

Advisory note on preventing aircraft maintenance staff from being exposed to harmful substances during their maintenance work

In this advisory note, the Dutch National Cabin Air Advisory Group (NAC) provides advice on the use of measuring equipment during aircraft maintenance. This advisory note is presented by the NAC to the EASA Member States Advisory Body.

The purpose of this advisory note is to create a safer and healthier working environment for aircraft maintenance staff.

Background

In The Netherlands, regulations and legislations dictate working conditions. As an example, article 3 of the Working Conditions Law (Arbeidsomstandighedenwet¹) states that the employer must ensure the safety and health of employees in all work-related aspects. The employer follows a policy aimed at providing the best possible working conditions.

Maintenance procedures for European-registered aircraft are documented in international European regulations, such as regulation (EU) Nr. 1321/2014² pertaining to the permanent airworthiness of aircraft and aircraft products, parts and equipment. Maintenance instructions prepared by the manufacturer (often this is the Aircraft Maintenance Manual, AMM) are approved by EASA and, in The Netherlands, monitored for compliance by the Human Environment and Transport Inspectorate of the Ministry of Infrastructure and Water Management. Maintenance staff are obliged to adhere to these instructions in every detail. During the inspection or maintenance of various systems (air conditioning, hydraulic, oil, lavatory, and auxiliary power systems), staff may be inadvertently exposed to toxic substances.

An example of involuntary exposure of maintenance staff to toxic substances is following a fume event that occurred during a flight. After the aircraft has been made available for maintenance, the maintenance staff will begin troubleshooting the fault to prevent its recurrence. This process involves following the Fault Isolation Manual, specifically the section titled 'Smoke or Fumes in the Cabin'. As part of the procedure, maintenance personnel are required to 'detect smoke or fumes', which relies on the human nose to verify whether the issue has been resolved. Consequently, this procedure may lead to the involuntary exposure of maintenance staff to toxic substances.

Another AMM procedure related to engine oil servicing includes a step that instructs personnel to 'check for the odour of fuel at the area of the fill port of the engine oil tank.' This procedure may also result in the involuntary exposure of maintenance staff to toxic substances.

Since no adequate measuring instruments for detecting toxic substances are available, nor specified in any maintenance procedures, the human nose

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Reference:
KN-2025-0036
DOI:
10.21945/RIVM-KN-2025-
0036
Date:
03 July 2025

¹ <https://wetten.overheid.nl/jci1.3:c:BWBR0010346&hoofdstuk=2&artikel=3&z=2025-01-01&q=2025-01-01>

² <http://data.europa.eu/eli/reg/2014/1321>

continues to serve as a (biological) detector to confirm the absence of odours or smells in the aircraft cabin. This means that maintenance staff must rely on their sense of smell to determine whether a 'fume event' complaint has been resolved and the aircraft is deemed serviceable. This practice—requiring the deliberate exposure of maintenance personnel to potentially toxic substances—is both undesirable and unacceptable.

In the Netherlands, employers are legally required to prevent or minimize employees' exposure to toxic substances; the active use of the human nose for detection is therefore not permitted. This obligation includes ensuring the availability of appropriate tools (such as substance detection instruments or sensors), facilities (such as personal protective breathing equipment), and adequate maintenance procedures. However, the maintenance instructions provided by the manufacturer conflict with national legislation aimed at protecting technicians from chemical exposure.

The NAC wishes to express its concerns regarding the safety of aircraft maintenance personnel and offers the following recommendations to EASA, as EASA is responsible for approving the content of maintenance instructions.

NAC recommendations

Maintenance staff are currently required to actively use their sense of smell to detect technical problems or to confirm that an issue has been resolved. To prevent unwanted exposure to hazardous chemicals, it is essential to investigate whether measuring instruments or sensors can be used as alternatives in maintenance procedures that currently rely on the human nose.

To this end, the NAC provides the following recommendations:

1. When approving new aircraft maintenance instructions, take into account that the use of the human nose as a detection tool is, in principle, not permitted. Where possible, require the use of alternative methods such as measuring instruments and/or sensors.
2. Encourage airlines and aircraft maintenance organizations to implement measuring instruments and/or sensors wherever feasible, and promote the use of respiratory protection to eliminate the need for maintenance personnel to rely on their sense of smell. Update existing maintenance instructions accordingly.
3. Encourage airlines and aircraft maintenance organizations to invest in the development of measuring instruments and/or sensors for procedures where such alternatives are not yet available, in order to phase out the use of the human nose for detection purposes.
4. Promote awareness campaigns among airlines and aircraft maintenance organizations to highlight the risks of exposure to chemical substances, and to encourage the use of appropriate detection tools, sensors, and respiratory protective equipment.