CEC 2001 - 2011
Special Planning Event

21st and 22nd November 2011
Metropole Hotel Brussels
Derek Mackney – Chairman of the Board.
Welcome.

On behalf of the CEC Board it’s a great pleasure to welcome you to this Special CEC Planning Event.

As you know CEC was reorganised in 2001 and tonight’s dinner is in recognition of this 10th Anniversary. Tomorrow we will have a Working Session to discuss its future direction.

Today we are delighted to welcome attendees from:

- Present CEC Board members and Secretariat
- Past CEC Chairmen and Board members
- Support Group and Working Group Chairmen and Secretaries
- CEC Engine Sponsors and Suppliers
- Special guests now retired from CEC activities
- Distinguished speakers from ACEA, ATIEL, ATC and CONCAWE
- Distinguished guests from ATC, ATIEL, ATC, CONCAWE and GFC

In fact a genuine ‘Who’s Who’ of CEC stakeholders. We hope you will enjoy the meal and find the program interesting and be able to contribute suggestions for the future direction of CEC.
Today's Agenda
Monday 21st November 2011

Langevin Meeting Room
• 1600 hours  Registration and Coffee
• 1630 hours  Introduction by the CEC Chairman, Derek Mackney
• 1640 hours  Presentation on the Achievements of the CEC Organisation Past and Present, and the Challenges for the Future, including CEC’s capability to control and improve the Quality of CEC Test Methods – followed by Q&A session.
• 1800 hours  Cocktails in Hall du Bar 19
• 1930 hours  Dinner in Rubenstein Room

Tomorrow - Tuesday 22nd November 2011

Langevin Meeting Room
• 0845 hours  Introduction to the morning’s sessions
CEC History

- Founded in 1963 as the Co-ordinating European Council for the development of performance tests for transportation fuels, lubricants and other fluids
- Membership was from National Organisations
  - CEC Austria, CEC-SB (Belgium),
  - Czech CEC, DKA (Germany),
  - CEC Finland, GFC (France),
  - CUNA (Italy), NCM (Netherlands),
  - CEC Norge, CEC España,
  - CEC Polske, SMR (Sweden),
  - CEC Group Schweiz, BTC (UK)

CEC Council
(16 National organisations)

Board
President
Vice President
Technical Director

Executive Council (EXCO)
Technical Director, TC and SAAC Chairmen

- Engine Fuels EFTC
  - 16 WGs
- Engine Lubes ELTC
  - 39 WGs
- Transmissions Lubes TLTC
  - 8 WGs
- Engine Coolants ECTC
  - 6 WGs
- Statisticians SAAC
  - REF Fuels
  - REF Oils
  - REF Coolants

External contacts
ACEA, ATC, ATIEL, Concawe, Europa, GRPE, MVEG, CEN, ISO, ASTM, CRC, SAE, JAMA, JASO, PAJ, JPI

Technical Director/Office Manager
Brussels
Some great achievements - looking at performance features in many different areas.

- Cam and cylinder wear
- Soot in engine oil
- High temperature oxidation, deposits and ring sticking,
- Engine deposits – Black sludge
- Viscosity stability
- Elastomer compatibility
- Gear distress
- Marine

- Rating Methods
- Shear stability
- Fuel economy
- Evaporative loss
- Cylinder Bore polishing
- Fuel system lubricity
- Inlet valve deposits
- Injector fouling
- Two stroke seizure

*Remember these engines* - Petter AV1, Petter W1, Petter AV-B, Fiat 124, Ford Tornado, MWM–KD, Volvo B20A, Cam and Tappet, Opel Kadett, Ford Kent 1600cc, M102E, OM364, OM616 Kombi, OM602A, OM441LA, Vespa 180 SS, VW 1.6 Turbo, XUD 11
But what has changed since 1963?

- European Union Integration .................. Emissions and CO₂ regulations
- Engine Oil Specifications ..................... MIL-L, API, CCMC, ACEA
- Fuel Specifications .......................... Improved Fuels & Alt Fuels
- OEM Alliances ................................ Superb Vehicles and Powertrains
- Additive Company Amalgamation ........... Excellence in Fuels and Lubes but
- Oil Company Amalgamation ................ A reduction in Test Laboratories
- CEC Organisation ............................. New Professional CEC Secretariat
- Test Development ........................... Lead Laboratory Model & Funding
- Test Equipment Automation ................ Precision Testing
- CEC Test Procedures ....................... Standardisation of Test Installations
- Quality System Improvements .............. *Chris will tell you about this later*
But what has changed since 1963?

