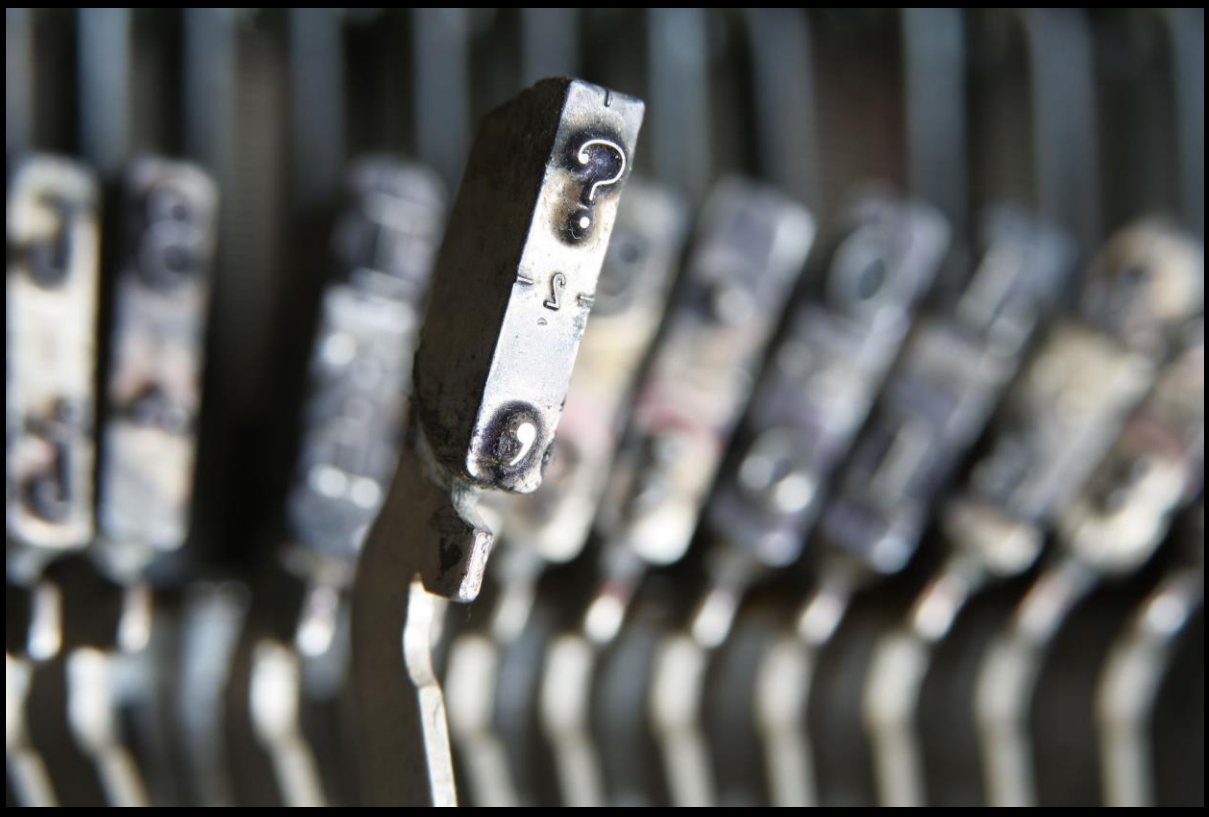
Top 5 Root Cause Mistakes in Aerospace Manufacturing

A concise guide for engineers and quality leaders to diagnose and prevent recurring failures

INTRODUCTION

Root cause analysis (RCA) is essential to ensure reliability, safety, and repeatable performance in aerospace manufacturing. Yet many organizations struggle to eliminate recurring defects because they fall into predictable mistakes when investigating failures. This guide highlights the top five RCA mistakes we commonly see in aerospace production environments and offers practical steps to avoid them.



