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

### CEC 2001 - 2011 Special Planning Event



21<sup>st</sup> and 22nd November 2011 Metropole Hotel Brussels Derek Mackney – Chairman of the Board.

#### **The Coordinating European Council** for the Development of Performance Tests for Fuel, Lubricants and other Fluids

#### 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 10<sup>th</sup> 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

#### Todays Agenda Monday 21<sup>st</sup> 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 22<sup>nd</sup> November 2011

Langevin Meeting Room

• 0845 hours Introduction to the morning's sessions

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#### **CEC** History

- Founded in 1963 as the <u>Co-ordinating European Council for the development</u> 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)

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#### CEC Organisation Structure -1963 -2001



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## 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

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#### But what has changed since 1963?

European Union Integration ..... Emissions and CO<sub>2</sub> regulations Engine Oil Specifications ...... MIL-L, API, CCMC, ACEA ٠ Fuel Specifications ...... Improved Fuels & Alt Fuels Additive Company Amalgamation ...... Excellence in Fuels and Lubes but ٠ Oil Company Amalgamation ..... a reduction in Test Laboratories ٠ CEC Organisation ...... New Professional CEC Secretariat ٠ Test Development ......Lead Laboratory Model & Funding ٠ Test Equipment Automation ...... Precision Testing Quality System Improvements ......Chris will tell you about this later

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#### But what has changed since 1963?



- Test Development ......Lead Laboratory Model & Junding
- Test Equipment Automation ...... Precision Testing
- CEC Test Procedures ...... Standardisation of Test Installations
- Quality System Improvements ......Chris will tell you about this later

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- <u>10<sup>th</sup> Anniversary August 2001 saw the reorganisation of CEC</u>
- 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.



#### CEC Organisation Structure 2001 - Present



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#### **CEC Organisation Structure 2001 – Present**



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- 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.
  - TDG -L-101 Evaluation of Performance of Heavy Duty Engine Oils in the OM501LA.

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#### 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

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#### Some more detail:

- CEC Secretariat and Website: <u>www.CECtests.org</u> 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



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#### 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



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#### 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

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#### Some more detail:

Engine Oil specifications

API - Americo	an <b>P</b> etrol	eum Institute	CCMC - Comité d'Automobiles d	des Cons 10 Marché	tructeurs Commun
1970- today	Petrol - SA - SB - SC - SD - SE - SF - SG - SH - SJ - SL - SM	Diesel - CA - CB - CC - CD - CD - CD - CF - CF - CF-2 - CF-4 - CG-4 - CG-4 - CG-4 - CI-4 - CI-4 - CI-4 - CI-4 - CI-4 - CI-4 - CI-4 - CI-4 - CI-4	1982-1996	Petrol - G1 - G2 - G3 - G4 - G5	Diesel - D1 - D2 - D3 - D4 - D5 - PD1 - PD2
Two Cycle	e - TA (TS - TB (TS) - TC (TS - TC (TS - TD (TS	C1) C2) C3) C4 =NMMA TC-WII)			

Source: Olyslage

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#### Some more detail:

Engine Oil specifications- 1996 to today

ACEA - Association des Constructeurs Européens d'Automobiles

ACEA	Petrol	Diesel	Diesel
1996-2004		Light Duty	Heavy Duty
	- A1-02	- B1-02	- E1-96
	- A2-96 Issue 3	- B2-96 Issue 3	- E2-96 Issue 4
	- A3-02	- B3-02	- E3-96 Issue 4
	- A4-nn	- B4-02	- E4-99 Issue 2
	- A5-02	- B5-02	- E5-02
ACEA	Petrol/Diesel	Petrol /Diesel	Diesel
2004-2007	Light Duty	Light Duty	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	Petrol/Diesel	Petrol/Diesel	Diesel
2008	Light Duty	Light Duty	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

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	ACEA EUROPEAN OIL SEQUENCES
	2010
	SERVICE FILL OILS FOR GASOLINE ENGINES LIGHT DUTY DIESEL ENGINES ENGINES WITH AFTER TREATMENT DEVICES and HEAVY DUTY DIESEL ENGINES
	Laboratory tests for gasoline and light duty diesel engine oils, Engine tests for gasoline and light duty diesel engine oils, Laboratory tests for engine with after treatment devices, Engine tests for engine with after treatment devices. Laboratory tests for heavy duty diesel engine oils. Engine tests for heavy duty diesel engine oils.
Avenue B-1040 Lel (32) Fax (32) (32) Info@ac <u>commu</u> www.Ar TVA BE SCB 24	ACEA des Merviens 85 destination 2 / 28 / 53 b 2 / 28 / 51 0 2 / 28 / 51 1 Distorie Reace.be 2 / 28 / 51 1 2 / 56 / 51 1

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#### 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



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#### 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



Photo: Building a VW engine

Test Type	Part A
TU3MS	433
OM364LA	0
VWICTD	130
OM602A	168
441LA	98
M111SL	184
M111FE	1145
тизмн	229
XUD11B	329
VWTDI2	491
TU572	345
DV4E3	200
646LA	99
501LA	64
Total	3915

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

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#### 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.

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#### 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

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#### And finally Challenges for our Industry

- Euro 6 and CO<sub>2</sub> 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.

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#### I have found a few old photos.







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# But it doesn't go right every time!

## Thank you for Listening

