

Delhi Airport AMSS Failure: Why the System Crashed and How India Plans to Upgrade ATC

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AMSS Failure Latest News

- Recently, air traffic operations at Delhi's IGI Airport were disrupted due to a technical failure in the **Automatic Message Switching System (AMSS)**. The outage lasted for more than 24 hours before the system was restored.
- Following the incident, the Civil Aviation Ministry has reportedly directed the Airports Authority of India to upgrade the system.

AMSS Failure Disrupted Delhi's Air Traffic Operations

- The Air Traffic Controllers' Guild highlighted that the AMSS failure forced controllers to manually manage **over 2,500 aircraft movements daily**, including **1,500 scheduled flights** and **1,000 overflights** across Indian airspace.

- Since ATC automation depends on the **Flight Data Processing System (FDPS)** — which is fed by the AMSS — the outage meant critical data such as **flight plans** could not be accessed.

AMSS and Air Traffic Management

- AMSS is the **core communication backbone** for Air Traffic Control (ATC) centres in Delhi, Mumbai, Chennai and Kolkata.
- It automatically receives, stores and forwards all aeronautical messages through Aeronautical Fixed Telecommunications Network (AFTN) and Aeronautical Message Handling System (AMHS) networks.
 - AFTN and AMHS are two systems for transmitting vital aeronautical information, with AMHS being the modern, more advanced successor to AFTN.
- These include:
 - Flight plans
 - Departure and arrival messages
 - Delay and cancellation updates
 - Meteorological data
 - NOTAMs
 - Coordination messages between ATCs and airlines
- It integrates inputs from airlines, ATC units, meteorological offices and AAI stations, converts multiple message formats into a unified one, and routes them appropriately.

Why the AMSS is Vulnerable: Old Architecture & Integration Gaps

- Delhi's AMSS, supplied by a Spanish firm, operates on **legacy server architecture** with old message-switching software, partly patched but outdated.
- Key vulnerabilities include:
 - **Database/server overload** during peak traffic
 - **Poor synchronisation** between primary and standby systems
 - **Integration issues** with automation, AIS, and network routers
 - **Network faults** causing message flow bottlenecks
 - **Limited local technical expertise** available to maintain the legacy system

What Triggered the Delhi Breakdown

- According to officials, Delhi's failure occurred due to:
 - Synchronisation failure between primary and standby servers
 - Delayed system switchover
 - Corrupted message queues, preventing message retrieval and routing.
- These resulted in the inability to transmit or receive flight plans and NOTAMs, forcing ATCOs into complete manual mode.

Need for Modernisation

- Experts emphasise that India urgently needs to migrate to a modern, cloud-supported AMHS/ATS integrated system with robust redundancy, real-time synchronisation and trained technical support.
- The current setup is inadequate for India's rapidly growing air traffic load.

Parliamentary Panel Flags Degrading ATC Automation Systems

- The Parliamentary Standing Committee's 380th Report (August 2025) warns that automation systems at major airports like Delhi and Mumbai are showing **serious performance degradation**, including system slowness, data processing delays, and outdated functionalities.
- The report notes that Indian ATC systems lack several advanced features available in global systems such as **Eurocontrol** and the **FAA**, including:
 - AI-enabled conflict detection
 - Predictive analytics for traffic flow
 - Real-time, seamless data sharing across units and with aircraft
 - Integrated, modern decision-support tools
- This technological gap reduces operational efficiency and restricts airspace capacity.
- Due to missing automation features, Air Traffic Controllers must manually compensate for system weaknesses, adding significant **cognitive strain** on already overburdened Air Traffic Controllers (ATCOs).
- The lack of updated tools increases the risk of **human error**, potentially jeopardising safety and limiting the effective management of fast-growing air traffic volumes.

India Plans Major Upgrades to Modernise Air Traffic Management

- The Ministry of Civil Aviation has outlined several AAI initiatives to modernise air traffic systems.
- These include installing a **new nationwide AMHS** to replace outdated AMHS/AMSS platforms and deploying **Automatic Dependent Surveillance-Broadcast (ADS-B)** ground stations at 21 airports, with installations completed at 15 additional sites.
- According to an AAI note updated in August 2025, India is planning a major upgrade of its air traffic management system.
- This includes new automation tools, better technology, and a shift from ground-based to satellite-based navigation to match global standards.

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