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**MPC 60**  
(July 2004) **Resolution 2 of the 1997 MARPOL Conference  
Technical Code on Control of Emission of  
Nitrogen Oxides from Marine Diesel Engines**

**Chapter 5.2.2.2**

Chapter 5.2 Test conditions

Chapter 5.2.2.2 reads as follows:

All engines when equipped as intended for installation on board ships must be capable of operating within the allowable NO<sub>x</sub> emission levels of regulation 13 (3) of Annex VI at an ambient seawater temperature of 25°C.\*

\* 25°C seawater temperature is the reference ambient condition to comply with the NO<sub>x</sub> limits. An additional temperature increase due to heat exchangers installed on board, e.g., for the low-temperature cooling water system, shall be taken into consideration.

Interpretation:

For application of this section it shall be interpreted that the 25°C seawater temperature defines an ambient reference value for which compliance with the NO<sub>x</sub> emission limits as defined by regulation 13 (3) must be demonstrated (tested or calculated with T<sub>SC Ref</sub> specified by the manufacturer).

The application of this reference primary coolant value shall be considered in accordance with the charge air cooling arrangement applicable to the individual installation as follows:

- (a) Direct seawater cooling to engine charge air coolers. Compliance with the NO<sub>x</sub> limits shall be demonstrated (or otherwise justified) with a charge air / scavenge air cooler coolant inlet temperature of 25°C.
- (b) Intermediate 'freshwater' cooling to engine charge air coolers. Compliance with the NO<sub>x</sub> limits shall be demonstrated (or otherwise justified) with the charge air / scavenge air cooling system operating with the highest allowable in service coolant inlet temperature regime comparable with an ambient seawater temperature of 25°C.

Demonstration of compliance at a Parent Engine test for a direct seawater cooled system, as given by (a) above, does not demonstrate compliance in accordance with the higher charge air temperature regime inherent with an intermediate 'freshwater' cooling arrangement as given under (b).

- (c) For those installations incorporating no seawater cooling, either direct or indirect, to the charge air coolers e.g. radiator cooled 'freshwater' systems, air / air charge air coolers, then it shall be interpreted that compliance with the NO<sub>x</sub> limits must be demonstrated with the engine and charge air cooling systems operating "as intended for installation on board".

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Note:

This UI is to be uniformly implemented by IACS Societies from 19 May 2005.