CONTACT US TODAY
dr.o.balogun@gmail.com
www.3obaero.com
3OB Aero Solutions • Practical solutions for aerospace quality and operations

1) TREATING SYMPTOMS INSTEAD OF CAUSES

Problem:

Teams often implement quick fixes that address an immediate symptom (e.g., rework, patching a part, or changing an operator step) rather than identifying the underlying process, design, or systemic cause. Symptom fixes may reduce immediate failures temporarily but allow the root problem to recur.

How to avoid:

- Use structured RCA methods (5 Whys, Fishbone/Ishikawa, Fault Tree Analysis) to dig beyond surface-level fixes.

- Verify root cause hypotheses with data and controlled experiments.

- Define corrective actions that change the process, tooling, or design — not just the symptom.

- Track outcomes over time to confirm the fix is sustained.

2) INADEQUATE DATA COLLECTION

Problem:

Insufficient, inconsistent, or poor-quality data leads to incorrect conclusions and wasted effort. Common data problems include missing timestamps, lack of traceability to lot/batch/serial, and inconsistent measurement methods.

How to avoid:

- Standardize data capture templates for tests, inspections, and production steps.

- Ensure traceability (part/lot/serial, operator, machine, fixture, software version).

- Verify measurement systems (MSA) and calibrations before relying on inspection data.

CONTACT US TODAY
dr.o.balogun@gmail.com
www.3obaero.com
3OB Aero Solutions • Practical solutions for aerospace quality and operations

- Collect enough contextual data (environmental conditions, process parameters) to reproduce the failure.

3) LACK OF CROSS-FUNCTIONAL INVOLVEMENT

Problem:

RCA performed in isolation by a single department misses important perspectives — for example, supplier processes, design intent, or maintenance practices. Siloed investigations often overlook system interactions that cause failures.

How to avoid:

- Form cross-functional RCA teams including engineering, quality, production, maintenance, supply chain, and supplier representatives as appropriate.

- Use RACI to clarify roles and decision authority during RCA and CAPA implementation.

- Facilitate collaborative problem-solving workshops where diverse stakeholders can surface systemic issues.

4) FAILURE TO IMPLEMENT AND VERIFY CORRECTIVE ACTIONS

Problem:

Corrective actions are sometimes documented but not implemented, or they are implemented but not verified for effectiveness. Without proper ownership and verification, issues remain or recur.

How to avoid:

- Assign clear owners and deadlines for corrective actions.

- Create control plans and process checks to monitor the change.

- Use verification metrics (e.g., defect rate, yield, MTBF) and schedule follow-up audits to confirm effectiveness.

- Close the loop: if the action did not work, re-run RCA with new data and hypotheses.

5) NOT CAPTURING LESSONS LEARNED

Problem:

Organizations miss opportunities to prevent recurrence across programs because learnings are not documented, distributed, or integrated into standard work and training.

How to avoid:

- Maintain a central knowledge repository for RCA findings, corrective actions, and prevention strategies.

- Update procedures, work instructions, and training materials after verified corrective actions.

- Hold regular lessons-learned reviews and share summaries with other teams and suppliers.

- Institutionalize “prevention” checks during design reviews and production readiness assessments.

CONCLUSION

A disciplined approach to root cause analysis — with robust data practices, cross-functional teams, ownership of corrective actions, and knowledge capture — significantly reduces defects and improves reliability in aerospace manufacturing. Prioritize verification and continuous learning to convert one-off fixes into lasting improvements.

CONTACT US TODAY
dr.o.balogun@gmail.com
www.3obaero.com
3OB Aero Solutions • Practical solutions for aerospace quality and operations

ABOUT THE AUTHOR

Dr. OB is a Principal Technical Consultant with 20+ years of aerospace engineering, quality, and operations leadership. He works with manufacturing and sustainment teams to stabilize processes, reduce risk, and build high-performing organizations.

CONTACT US TODAY
dr.o.balogun@gmail.com
www.3obaero.com
3OB Aero Solutions • Practical solutions for aerospace quality and operations