery rather than the top.
- The terminals would face down from the battery so that a straight connection from the battery cable could be used.
- The connection would not be recessed into the battery; however, the extra length may be able to be accommodated since space will be needed for the battery cable anyway.

Decision: Two design paths will be pursued for the next few weeks. First, efforts will continue to reduce the height of a top mounted battery connection. Second, space needed for the side mounted connection will be determined.

Touch Safety

- Data on body impedance was shared by AFL.

Time line

- Goal is to pick a design direction at the next meeting on June 8, 2001 and to receive approval from all participants of the recommended design by June 28, 2001.

Testing Task Force

- Testing task force will meet on May 16, 2001, from 1 – 3 pm at USCAR.
- Issue of the number of mate/unmate cycles needed will be addressed. Current number of 50 cycles is incompatible with tin plating.

SAE Discussion Forum

- The SAE Web Site is being set up to accommodate the 42V Battery Connection System Specification Work Group. A public section under the Discussion Forum will be set up where last minute posting of presentation material can be done. This will allow immediate access to meeting material for the remote participants that do not have access to NetMeeting. Norm Traub responsible to set up.

Next meetings

- **Friday, June 8, 2001 from 9 am to noon at USCAR**
- Thursday, June 28, 2001 from 9 am to noon at USCAR