- Test Development ............................ Lead Laboratory Model & Funding
- Test Equipment Automation ............... Precision Testing
- CEC Test Procedures ......................... Standardisation of Test Installations
- Quality System Improvements ............. Chris will tell you about this later
10th Anniversary – August 2001 saw the reorganisation of CEC

During the late 1990’s it was recognised that the CEC governance structure was out of step with the globalisation of engine fuels and lubricants.

The CEC system was holding back fast paced new test developments that were urgently needed.

OEM’s were reluctant to offer engines for new tests.

After a substantial review the CEC was reorganised under the governance of the four European Industry Associations - ACEA, ATIEL, ATC and Concawe.

A new Board of Directors was formed and a professional Secretariat hired to run the administration.

The Chairmanship of this new Board rotated every two to three years between the Industry Associations.

Richard Biggin (ATC) was the first new Chairman back in 2001 and after being chaired by Meinrad Signer for ACEA and Hans Thomassen for ATIEL it came back to ATC in 2010 when I was elected Chairman.

I’m now two thirds through my term of office.

Its been a busy 10 years for the New CEC Organisation and the next 10 years looks like it will be even busier.
The Coordinating European Council
for the Development of Performance Tests for Fuel, Lubricants and other Fluids

CEC Organisation Structure 2001 - Present

CEC Board

CONCAWE
ACEA
ATIEL
ATC

CEC Secretariat

Support Groups
TDG
SG
The Coordinating European Council
for the Development of Performance Tests for Fuel, Lubricants and other Fluids

CEC Organisation Structure 2001 – Present

- Nigel Elliot – ExxonMobil
  - Benoit Engelen - Total

- Neil Briffett – Esso Petroleum Company
  - Bob Mainwaring - Shell

- Anders Roj – Volvo Technology Corporation
  - Paul Greening – ACEA Director

- Derek Mackney – Lubrizol, Chairman
  - Ian Field – Infineum
  - Frank Stunnenberg – Chevron Oronite

CONCAWE → ACEA → ATIEL → ATC

CEC Board → CEC Secretariat

TDG → SG → Support Groups
One of the first steps taken was to agree on the process for developing new tests. Previously tests were developed by up to 10 - 20 laboratories at the same time which led to a lengthy development time. The New CEC Board adopted a “Lead Laboratory” approach - the Lead Lab being funded and supported by Sponsors from within the Industry Associations.

Has this worked?

Well let’s take a look at the new test developments initiated during the last 10 years.

- TDG-L-089 – Fuel Economy Longevity
- TDG-T-091 - Torque Converter Clutch Test
- TDG-F-092 – Non-Start Problems Relating to CCD Flaking (BMW M52B20)
- TDG-L-093 - Oil Dispersion at Medium Temperature for Passenger Car DI Diesel Engines (PSA DV4).
- TDG-L-094 – Determination of Asphaltene content of In-service Lubricants in Large Marine Engines
- TDG-L-095 - Determination of Insolubles in Used Engine Oil
- TDG-L-096 - Characterisation of Cylinder Lubricants.
- TDG -L-097 - High Oil Consumption.
- TDG-F-098 – Direct Injection, Common Rail Diesel Engine Nozzle Coking Test.
- TDG-L-099 – The Evaluation of Engine Crankcase Lubricants with Respect to Low Temperature Lubricant Thickening and Wear in an OM646LA.
- TDG-L-100 – Examining Turbocharger and Intercooler Deposit Formation and Performance Loss.
Some achievements of the new CEC

• OEMs willing to offer engines and support for joint test development
• Efficient and Effective Organisation
• Good communication across Industry
• Ability to reach consensus in order to move the Organisation forward
• Development of tests in a timely manner
• Speed of updating of Test Methods efficiently and electronically – avoids errors in labs using old out of date versions
• Interest from across the World in the success of the CEC test development process and many sales of procedures around the world
Some more detail:

