



PRESS RELEASE

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Cox Powertrain and Ricardo announce MoD development contract for advanced engine concept

The UK Ministry of Defence (MoD) has confirmed its order for the next prototype stage of development of a revolutionary high performance, lightweight diesel engine intended for marine outboard applications on the fast, rigid inflatable boats used by the Royal Navy.



The new Cox Powertrain engine is intended for use on the fast, rigid inflatable boats used by the Royal Navy. Above: Members of a Blue Light Patrol, a detachment of Royal Marines serving onboard HMS Campbellton.

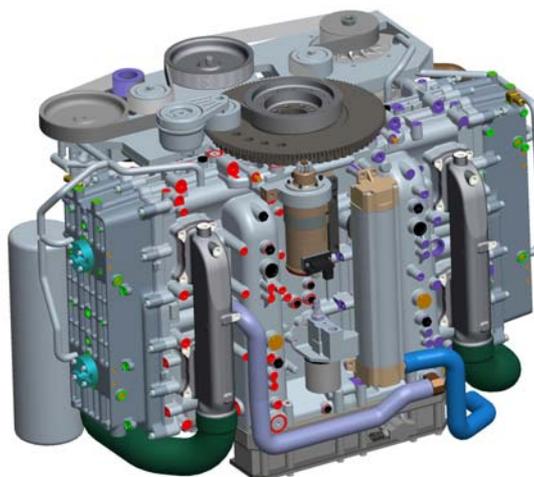
The Cox Powertrain engine concept – with many patents pending – is based on a supercharged, two-stroke diesel opposed piston architecture with Scotch Yoke crankshaft and a central injector position. This engine topology promises a power to weight ratio comparable with high performance gasoline engines, whilst delivering diesel fuel consumption and a package volume around half that of a state-of-the-art diesel engine. The engine is being developed towards the demanding operating conditions of a military application in which extreme diesel performance, light weight and small package size are critical to mission performance, and must be delivered alongside robustness and high reliability of operation.

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Cox Powertrain approached Ricardo at an early stage to provide assistance both in developing the Cox engine concept and in supporting the growth and development of the Cox Powertrain business from a small start-up operation to one capable of taking the fully developed product to market. Cox Powertrain re-located to secure premises at the Ricardo Shoreham Technical Centre site in 2011 and with Ricardo support, has now successfully completed the detailed design phase. This has included an intensive computer aided engineering (CAE) programme using both commercial and proprietary Ricardo software tools, in order to optimize and validate the design to an extremely high level prior to prototype manufacture. Having concluded the design phase the new MoD contract announced today will support Cox Powertrain and Ricardo as they pursue preparation and further development of the engine in prototype form. It is anticipated that the first fire of the engine will be carried out at Ricardo in February of this year, marking the start of the prototype development phase.



CAD model of the Cox Powertrain concept: CAE tools were used extensively to optimize and validate the design to an extremely high level prior to prototype manufacture.

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“We believe that the Cox opposed piston engine has game changing potential for military and civil applications requiring weight and package size as low as 50 percent of current conventional diesel engines, combined with extreme diesel power, whilst also addressing important changes demanded by the single fuel policy,” said Cox Powertrain executive chairman Charles Good. “The order from the Ministry of Defence is a clear vote of confidence in the potential of the Cox engine to meet this requirement for future fast outboards. Beyond this, we are confident of being able to provide versions of this engine concept for other defence roles as well as potentially numerous civilian applications on land, sea and in the air. We’re extremely pleased to have the support of the MoD and to be partnering with Ricardo on this project.”



“Ricardo is proud to be assisting with the development of the Cox Powertrain engine and with the development of the company in terms of best practice engineering processes and design and development capabilities,” said Ricardo UK managing director Martin Fausset. “While Ricardo’s reputation in the field of high performance, lightweight engine design is globally renowned, the company also has an extremely strong track record in the successful delivery of advanced defence programmes and in assisting small, high technology start-up partners to achieve their full potential.”

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The Cox opposed piston engine concept – the original invention of the company’s founder, former F1 designer David Cox – has been the subject of fully subscribed private investment rounds raising development capital of £6.7 million, and has already attracted previous external funding from the MoD to support the accelerated development of its detailed design

The need for lightweight power from heavy fuel

The armed forces of NATO countries are increasingly mandating the use of a single heavy fuel across multiple defence applications, through initiatives such as the US Army’s “One Fuel Forward” policy, and the Royal Navy’s desire to reduce the use of gasoline engines at sea. This strategy is being followed in order to reduce the logistical challenges of supporting multiple fuels in theatre, as well as avoiding the safety risks to personnel associated with use of gasoline in hostile situations. There is a pressing need therefore to develop ultra-reliable, high power-to-weight ratio militarized diesel (a.k.a. heavy fuel) engines for applications ranging from marine outboards to UAVs. Similar market drivers are also expected to increasingly influence the markets for future civilian applications – particularly in the leisure marine sector.

The Cox engine concept is specifically designed for its intended purpose as an outboard power unit, but further variants are already under consideration for military inboard power, civilian marine applications and UAVs.

Ends



NOTES TO EDITORS:

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Cox Powertrain Ltd was founded in 2008 to develop and commercialize the Cox opposed piston engine concept, originally invented by the company's late founder, David Cox, and in which the company holds a growing family of patents. Cox Powertrain Ltd has to date successfully raised £6.7 million in private investment to support its work, in addition to grant funding for accelerated development from the UK Ministry of Defence.

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