

## Engine performance and emissions reduction technology, service experience, repair and reconditioning techniques

3-4 November 2010

Institution of Mechanical Engineers Headquarters, London

This conference programme aims to provide a broad coverage of reciprocating engine technologies which will appeal to those who are interested in enhancing performance, reducing the output of emissions by the adoption of new technologies and the refinement of existing techniques. Of equal importance, service experience accumulated from the operation of engines used for power generation will be reviewed. The repair of high value engine components will be described.

This conference will be of great value to those interested in the latest engine technology and also to those whose prime interest is to keep engines running while improving repair and maintenance techniques to minimise costs.

Presentation topics Day 1:

### Engine technologies for the reduction of emission and fuel consumption

#### Latest experiences with medium-speed engine solutions for low emissions and BSFC

Wärtsilä Finland Oy

*Christer Wik, Generation Manager, Engine Performance 4-stroke*

Future emission legislations, as for example the up-coming IMO Tier III limits, guide current engine development work to a large extent together with the constant drive for better fuel consumptions. Latest experiences with technologies to improve emissions and BSFC together with future plans will be presented.

#### Technologies for stationary gas engines

Ricardo

A review of the technologies used to deliver both a high thermal efficiency and low levels of pollutant emissions. This will include open and pre-chamber combustion systems, gas admission strategies, spark plug and micropilot ignition systems and knock sensing for ignition timing optimisation to maximise fuel efficiency.

#### The use of catalytic after-treatment in limiting emissions to air

Johnson Matthey

*Dr Joseph McCarney, Business Development Manager*

For over 50 years catalysis has been used to remove pollutants from exhaust gases. This presentation will outline the capability of catalytic after-treatment and focus on the particular challenge of emissions control from larger engines.

#### An overview of oil refining processes and techniques

ExxonMobil Research & Engineering

*Nigel Elliott, Senior Fuels Technical Advisor - Europe, Africa & Middle East*

The presentation provides an overview of modern day refining processes used to produce different grades, future energy demand and biofuel blending.

#### The role of additives and lubricants in large engines

Infineum UK Ltd

*John Smythe, Technologist, Large Engines*

In every piece of rotating machinery, the lubricant is the 'life blood'. This is perhaps more so in the various forms of internal combustion machinery. Large engines for many reasons operate on a wide range of fuels and as a result the requirements placed on the lubricant are similarly wide. This presentation will look at some of the drivers for using different fuels, the problems associated with each and how lubricant additive technology can go a long way to overcoming them.

#### Common rail for large engines

Humphrey Niven Engines

*Humphrey Niven, Director*

The presentation will outline the basic principles of common rail injection systems as applied to large engines, give details of current systems in production and show the performance improvements that are possible with its use.



the independent technical  
forum for power generation

Presentation topics Day 2:

### Service experience and re-conditioning engines

#### Adapting to changing operational demands upon the 2-stroke diesel generating plant at Guernsey Electricity

Guernsey Electricity Ltd

*Tom Woodford, Generation Manager*

In 2000, Guernsey Electricity commissioned a submarine electrical interconnector to mainland France, since when it has been able to import a substantial proportion of the island's electricity demand. This presentation describes the impact on the island's 2-stroke base load generating plant, and the approach adopted to respond to changing operational requirements.

#### Cast iron welding

Cast Iron Welding Services Ltd

*Harold Palmer, Managing Director*

This will include the welding of cast iron materials with gas fusion and arc welding processes; damage caused by third party welding; advantages and disadvantages of metal stitching; and classification tests on weld materials.

#### Plain bearing condition - a barometer of engine health

Daido Industrial Bearings Europe Ltd

*John Harrison, Applications Engineering Manager*

Unplanned engine outages through bearing seizure are commonly blamed on plain bearing failure. However, the bearing is just one of the bearing system components. Bearing damage is invariably symptomatic of other problems in engines, rather than a causal factor. Understanding the visual condition of the bearing is therefore an important diagnostic tool in maintaining a reliable bearing system.

#### Armoured vehicle diesel engine reliability!

Ministry of Defence (Army)

*Gordon Blaikley, Whole Fleet Management Reliability*

The current annual costs of repairing armoured vehicle diesel engines against identifying the causes of failures and implementing a reliability improvement programme - Data Reporting, Analysis, Corrective Action System (DRACAS).

#### Diesel fuel injection equipment and service issues

Colchester Fuel Injection Ltd

*Paul Goldsmith, General Manager and John Rogers, Technical Manager*

An overview of some of the problems encountered in the day to day service and refurbishment of diesel fuel injection equipment covering a wide range of applications.

**We hope to have a presentation from a major OEM about their engine remanufacturing programme, but this is to be confirmed.**

Enquiries to the IDGTE team by phone on 01234 214340 or  
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