

EnviroEngines – A pioneering customer's view

Wärtsilä resolved to develop the EnviroEngines, specifically the common rail injection technology for the Wärtsilä 46, in February 2000. Carnival Corporation supported this decision by offering the opportunity to perform extended field testing onboard their cruise ship Carnival Spirit.

The first customer to specify EnviroEngines for newbuildings, however, was Princess Cruises and the person making the final decision was Mr Charles Arkinstall, at that time Executive Vice President, P&O Princess Cruises plc. Today he is Senior Vice President Maritime Affairs in the joint Carnival and Princess Cruises organization.

Daniel Paro, Senior Vice President, Technology of Wärtsilä's Engine division asked his views of the company's experience with EnviroEngines so far.

D. Paro: Mr Arkinstall, you are the pioneer in specifying EnviroEngines for the Princess Cruise fleet. How do you see the market value of environmentally friendly machinery at this moment and how do you think it will change in the future?

C. Arkinstall: The cruise industry has been at the forefront of the drive towards cleaner emissions. Passenger ships are highly visible to cruise destination communities and, as an industry, we must work closely with the communities and environmental agencies to help protect the environment in which we operate if we wish to continue to do so.

The improvements in the quality of emissions that have been achieved in Alaska - and that are now a prerequisite to continued operation in Alaskan waters - show what can be done and are an excellent example of successful co-operation with local interests. I believe we should anticipate more port authorities, states and countries imposing stricter emission standards on ships passing through their territorial waters or entering their harbours.

The IMO annex VI standards, when they come into force next year, represent a



Mr Charles Arkinstall
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maximum level internationally but lower levels of NO_x and SO_x will be required - for example the EU is already intending to impose 0.1% sulphur limits in 2010. NO_x levels are perhaps not yet receiving so much attention except in one or two areas where there are already high levels of atmospheric pollution but I'm sure the trend will be for cleaner and cleaner emissions, and the engine builders will have to deliver to these more exacting standards.

D. Paro: What kind of advice would you give engine designers and builders concerning future development for your kind of market?

C. Arkinstall: Cruise ships spend more time in port and in transit through coastal waters than many other types of ship and so our requirements for improved emission standards are always likely to be more exacting than for most deep sea ships plying the world's trade routes.

However, the types of engine that best suit cruise ships and passenger ferries are also used extensively in land-based power generation installations where similar high

emission standards are required, but not to the same extent in large merchant ships. Emission standards for these more specialized applications will continue to improve. But perhaps more importantly, the majority of the world's fleet of cruise ships built over the past 15 years will be in service for a long time to come and these existing engines will need upgrading to give comparable emission standards to those achieved on the more modern engines.

Moreover, this process of continual improvement may be expected to continue. I think engines may also need to be more readily adaptable to different grades of fuel, e.g. with 0.1% sulphur content.

D. Paro: How would you describe your experience of the EnviroEngines at this point?

C. Arkinstall: Mixed! There have been more and prolonged problems than anticipated, particularly with components that we would not have expected to be troublesome. Nor has the development of the engine advanced to the extent that we had expected when the first ships with these engines entered service. Some quite significant modifications have had to be made in service.

In spite of this, and in no small way thanks to Wärtsilä's support, the ships have maintained their schedules with only very minor variations. However, we have also been obliged to rely on and use the gas turbine in the ships more extensively than we would have wanted.

I think we also expected to see a more marked reduction in the levels of visible smoke than we were able to achieve initially but we remain optimistic that all these issues are progressing in the right direction and we remain committed to the continual improvement of emissions. ■

We would like to extend our gratitude to Mr Arkinstall and the P&O organization who, with great patience, professionalism and a positive attitude, have contributed to the development of strikingly good technology for the future.

