**Calculate SFOC the proper way!!**

Calculation of the specific fuel oil consumption (g/kWh) requires that engine power, and the consumed fuel oil amount (kg), are known for a certain period of time.

The first step requires the determination of engine’s power. The second step is to know the fuel amount consumed for a specific period of time. To achieve a reasonable measuring accuracy, it is recommended to measure over a suitably long period - dependent upon the method employed i.e.:

* If a day tank is used, the time for the consumption of the whole tank contents will be suitable.
* If a flow-meter is used, a minimum of 1 hour is recommended.

The most important of all is to perform our measurements while load is constant! And we have to be the strictest possible to that.

Since both of the above-mentioned quantity measurements will be in volume units, it will be necessary to know the oil density, in order to convert to weight units. The density is to correspond to the temperature at the measuring point (i.e. in the daily tank or flow-meter). On the other hand we can find the density at measuring point by identifying the specific gravity. Specific gravity can be determined by usage of a hydrometer immersed in a sample taken at the measuring point. Density can also be calculated on the basis of fuel specs as a function of temperature. Normally, in fuel specifications, the specific gravity is indicated at 15°C/60°F.

Next step is calculation of the consumed oil quantity in kg which is obtained by multiplying the measured volume (in litres) by the density (in kg/litre).

In order to be able to compare consumption measurements carried out for various types of fuel oil, allowance must be made for the differences in the lower calorific value (LCV) of the fuel concerned.

Normally, on the testbed, gas oil will have been used, having a lower calorific value of approximately 42,707 kJ/kg. If no other instructions have been given by the ship owner, it is recommended to convert to this value.

Usually, the lower calorific value of a fuel oil is not specified by the oil companies. How- ever, by means of the graph, Plate 70611, the LCV can be determined with sufficient accuracy, on the basis of the sulphur content, and the specific gravity at 15°C. The corrected consumption can then be determined by multiplying the "measured consumption" as follows:

LCV / 42,707 where LCV = the specific lower calorific value, in kJ/kg, of the fuel oil concerned.

For more information and step by step examples please refer to your “Volume I” Operation Manuals.