- CEC Secretariat and Website: [www.CECtests.org](http://www.CECtests.org)
  Lyn Dearling, Barry Dearling and Jenny Reynolds
- Secretarial & Administrative Support to Management Board
- Maintenance, Updating and Sales of Test Methods
- Maintenance of CEC's secure Web Site and Information to Stakeholders.
- Finance, Legal and Accounts
- Support to all CEC Groups
- TMS Facilitator
- Helpdesk Facility
- Organisation of CEC Conferences
Some more detail:

CEC Test procedures - you may remember

- Categories X, T and A
- Method Procedure booklets in Red or Green and printed in both French and English
- Examples from the 70’s (shown in the picture)
  - CEC L-01-A-79 Petter AV1 laboratory Diesel engine
  - CEC L-02-A-78 Lister Petter W1 Spark Ignition engine
  - CEC M-02-A-78 Internal Combustion Engine Rating Method
  - CEC L-11-T-72 The Coefficients of Friction of Automatic Transmission Fluids
Some more detail:

**New format Procedure**

- 14 Section Procedure - Controlled and Updated Electronically by Secretariat
- Recent new test developments in this form
  - CEC F-98-08 – Injector Fouling in Direct Injection Diesel Engines (DW10)
  - CEC L-99-08 – Diesel Engine Wear Test (OM646LA)
  - CEC L-101-09 - Piston Cleanliness and Bore Polishing Test (OM 501LA)
  - CEC L-94-10 Determination of Asphaltenes in Used Engine Oil
Some more detail:

- Engine Oil specifications

<table>
<thead>
<tr>
<th>API - American Petroleum Institute</th>
<th>CCMC - Comité des Constructeurs d'Automobiles du Marché Commun</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1970- today</strong></td>
<td><strong>1982-1996</strong></td>
</tr>
<tr>
<td>Petrol</td>
<td>Petrol</td>
</tr>
<tr>
<td>- SA</td>
<td>- G1</td>
</tr>
<tr>
<td>- SB</td>
<td>- G2</td>
</tr>
<tr>
<td>- SC</td>
<td>- G3</td>
</tr>
<tr>
<td>- SD</td>
<td>- G4</td>
</tr>
<tr>
<td>- SE</td>
<td>- G5</td>
</tr>
<tr>
<td>- SF</td>
<td></td>
</tr>
<tr>
<td>- SG</td>
<td></td>
</tr>
<tr>
<td>- SH</td>
<td></td>
</tr>
<tr>
<td>- SJ</td>
<td></td>
</tr>
<tr>
<td>- SL</td>
<td></td>
</tr>
<tr>
<td>- SM</td>
<td></td>
</tr>
<tr>
<td>- SA (TSC1)</td>
<td>- D1</td>
</tr>
<tr>
<td>- SB (TSC2)</td>
<td>- D2</td>
</tr>
<tr>
<td>- SC (TSC3)</td>
<td>- D3</td>
</tr>
<tr>
<td>- SD (TSC4 = NMMA TC-W11)</td>
<td>- D4</td>
</tr>
<tr>
<td>Two Cycle</td>
<td>- D5</td>
</tr>
</tbody>
</table>

Source: Olyslager
Some more detail:

- Engine Oil specifications - 1996 to today

<table>
<thead>
<tr>
<th>ACEA - Association des Constructeurs Européens d'Automobiles</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACEA 1996-2004</strong></td>
</tr>
<tr>
<td>Petrol</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>A1-02</td>
</tr>
<tr>
<td>A2-96 Issue 3</td>
</tr>
<tr>
<td>A3-02</td>
</tr>
<tr>
<td>A4-02</td>
</tr>
<tr>
<td>A5-02</td>
</tr>
</tbody>
</table>

| **ACEA 2004-2007**                                         |
| Petrol/Diesel Light Duty | Petrol/Diesel Light Duty | Diesel Heavy Duty |
| A1/B1 04 | C1 04          | E2-96 Issue 5     |
| A3/B3 04 | C2 04          | E4-07             |
| A3/B4 04 | C3 07          | E6-04 Issue 2     |
| A5/B5 04 | C4 07          | E7-04 Issue 2     |

| **ACEA 2008**                                             |
| Petrol/Diesel Light Duty | Petrol/Diesel Light Duty | Diesel Heavy Duty |
| A1/B1 08 | C1 08          | E4-08             |
| A3/B3 08 | C2 08          | E6-08             |
| A3/B4 08 | C3 08          | E7-08             |
| A5/B5 08 | C4 08          | E9-08             |

