

# NO-FAULT-FOUND!

Millions are wasted on engineering repairs where faults cannot be found – no-fault-found (NFF)

## Background

Past experience and studies have shown:

Cost of removals can be huge where

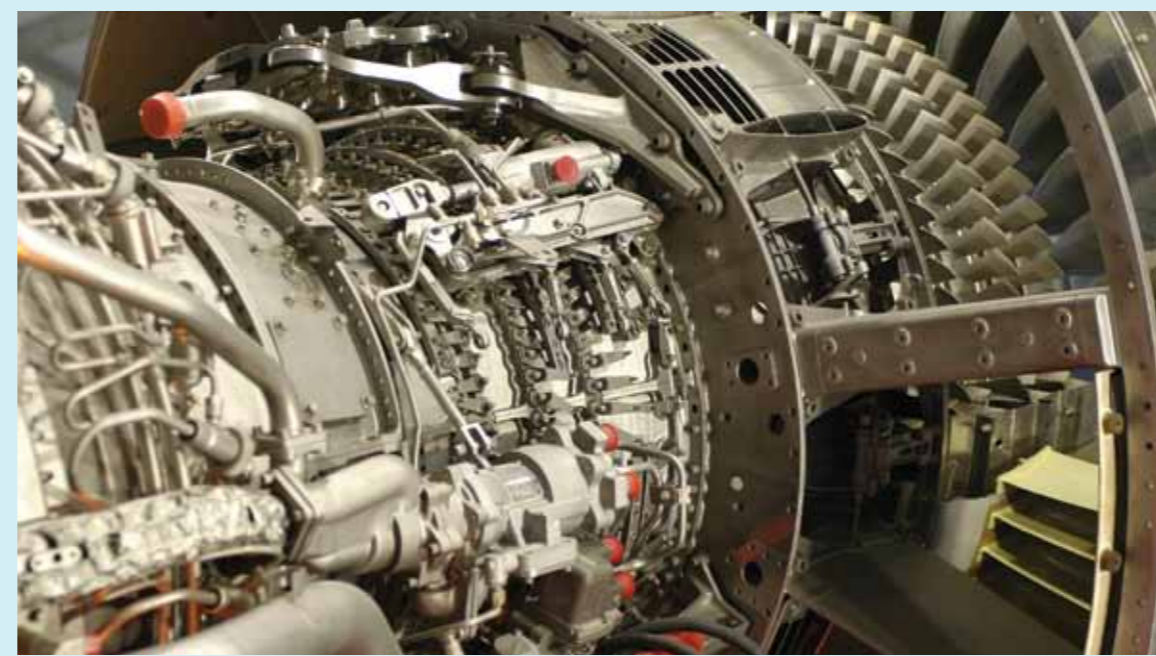
- nothing has then been found wrong
- the same fault re-occurs in the next or subsequent missions

Results for a major airline showed:

- 13.8% of all unscheduled removals = NFF
- Cost £17.6M per year
- 80.4% of all NFF were avionics
- 26.6% of all avionics removals were NFF

NFF can be generated by:

- removals for wrong reason
- workshops failing to repair the reported fault
- inability to simulate conditions when fault occurred



## Phase 1

Phase 1 with MOD and a civilian operator such as Flybe (total elapsed time 12 months)

Objectives:

- Investigate NFF occurrences in a selection of different RAF aircraft.
- Compare with a civilian operator (eg Flybe) to identify options for procedural and organisational and Through-life Engineering Service change.
- Identify procedural and organisational changes to mitigate occurrences in both military and civilian aircraft operations.



## Phase 2

Phase 2 with Bombardier Transportation (elapsed time 4 months)

Objectives:

- Investigate NFF occurrences in a selection of different rolling stock and systems.
- Identify procedural and organisational changes to mitigate occurrences.

Phase 1 & 2 will complete in 1 year.

## Contact

For further details please contact:

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## The Project

The EPSRC Centre for Through-life Engineering Services will undertake a 3 year full-time project to investigate the causes and solutions of NFF across industries starting with aircraft and then with train systems.

The solutions and causes will range from organisational, behavioural, procedural and process driven factors to technical causes where the symptoms cannot be replicated due to different environmental conditions. Solutions and causes will be different with each user. There will also be inherent design causes for individual items that will need to be investigated in later phases. The project will thus concentrate in Phase 1 on the organisational and associated causes before then moving in subsequent phases to analysing individual candidate items identified with a NFF problem or history that will not be solved by changes from Phase 1.

## Phase 3

Phase 3 Individual System Investigations (Timescale 2 years)

- During Phases 1&2, candidate items will be identified for deeper investigation in the Centre Studio
- Other items will be identified by all Core Partners for investigation

Items will be both avionic and mechanical

Objectives:

- Establish generic causes of NFF for candidate groups.
- Identify individual solutions for each candidate item selected for investigation.
- Establish generic design improvements and solutions to solve in-service occurrence of NFF.
- Establish cross-discipline features and design solutions that need to be applied to any engineering designs to avoid NFF in service.

