

MAIB SAFETY BULLETIN 2/2013

Carbon monoxide poisoning on board the
Bayliner 285 motor cruiser

Arniston

on Windermere, Cumbria
resulting in two fatalities

MAIB

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This document, containing safety lessons, has been produced for marine safety purposes only, on the basis of information available to date.

The Merchant Shipping (Accident Reporting and Investigation) Regulations 2012 provide for the Chief Inspector of Marine Accidents to make recommendations at any time during the course of an investigation if, in his opinion, it is necessary or desirable to do so.

The Marine Accident Investigation Branch is carrying out an investigation into the deaths of two persons on board the motor cruiser *Arniston* on 1 April 2013.

The MAIB will publish a full report on completion of the investigation.



Steve Clinch
Chief Inspector of Marine Accidents

NOTE

This bulletin is not written with litigation in mind and, pursuant to Regulation 14(14) of the Merchant Shipping (Accident Reporting and Investigation) Regulations 2012, shall not be admissible in any judicial proceedings whose purpose, or one of whose purposes, is to apportion liability or blame.

This bulletin is also available on our website: www.maib.gov.uk
Press Enquiries: 020 7944 3387/6433; Out of hours: 020 7944 4292
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BACKGROUND

A bank holiday weekend on board an 11 year old Bayliner 285 motor cruiser ended tragically when a mother and her 10 year old daughter died. Initial findings indicate the deceased were poisoned by carbon monoxide.

INITIAL FINDINGS

A “suitcase” type portable petrol-driven generator (**Figure 1**) had been installed in the motor cruiser’s engine bay to supply the boat with 240v power. The generator had been fitted with an improvised exhaust and silencer system which had become detached from both the generator and the outlet on the vessel’s side (**Figures 2 and 3**). As a result, the generator’s exhaust fumes filled the engine bay and spread through gaps in an internal bulkhead into the aft cabin where the mother and daughter were asleep. When the owner of the boat awoke in the boat’s forward cabin, he was suffering from carbon monoxide poisoning but was able to raise the alarm. The mother and daughter could not be revived.

The boat’s carbon monoxide sensor system did not alarm because it was not connected to a power supply.



Figure 1



Figure 2



Exhaust outlet

Silencer

Figure 3

SAFETY ISSUES

1. Portable air-cooled petrol generators are readily available and inexpensive, but they are usually intended for use in the open air. The use or permanent installation of these engines on boats, particularly in enclosed spaces or below decks, increases the risk of carbon monoxide poisoning.
2. It is essential that engine exhaust systems are fitted and maintained to direct poisonous fumes outside the vessel clear of ventilation intakes and accommodation spaces. Work on these systems should therefore only be undertaken by suitably qualified marine service engineers using approved parts and following the equipment manufacturer's instructions for marine installations.
3. Carbon monoxide is a lethal gas, which has no smell, no taste, is colourless and is extremely difficult for human senses to detect. All boaters need to be vigilant and recognise the signs of carbon monoxide poisoning, which can include: headaches, dizziness, nausea, vomiting, tiredness, confusion, stomach pain and shortage of breath.
4. Carbon monoxide is a silent killer that is just as lethal afloat as it is ashore. The correct positioning and the regular testing of any carbon monoxide sensors, whether powered by a boat's electrical supply or self-contained, is essential. Carbon monoxide sensor alarms that do not work correctly should be replaced. When selecting a carbon monoxide alarm preference should be given to those marked as meeting safety standard EN 50291-2:2010 which are intended for use in a marine environment.

Further advice on how to avoid carbon monoxide poisoning on boats and more detail about carbon monoxide alarms, produced by the Boat Safety Scheme (BSS) and the Council of Gas Detection and Environmental Monitoring (CoGDEM), can be found at:

[http://www.boatsafetyScheme.org/stay-safe/carbon-monoxide-\(co\)](http://www.boatsafetyScheme.org/stay-safe/carbon-monoxide-(co))

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