Source: Olyslager

ACEA EUROPEAN OIL SEQUENCES

2008

- **SERVICE FILL OILS FOR GASOLINE ENGINES**
- **LIGHT DUTY DIESEL ENGINES**
- **ENGINES WITH AFTER TREATMENT DEVICES**
- **HEAVY DUTY DIESEL ENGINES**

Lab tests for gasoline and light duty diesel engine oils. Lab tests for diesel and heavy duty diesel engine oils. Lab tests for engines with after treatment devices. Lab tests for heavy duty diesel engine oils. Lab tests for heavy duty diesel engine oils.
Some more detail:

Quality System: ACEA European Oil Sequences and EELQMS

- 1995 the European industry associations ACEA, ATC and ATIEL developed a quality system to ensure that engine lubricants claiming performance against the ACEA Oil Sequences would have been developed and tested according to best industry practices

- This system is called the “European Engine Lubricant Quality Monitoring System (EELQMS)”

- Four major parts:
  1. ACEA European Oil Sequences
  2. ATC Code of Practice
  3. ATIEL Code of Practice
  4. CEC Test Methods
EELQMS

- European Registration Centre
- Reference tests since start in 1996.
- Most referenced test is the M111Fuel Economy Test.
- VW TDi is the next most referenced test

<table>
<thead>
<tr>
<th>Test Type</th>
<th>Part A</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU3MS</td>
<td>433</td>
</tr>
<tr>
<td>OM364LA</td>
<td>0</td>
</tr>
<tr>
<td>VWICTD</td>
<td>130</td>
</tr>
<tr>
<td>OM602A</td>
<td>168</td>
</tr>
<tr>
<td>441LA</td>
<td>98</td>
</tr>
<tr>
<td>M111SL</td>
<td>184</td>
</tr>
<tr>
<td>M111FE</td>
<td>1145</td>
</tr>
<tr>
<td>TU3MH</td>
<td>229</td>
</tr>
<tr>
<td>XUD11B</td>
<td>329</td>
</tr>
<tr>
<td>VWTDI2</td>
<td>491</td>
</tr>
<tr>
<td>TU572</td>
<td>345</td>
</tr>
<tr>
<td>DV4E3</td>
<td>200</td>
</tr>
<tr>
<td>646LA</td>
<td>99</td>
</tr>
<tr>
<td>501LA</td>
<td>64</td>
</tr>
<tr>
<td>Total</td>
<td>3915</td>
</tr>
</tbody>
</table>

Photo: Building a VW engine

Registered reference tests 1996 - present day
(Source: www.ATC-ERC.org)
Challenges today:

- Bring in on time the new TDG’s currently underway within CEC
  - TDG-L-103 – Biological Degradability
  - TDG L-104 - Effects of Biodiesel Fuel using an OM646LA diesel engine.
  - TDG L-105 - Low Temperature Operability Test – Glassware test where oil is dosed with Biodiesel, aged and its low temperature performance measured.
  - TDG L- 106 - Oil Dispersion Test at Medium Temperature for Passenger Car Direct Injection Diesel Engines - Replacement test using a Euro 5 Peugeot DV6 engine.
Challenges for the future??

- The CEC Board has been advised new tests - can we bring them in on time?
  - FZG pitting test
  - IDID (Internal Diesel Injector deposits) for fuel additive development
  - Cold startability test for fuels
  - M111E Sludge replacement test using the Mercedes M271 Evo engine
  - Oil Oxidation test in the presence of Bio diesel
  - New PSA test method as TU5 successor
  - M111FE replacement test to measure fuel economy in engine oils
- New and replacement Reference Fluids
- Maintenance of accurate Rating Methods across Industry
- Development of CEC tests as International Standards
- Developing countries such as China, India and Brazil being interested in CEC tests
And finally Challenges for our Industry

- Euro 6 and CO\(_2\) regulations
- ACEA 2012/14/16 European Oil Sequences for Gasoline and Diesel engine Oils
- GF-6 the new proposed North American Gasoline Specification update that is scheduled to be completed by 2015.
- PC-11 the new proposed North American Heavy Duty Diesel Specification which is scheduled for completion by 2016.
I have found a few old photos.
But it doesn’t go right every time!

Thank you for Listening