



# SHIP SAFETY BULLETIN

Bulletin No.: 05/2015  
RDIMS No.: 10425096  
Date: 2015-05-01  
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**Subject: Regulations for Vessel Air Emissions: CRITERIA OF AN “IDENTICAL ENGINE”**

## Purpose

This bulletin explains the meaning of “Identical Engine” as it applies to the *Vessel Pollution and Dangerous Chemicals Regulations* (the Regulations).

## Background

Nitrogen oxides (NOx) form when the air (which contains nitrogen), is drawn into an engine, mixes with the fuel, and ignites. Limiting how much NOx pollutants form requires adjusting the operation or design of a vessel’s engines. To address NOx exhaust emissions from shipping, the International Maritime Organization (IMO) through MARPOL, Annex VI, has developed a set of NOx emission standards for vessel engines, which are set out in the [Regulations](#).

## Emissions Standards: Nitrogen oxides

New engines, over 130 kilowatts, fitted onto vessels that operate in the North American Emission Control Area (NA-ECA) must meet NOx emission standards, except those used solely for emergency purposes, no matter the ship’s tonnage. These standards are divided into three different tier levels; ranging from the least stringent Tier I, to the most stringent, Tier III.

The Tier emission standards that apply to a new engine depend on the engine’s installation date:

### Keywords:

1. Air Emissions
2. Nitrogen oxides
3. Regulations
4. Pollution Prevention
5. Compliance

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- **Before** January 1, 2016, engines fitted onto vessels in Canada must meet the Tier II NOx standards.
- Effective January 1, 2016:
  - engines fitted on vessels operating in waters under Canadian jurisdiction south of Latitude 60°N will be required to meet Tier III NOx standards,
  - vessels operating north of 60°N, will continue to meet Tier II.

### **Identical Engines Scenarios**

Under the Regulations, if an “identical engine” replaces an existing marine engine; it can be subject to the NOx Tier emission limit of the existing engine. For example, a Tier I engine can be replaced by an identical Tier I engine, regardless of date of installation.

**Please note:** If the original engine was installed **before** the NOx standards applied, the replacement engine must meet Tier I as a minimum standard.

### **Determining compliance: “Identical Engine” criteria**

An “identical” engine, for the purposes of the Regulations, would be either one that:

- (a) has the same model number and engine manufacturer as the existing engine; **or**
- (b) meets the criteria set out in the following table:

**Table 1: “Identical Engine” Specifications**

<b>Conditions</b>	<b>Vessel Length</b>	
	<b>less than 24 metres</b>	<b>24 metres or greater</b>
<b>Engine power rating</b>	Within $\pm$ 10% of existing engine	Within $\pm$ 10% of existing engine
<b>Cylinders</b>	---	---
<b>Engine displacement</b>	---	Within $\pm$ 10% of existing engine