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CONVERSION OF VEHICLE ELECTRICAL SYSTEMS TO 42 VOLTS

Transmitted by the secretariat

A. Request received by E-mail from the United States Council for Automotive Research (USCAR):

The United States Council for Automotive Research (USCAR) recently approved the establishment of an independent USCAR 42 Volt Working Group chartered to address issues relating to a conversion from 14 V to 42 V (nominal) automotive electrical systems. The mission of the joint development effort among member companies General Motors, DaimlerChrysler, and Ford is to address, or accelerate current efforts to address, appropriate 42V fundamental challenges and conversion priorities through co-funded studies, and to agree on common interface and performance standards.

The USCAR 42V Working Group's goal is not to be competitive with other groups that are already doing work in addressing the 42 V conversion challenges, but to work from the OEM-side to make common decisions that would allow existing work to accelerate.

One of the 42 V conversion priorities being addressed involves expediting revisions to existing and proposed standards that:

- (a) Are commonly followed by OEMs and suppliers,
- (b) Insure functionality and safety of passenger cars and light-duty trucks,
- (c) Are affected by a transition from 14 V to 42 V electrical systems, and
- (d) Are not already undertaken by other consortia or workgroups.

Since WP.29 is recognized as a Governing Body of standards that insure functionality and safety of motor vehicles, we are requesting your support in identifying and addressing any revisions that may be required to standards affected by a transition to 42V electrical systems. USCAR is requesting feedback from WP.29 regarding this issue. Specifically, please provide a list of standards that may potentially be impacted and your projected target date(s) for revision approval. Your response prior to February 16, 2001 would be greatly appreciated.

Best regards,

Rebecca Snarski
USCAR 42V Working Group
248-223-9050
rebecca@uscar.org

**B. Draft reply prepared by the Chairman of the Working Party
"Brussels 1952" (GTB)**

42V conversion; consequences for ECE Regulations

ECE Regulations regarding lighting and light-signalling may be considered to be standards which correspond to the criteria defined by USCAR for conversion priorities.

When addressing the 42V conversion issue it will be necessary to consider legal, technical and administrative aspects.

- ECE Regulations are Annexes to the Agreement concerning the Adoption of uniform technical Prescriptions for wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on wheeled Vehicles and the Conditions for reciprocal Recognition of Approvals granted on the Basis of these Prescriptions. This "1958 Agreement" at present has 38 Contracting Parties. 112 Regulations have been established, which are regularly amended to adapt them to technical progress. The Text of the Agreement and a list of Contracting Parties is attached.
- Motor vehicle lighting and light-signalling is a decisive aspect of primary road safety. Existing ECE Regulations define requirements and test procedures for 3 areas:
 - The design and photometric performance of lighting and light-signalling devices
 - The design and photometric performance of light sources
 - The installation of lighting and light-signalling devices on vehicles

A list of relevant ECE Regulations for passenger cars and light-duty trucks is attached.

As in other areas of road vehicle construction, the technical substance of these Regulations is determined by the state of the art in design and engineering. Photometric performance and the appropriate test procedures are based on current electrical networks with direct current and a nominal voltage of 12V; there are no specifications regarding limits of a superimposed AC voltage.

- Amendments to ECE Regulations on lighting and light-signalling would have to be introduced and discussed in the competent subsidiary bodies of the Economic Commission for Europe, i.e. the World Forum for the Harmonisation of Vehicle Regulations (WP.29) and its Working Party on Lighting and Light-Signalling (GRE).

When such amendments have been agreed they would have to be adopted by the Administrative Committee of the 1958 Agreement and enter into force according to Article 12 of the Agreement.

Attachments:

- Text of 1958 Agreement
- List of Contracting Parties
- Extract from document TRANS/WP.29/343/Rev.8 pages 6-13, indicating the numbers and titles of Regulations Nos. 1, 2, 4, 5, 6, 7, 8, 19, 20, 23, 31, 37, 38, 48, 65, 77, 87, 91, 98 and 99.

D. Matthes
