EUROPEAN AVIATION GROUP FOR OCCUPATIONAL SAFETY AND HEALTH

Engine oil additives in cabin air

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NATO E-3A Component

1. Background

- Engine oil and its additives may possibly find their way into the cabin air through engine bleed air
- Synthetic engine oil used contain organic phosphates (e.g. TCP) that may be health-hazardous when inhaled
- Other potential sources of contaminants:
  - APU
  - On-board Air Cycle Machine
  - Ground bleed air units

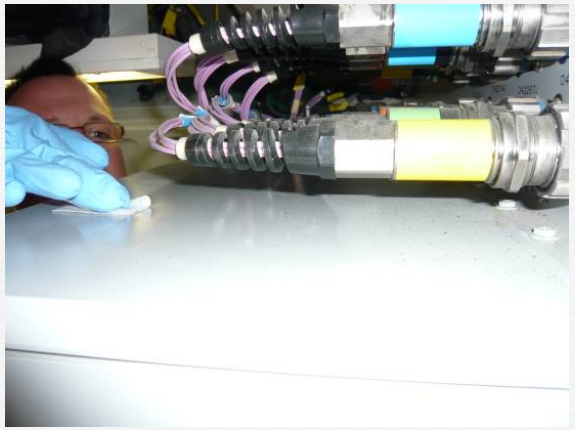
2. Tasking

- Determine if engine oil and its additives are present in cabin air
- Determine if there is a risk to the safety and health of aircrew

3. Assessment

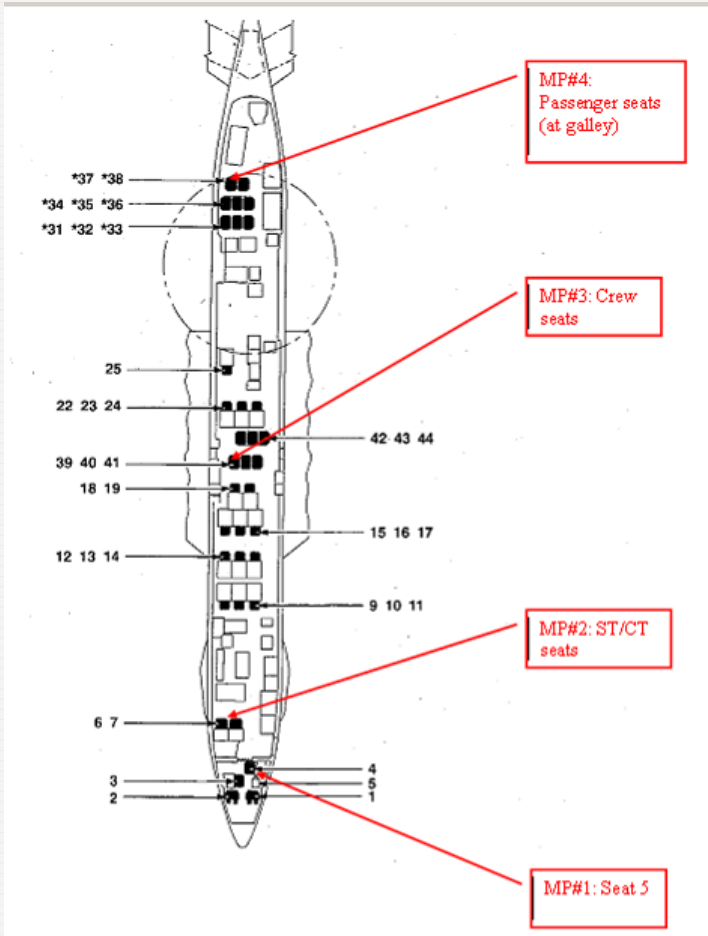
1. Air sampling onboard 4 a/c

2. Wipe sampling inside 11 a/c



3. Assessment

Location of air sampling test probes in-flight



4. Findings

- No contamination of the cabin air with health-hazardous engine oil additives was found during normal flight
- Abnormal conditions (e.g. smoke and fumes events) could not be captured during this measurement
- Wipe tests show that small amounts of engine oil phosphate additives are detectable on surfaces inside the cabin

4. Findings

- Due to the low concentrations of health-hazardous substances found no additional action is required at this time for protecting the health and safety of aircrew
- As a preventative measure, smoke masks continue to be required in case of smoke and fumes events