Don't Call It A
CALLBACK
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ASRS
Catching the Error Before It Flew

Something
Wasn't Right

Technician and Inspector Resilience in Maintenance Error Recovery

Resilience in aviation maintenance is the capacity to recognize that something is wrong — and act on that recognition — even when the standard checks have passed, the paperwork is signed, and the aircraft is ready to go. It is not a formal procedure. It is a professional quality: the willingness to trust a nagging doubt, to re-examine work that has already been signed off, to make the call that delays a departure rather than let an error fly.

This issue presents five reports selected for the quality of the maintenance professional's response. In each case, an error was caught — or nearly caught — by someone who went beyond the minimum required action. Each section closes by naming the specific resilience quality on display: anticipation, self-correction, persistence, recovery, or situational awareness. These are not terms of praise. They are analytical categories for understanding what makes the difference between an error discovered on the ground and one discovered in the air.

Part 121 — Anticipation

(ACN: 772287)

A DHC-8-200 technician replaced an aileron servo, passed the required operational check, and was ready to release the aircraft. An earlier optional test had produced an anomalous result he had dismissed. Ten minutes before departure, he decided to verify against a second aircraft anyway.

Technician:

I remembered that I wanted to double check this with Aircraft Y. I ran out and found to my horror that the aileron servo is moving the control wheel on Aircraft X backwards to the heading bug commands. The aircraft was 10 minutes from departure. I explained my concern to the flight crew and confirmed the control wheel was indeed turning backwards to heading bug commands. I called Maint Control and we agreed that we could put the autopilot on MEL. I don't believe that I made any mistakes in the installation, as the cables were transferred one at a time. I suspect that the aileron servo is wired backwards. I made a recommendation to Maint Control that this aircraft be taken off line ASAP. If a flight crew attempts to engage the autopilot as it is, it will put the aircraft into a roll.

Resilience quality: anticipation. The technician noticed an anomalous result earlier in the shift, filed it away, and acted on it before departure — not because a procedure required it, but because he could not let go of what he had seen. The manufacturer's recall of 13 additional defective units followed. His cross-check was the first link in the safety chain.

Part 121 — Self-Correction

(ACN: 925969)

An A330 line maintenance mechanic finished an overnight shift, went home, slept — and woke up convinced he had safety-wired an engine IDG quad ring bolt backwards. He called it in before the aircraft flew.

Technician:

Performed inspection on #1 engine IDG Quad Ring [bolt] torque. Re-safetied IDG Quad Ring bolt. After shift, went home and slept, woke up and realized that I might have safetied the bolt backwards. Filling out the NASA report and worrying about it should be enough to not make mistake again.

Technician (Callback):

After returning home and sleeping, he woke up and just had a feeling he may have safety wired the Quad Ring bolt head backwards. He called the Maintenance Controller for his carrier, who then contacted Carrier Y. The aircraft was inspected at a downline station and the safety wire for the #1 engine IDG Quad Ring locking bolt was found wired backwards and corrected.

Resilience quality: self-correction. The technician had no procedural obligation to call in a concern from his own home, off shift, after the aircraft had already departed to a downline station. He did it anyway. The safety wire was indeed backwards. His call was the only mechanism available to catch this error.

Part 121 — Persistence

(ACN: 1295814)

A DC-10 avionics technician with 25 years of thrust reverser experience noticed that reversers were stowing during Auto Re-Stow Testing when they should not be able to. He traced the anomaly, verified it with company Engineering, confirmed it across the fleet, and filed an ASRS report covering every company DC-10.

Technician:

The Pressure Regulating Shutoff Valve (PRSOV) and Overpressure Shutoff Valve (OPSOV) connections to all TRAS Lock Engine Dual Switcher valves are not connected properly. It has been verified via company Engineering that the PRSOV valve is actually connected to the Dual Switcher Valve OPSOV connection and the OPSOV valve is actually connected to the Dual Switcher Valve PRSOV connection. The connections are backwards. This is causing some Thrust Reversers to stow during Auto Re-Stow Testing in Maintenance. If the lines were properly connected, the Thrust Reverser would not be able to stow during testing. [Recommend] to properly connect the lines to the Dual Switcher Valve and revise the Boeing LAMM schematic.

Resilience quality: persistence. The error had existed undetected across a fleet for years, surviving multiple maintenance cycles and A.D. compliance inspections. It took a technician with deep system knowledge and the willingness to challenge both the installation and the supporting documentation to surface it. The Boeing LAMM schematic was inaccurate. He found that too.

Part 121 — Recovery

(ACN: 743765)

A B737-700 elevator tab hinge fitting was installed upside down and the bolt and bushing arrangement installed backwards. The RII inspector signed off the work. The aircraft flew for a week on a test flight and returned to service. A C-check inspector caught the error.

Inspector:

About a week later I was informed that the fitting was installed upside down which made the installation of the bolt backwards. As the RII inspector I did not reference the pictures of the maintenance manual. I only looked at the installation and check out. It all was installed OK. There was no way I would know it was backward without looking at a picture. The hinge was removed on the previous shift.

Resilience quality: recovery. The error passed through installation, RII inspection, a test flight, and returned service before a C-check inspector caught it through systematic visual comparison with the maintenance manual. That inspector did what the original RII inspector did not: pulled the manual and looked at the picture. One reference check was the difference between a week of operation with an incorrectly installed elevator fitting and timely correction.

Part 121 — Situational Awareness

(ACN: 1057981)

On a Beechjet 400A anti-skid control valve filter change, the hydraulic lines were tagged before removal. They were still installed backwards. The brake bleed and anti-skid functional test passed. A technician receiving the turnover — who was not the one who installed the lines — reconstructed the sequence of events and identified the specific procedural gap that allowed the error to survive all checks.

Technician:

I could have taken a picture of the valve before I started the task. This would probably have prevented the lines from being installed wrong because I would have referenced the Maintenance Manual and the picture. The Anti-Skid Brake System Check in the Maintenance Manual says to push both brakes at the same time during the Check. A revision to the manual that would require each brake to be checked individually and verify proper operation probably would have caught the problem in maintenance. The Repair Station could adopt a policy of requiring a run/taxi after brake maintenance procedures. This would have caught the problem while it was still in maintenance.

Resilience quality: situational awareness. The technician's post-event analysis identified three specific corrective actions — pre-task photography, individual brake testing, and post-maintenance taxi checks — each of which would have caught the error that survived the existing check sequence. That level of systemic thinking after the fact is what converts individual incidents into procedural improvements. The flight crew discovered the crossed brakes on taxi; the technician's analysis gave the system something to learn from it.