Slide Fuel Valve

PrimeServ Retrofitting

MAN Diesel | PrimeServ

Slide Fuel Valve

Retrofit solution

This new type of valve reduces the amount of waste products and gives better combustion properties. The elimination of the sac volume also saves fuel, as fuel used to drip from the sac on to the piston topland.

The spray pattern of the fuel is further optimised and therefore leads to an improved combustion process. This results in less deposits throughout the gas ways and a reduction in overall emissions, such as HC, NO_x and particulate matter. The visible smoke level is also greatly reduced as a result of the improved combustion.

The need for maintenance is reduced with the cleaner gas ways, and testing procedures are simpler thanks to the improved design.

Benefits of Retrofitting

The two photographs illustrate a key benefit of retrofitting the slide fuel valve. The first photo shows an exhaust valve bottom piece with substantial deposits caused by an incomplete combustion process.

The right hand side of the photo shows the same valve seat after the slide fuel valve has been installed. The photo was taken after 890 running hours with the new slide fuel valve. No additional cleaning or scraping was done when retrofitting the new type of fuel valve.

comparison of slide fuel valve before and after retrofitting

How to Retrofit the Slide Fuel Valve

As shown by the photo, the tool required to modify the cylinder cover is compact and easily transportable. Indeed, the tool fits in a small brief case.

The components needed are quickly and easily assembled and can be used by any suitably trained staff.

Implementation Options

The options for retrofitting the fuel valves vary. These include:

- MAN Diesel completing all the installation work
- Company's own staff purchasing the tools and completing the work

Note: For the subsequent engine balancing, we recommend an MAN Diesel superintendent to be present.

Case Story

The *Don Juan* (Wallenius Lines, Sweden), a 15,199 dwt vehicle carrier, has confirmed reductions in NO_x emissions of 30%.

Per Croner, Technical Director of Wallenius Lines, said, "The first slide valves were tested in 2000 during shop trials in Japan. The results were better than expected, 12.5 g/kWh NO_x at 75% engine load without any increase in fuel consumption!"

He continued, "The fact that MAN Diesel has succeeded in reducing NO_x emissions to the normal level of a four-stroke engine without increasing fuel consumption, and without any secondary method such as using urea as a catalyst, must be considered an extraordinarily good result."

Features

- Improved low load performance
- Better combustion process
- Reduced fouling of gas ways and exhaust gas boiler
- Reduced fouling of piston top land
- No drips – no sac volume
- Less visible smoke formation
- Lower HC, NO_x and particulate matter emission levels

Variables

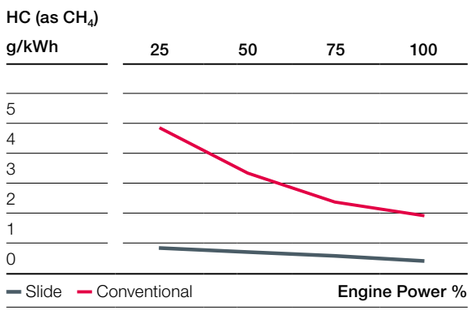
- Choice of who performs the work – MAN Diesel or ship's staff
- Purchase or leasing of required tools

Changes

- Fuel valves
- Cylinder cover modification
- Pressure testing procedure
- Overhaul procedure
- Fuel pump setting

Emissions

- Amendment to existing Technical File or issuing of "Component Guarantee Statement" for pre-2000 engines



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