

# Lubricating Oil Saving Liner – PC2.2, PC2.5, PC2.6, PC3

Lubricating oil consumption reduced by up to 40 per cent

**In four stroke engines, especially those operating on heavy fuel and at high loads, cylinders may undergo specific wear, which can result in excessive lubricating oil consumption.**

Hard deposits (combustion residues and unburnt material) that deposit in the combustion chamber, on the liner or on the periphery of the piston crown may result in the following problems.

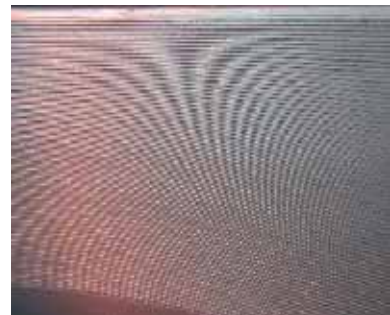
- Soft abrasive wear or scores within the piston operating range (bore polishing)
- Piston crown hard contact
- Oil drying on the liner wall, which may result in:
  - Piston ring / liner tightness decreases and thus blow-by can occur
  - Increased crankcase pressure
  - Increased lube oil consumption and possible contamination of lube oil
  - Piston ring and liner wear
  - In extreme cases this may result in piston seizure
  - Filters and oil purifiers require cleaning at shorter intervals

A new design of liner is available which is completely interchangeable with the existing liner and can therefore be used on an engine with standard liners. The new liner does not require piston modification or new piston rings.

It allows the deposits to build up in the upper area of the combustion chamber first, before they affect the



**Modified detail in combustion chamber, reduces potential of carbon fouling the piston crown thereby reducing lube oil consumption**



piston crown periphery. Oil transfer to the combustion chamber therefore decreases and this leads to a reduction in lubricating oil consumption. Additionally, the problems highlighted previously are significantly reduced.

In order to maximise the lube oil saving potential of these liners, we recommend that all the standard liners be replaced with those of new design. Efficient operation is also ensured if operation and maintenance manual instructions are followed.

The new liner design was extensively validated over a 12,000-hour period during which a 40 per cent reduction in lube oil consumption was

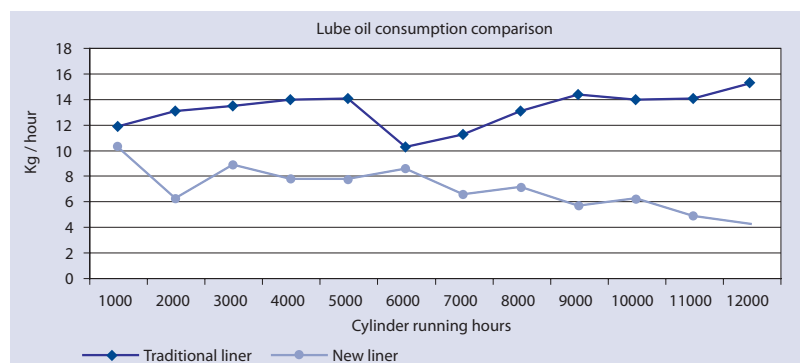
achieved. Liner wear was measured at less than 0.01 mm per 1000 operating hours. Actual savings vary according to the engine application and / or operating profile.

Inspection costs are reduced as filter and purifying equipment inspection intervals can be increased.

An additional advantage is that as less lube oil is being burnt, less pollution is generated thus making the lube oil saving liner an attractive proposition from an environmental point of view.

Please contact us if you require any further information regarding this new liner design.

**Comparison graph: new liner v traditional liner**



# Fact sheet



**Technical services**  
A comprehensive range of technical support services.

- Breakdown service '24 hours a day, 365 days a year' cover
- Fault diagnosis and trouble shooting service
- Consultancy

**Routine service**  
Planned major and minor overhauls.

- Fully supported and skilled service personnel
- Routine servicing for optimum performance
- Emergency call out service

**Refurbishment**  
Dedicated facility for refurbishment to original equipment manufacturers specifications.

- Refurbishment of a variety of mechanical plant
- Comprehensive component exchange programme minimising plant downtime
- Plant life extensions

**Upgrades and retrofitting**  
Upgrades and retrofitting using latest technological solutions.

- Increased plant automation for improved control and maintenance
- Plant relocation services
- Second hand refurbished plant with original equipment manufacturer guarantee
- Plant duty modifications

**Customer training**  
Extensive operator training programmes.

- Modular training courses, classroom and practical tuition
- Tailored packages to suit individual requirements
- Extensive cost savings

**Engine spares**  
Increased reliability and tailored delivery of original equipment manufacturer spares.

- Dedicated team providing a prompt, professional response
- Latest IT systems facilitating 24 hour call back
- Long-term spares support packages
- Extended warranty on spares

**Maintenance contracts**  
Contracts to suit individual customer requirements.

- Dedicated contract managers
- Remote / condition monitoring option
- Emergency, routine and training options available
- Fixed price or CPA contracts



**Rolls-Royce**

© **Rolls-Royce Power Engineering plc**  
Sandland Court, Pilgrim Centre,  
Brickhill Drive, Bedford, MK41 7PZ, UK.  
Tel: +44 (0)1234 251 101  
Fax: +44 (0)1234 211 074  
email: wayne.ross@rolls-royce.com

© **Rolls-Royce Power Engineering plc**  
Crossley Works, Pottery Lane, Openshaw,  
Manchester, M11 2DP, UK.  
Tel: +44 (0)161 223 1353  
Fax: +44 (0)161 223 1738  
email: wayne.ross@rolls-royce.com

[www.rolls-royce.com](http://www.rolls-royce.com)

© 2005 Rolls-Royce plc

The information in this document is the property of Rolls-Royce plc and may not be copied or communicated to a third party, or used for any purpose other than that for which it is supplied, without the express written consent of Rolls-Royce plc.

While this information is given in good faith, based on the latest information available to Rolls-Royce plc, no warranty or representation is given concerning such information, which must not be taken as establishing any contractual or other commitment binding upon Rolls-Royce plc or any of its subsidiary or associated companies.