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Flight Safety Through Airworthiness

Prof (Dr) GS Sachdeva

Honorary Distinguished Fellow, Centre for Aerospace Power and Strategic Studies



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The preliminary investigation report regarding the accident of Air India flight AI-171, relating to the crash of a Boeing 787 Dreamliner on June 12, 2025, has been made public. The report identified fuel starvation as the cause of the accident, resulting from the fuel release valves of both engines being closed. However, it has not been able to determine when or how it happened, who was responsible, or why. It is equally surprising that this state of fuel non-ingestion into the engines had not come to notice at the time of pre-flight servicing, or during the pilot's pre-flight checks, or the power run. Or did it happen after take-off on its own, despite spring locks?

This impugned process of shutting down fuel surely required positive action, whether advertent or inadvertent. However, apart from insinuations regarding transparency and intent, the preliminary report has presented half-baked conclusions, with the needle of suspicion pointing at the pilots. It leaves more profound questions unanswered. Possibly, a detailed report of the accident investigation will, in due course, reveal more substantiated facts and pertinent details about the critical fault activity and the actual activator. Nevertheless, mudslinging has begun, and the Indian Pilots' Federation intends to sue the United States (US) media for allegedly motivated leaks and an unfounded blame game, in the interest of the manufacturers. Indeed, the cover-up does not appear foolproof and Indian officials have rebutted foreign media claims.¹

On the Indian side, early newspaper reports and some leaked rumours, albeit unconfirmed, point towards a corporate syndrome of Operations dominance and suppression of maintenance stakes due to an obsession with achieving and sustaining punctuality in flight services in a competitive market. Although this aim is laudable, it could impose a high cost. Maintenance of aircraft at all stations, pre-flight checks, periodic servicing and life-based overhauls are all important and deserve Six Sigma quality assurance. Isolated instances of rectification of glitches in aircraft, aeroengines or rotables may take longer than the scheduled time in servicing or testing. This does not need to be rushed to enable the aircraft to continue operations or rejoin the operational fleet by the due date. Spare capacity and cushions in operations can always be accommodated without disrupting the routine of maintenance mandates and technical standards.

It is a well-known fact that various issues have plagued the Boeing 787 fleet since its operational life began in 2011. The most memorable one relates to the lithium batteries causing a couple of electrical fires due to the alleged manufacturing defect. Even technical problems due to structural and manufacturing defects were reported, which resulted in multiple groundings and safety checks worldwide. An insider at Boeing, John Barnett, who worked as a quality manager for 30 years, revealed that production workers, under pressure, have been fitting substandard parts,

including ones retrieved from the dustbins. This seems an alarming concession. He has further claimed that he "had uncovered serious problems with oxygen systems."²

Another whistleblower, Sam Salehpour, a Boeing engineer, expressed safety concerns in 2024 and cautioned that "Boeing should ground every 787 Dreamliner jet worldwide."³ The voiced concerns led to the ordering of an investigation by the Federal Aviation Administration, which is currently underway. In another incident, two flight attendants refused to change their reports about a technical problem with the door of a Boeing 787 that occurred during AI-129 flight on May 14, 2024, at Heathrow Airport. Allegedly, the Dreamliner's door malfunctioned; although the slide raft was deployed, the door opened in "manual mode" when it should have opened in "armed mode." When the cabin crew refused to change their reporting, they were dismissed in two days.⁴

The crux of all this is that the airworthiness of aircraft, though sacrosanct and a sacred trust of air technicians, has been compromised at times for various reasons or purposes. In the ethics of aircraft maintenance, such shortcuts should be taboo because the serviceability and safety of the aircraft, with *abundanti cautela*, reign supreme, and no supervisory staff should become accomplices to any incorrect practices. This methodology of compromises and "*jugaad*" will ultimately lead to sorrow for the perpetrator and to many other innocents. Regrets will then be insufficient, and the sin would be unpardonable.

The duties of the Director General of Civil Aviation (DGCA) are legislated with regard to airline operations, aircraft maintenance, air traffic management, and other related matters. This authority can rightfully demand and enforce proper oversight to ensure strict compliance. Deficiencies in this task and derelictions by the DGCA staff may have tragic consequences. Technical alerts should not only be issued but also complied with and acted upon for the safety of passengers, on-board crew, the aircraft, and those on the ground. This calls for cooperation from all duty-bound personnel and other stakeholders, who should be willing to provide their input voluntarily in their own interest to prevent accidents. Needless to mention, air accidents result in economic losses for the aircraft and its products, reputational embarrassment for the airline and manufacturer, liability payouts to passengers, and operational disruptions. Hence, the creed of airworthiness of aircraft deserves to be respected by all.

NOTES:

¹ "AI 171 crash: Aviation Minister rebuts foreign media claims," *The Times of India*, July 21, 2025, p. 7.

² Naomi Canton, "Air India Tragedy: Crash Report a 'cover-up', say AI 171 victims' Kin," *The Times of India*, June 12, 2025, p. 10, Chandigarh Edition.

³ Ibid.

⁴ "Fired for reporting glitch: Ex-AI staffers," *The Times of India*, June 19, 2025, p. 11.

