



Service Information No. 02/04

Date: 06.02.2004

Firing Pressure Diagrams

M25/M32/M43

After introducing the IMO engines we were faced with more questions from our customers with respect to the somewhat different appearance of the firing pressure diagrams.

This development comprised two essential measures:

- 1. The output per cylinder was increased.
- 2. The engine conforms to the IMO limit values for exhaust gas emissions.

Observance of the limit values for emission was achieved exclusively by measures carried out on the engine. For this purpose among other measures the compression ratio, the valve timing and the commencement of fuel injection were adapted to the new requirements of the combustion process.

The realized adaptation of the combustion process is clearly visible in diagrams recorded with **electronic** indicators. The pressure curve known until now with visible start of ignition and delta pressure does not exist any more. In the area of the TDC the diagrams have a shape similar to a "camel hump". However, in the upper range also this representation only partly corresponds to the real characteristic. It is shown in a modified way due to the measurement and the design of the indicating device.

The diagram below is a typical recording of the combustion process of an actual engine in the upper performance range, recorded with an electronic indicator.



Diagram of an IMO Engine

As done until now, judgment of the engine condition should only be based on comparisons of the absolute peak pressures, the exhaust gas temperatures and other operating data which should be recorded regularly.