

ACEA SPECIFICATION SYSTEM FOR ENGINE OILS

Summary of ACEA system

In the previous issue of 'LUBE' (Issue 39), the Lubetech article briefly described specification systems for automotive engine oils, and why it is important for the motorist to be able to identify the lubricant requirements for his or her particular vehicle.

Two main performance specification systems were described, the American API (American Petroleum Institute) system and the European ACEA (Association des Constructeurs Européenne d'Automobile) system. One may well ask, with the increasing 'globalisation' of world trade, why is it necessary to have two separate specification systems?

The answer lies in the differences in vehicle design and usage patterns between America and Europe. In the US cars are generally powered by large engines operating under far lower stress levels than their European counterparts. Due to the low price of fuel in the US, fuel economy has not been an issue, until more recently. Also, the passenger car light-duty diesel engine vehicle is virtually non-existent in the US, but extremely common in Europe.

The lubricant requirements of the hotter-running, higher-revving, more fuel-efficient European engines were significantly different to those of the US vehicles to warrant the development of a series of lubricants tailored specifically to European requirements.

Such a need for was recognised many years ago by the organisation CCMC (Comité des Constructeurs d'Automobiles du Marche Commun), which was comprised only of European car manufacturers and therefore excluded non-European manufacturers. With the high proportion of imported cars into Europe, this was clearly not a satisfactory state of affairs, and the situation was rectified in 1991 with the formation of ACEA.

However, even though the CCMC requirements became obsolete many years ago, some suppliers of engine oils are still claiming performance requirements to CCMC levels on their container markings, in addition to the current ACEA and API categorisation systems

BASIC REQUIREMENTS

The ACEA sequences of engine test requirements were first published late in 1995 and formally replaced the existing CCMC sequences from 1 January 1996. A set of nine engine test sequences were described covering

- gasoline engine oils;
- light duty diesel engine oils;
- heavy duty diesel engine oils.

To ensure that manufacturers of lubricants conformed to the

requirements specified by these engine test sequences, a European engine lubricants quality management system (EELQMS) was developed by ATIEL (Association Technique de l'Industrie Europe en des Lubrifiants) and ATC (Technical Committee of Petroleum Additive Manufacturers). The requirements were embodied in two Codes of Practice, one by ATC which specified engine tests, procedures and record keeping, and the other, by ATIEL, which provided a technical framework within which automotive lubricants were to be developed and marketed. A significant requirement in this Code was the need for all elements to be incorporated into a recognised quality management system such as ISO 9000 thus enabling conformance to requirements to be assessed by external accreditation bodies such as the British Standards Institution in the UK. This in effect relieves ACEA of the need to "police" conformance by aftermarket auditing.

The gasoline sequences were:

- A1:96 for engines designed to use low friction oils with high temperature/high shear values down to 2.9mPas. These oils could be unsuitable for use in some engines.
- A2:96 conventional oils for mainstream use - essentially an update of the old CCMC G4. Again, these oils could be unsuitable for use in some high performance engines.
- A3:96 for high performance engines and/or long drain intervals. These oils could be used where the old CCMC G4 or G5 were previously specified.

The light duty diesel sequences were:

- B1:96 for use in passenger car or light van diesel engines designed to use low friction oils with high temperature/high shear values down to 2.9mPas. These oils could be unsuitable for use in some engines.
- B2:96 for use in most passenger car or light van diesel engines although these oils were not necessarily suitable for use in some high performance engines. They could be used where oils to the old CCMC PD2 quality were previously specified.
- B3:96 for high performance passenger car diesel engines and/or long drain intervals. They could be used where oils to the old CCMC PD2 quality were previously specified.

The heavy duty diesel sequences were:

- E1:96 for use in heavy duty diesel engines. They could be used where oils to the old CCMC D4 quality were previously specified.
- E2:96 oils of super high performance diesel (SHPD) qualities intended for more severe use in heavy duty diesel engines including extended drain intervals and in turbocharged engines.
- E3:96 oils of super high performance diesel (SHPD) qualities intended for the most severe use in heavy duty diesel

(Continued on Page 11)