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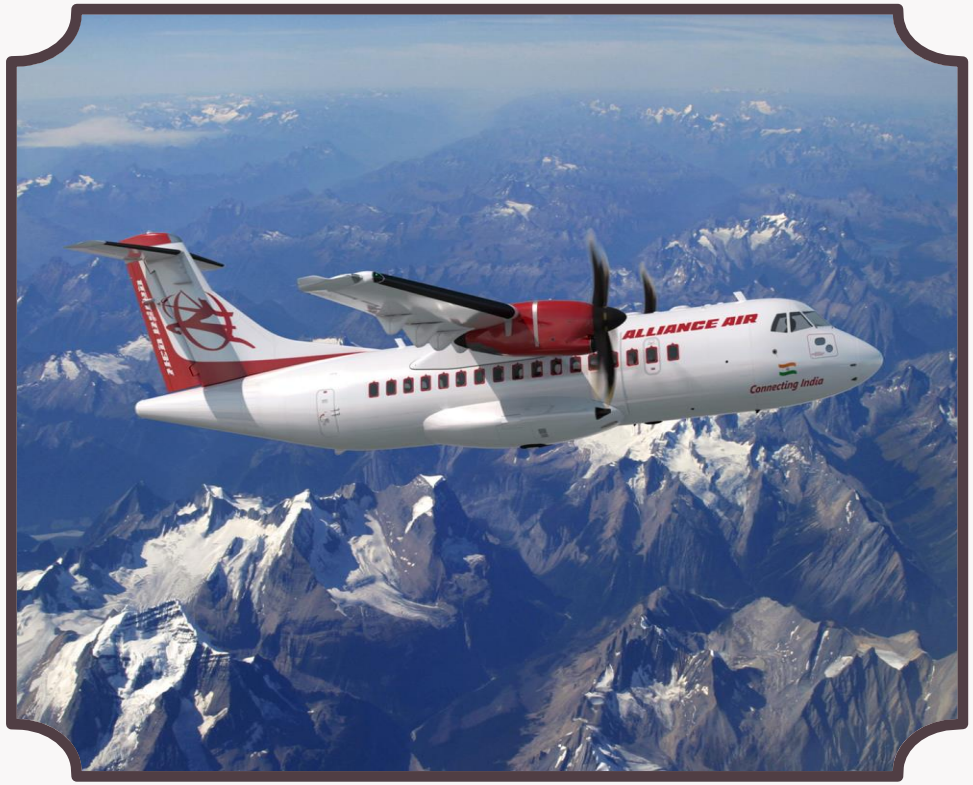
JUNE 2025



FLIGHT SAFETY NEWS LETTER / SAFETY BULLETIN

- **In Focus -** Lightning Strike
- **Safety Journal -** Acceptable Level of Safety
- **Meetings/Engagements –** Inaugural of Quality/ Safety / Health awareness week on 30th June 2025

For Flight Safety, kindly contact :-
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NEWS LETTER/SAFETY BULLETIN ISSUED, UNDER THE PROVISION OF DGCA CAR SECTION 5 SERIES F, PART I – APPENDIX-D

IN FOCUS

Lightning Strike

Definition : Lightning is an atmospheric discharge of electricity. A lightning strike can be very distressing to passengers and crew but damage to an aircraft in flight which is sufficient to compromise the safety of the aircraft is rare.

Description: Lightning occurs as a result of a build up of static charges within a Cumulonimbus (Cb) cloud, often associated with the vertical movement and collision of ice particles (Hail), which result in a negative charge at the base of the cloud and a positive charge at the top of the cloud. Beneath the cloud, a "shadow" positive charge is created on the ground and, as the charge builds, eventually a circuit is created and discharges takes place between the cloud and the ground, or between the cloud and another cloud. An aircraft passing close to an area of charge can initiate a discharge and this may occur some distance from a Thunderstorm.

Lightning strikes on aircraft commonly occur within 5,000 feet of the freezing level.

Lightning is accompanied by a brilliant flash of light and often by the smell of burning, as well as noise. A lightning strike can be very distressing to passengers (and crew!) but significant physical damage to an aircraft is rare and the safety of an aircraft in flight is not usually affected. Damage is usually confined to aerials, compasses, avionics, and the burning of small holes in the fuselage. Of greater concern is the potential for the transient airflow disturbance associated with lightning to cause engine shutdown on both Full Authority Digital Engine Control (FADEC) and non-FADEC engines with close-spaced engine pairs.

IN FOCUS

Lightning Strike

Lightning may also occur in Volcanic Ash clouds formed in the immediate vicinity of eruptions because the vertical movement and collision between solid particles within the cloud generates static charges.

Effects

- Aircraft Damage. Structural damage to aircraft from Lightning strikes is rare and even more rarely of a nature that threatens the safety of the aircraft. Nevertheless, there have been many incidents of lightning strikes leaving puncture holes in the radomes and tail fins of aircraft (entry and exit holes) and damage to control mechanisms and surfaces (see Further Reading).
- Crew Incapacitation. Momentary blindness from the lightning flash, especially at night, is not uncommon.
- Interference with Avionics. A lightning strike can effect avionics systems, particularly compasses.
- Engine Shutdown. Transient airflow disturbance associated with lightning may cause engine shutdown on both FADEC and non-FADEC engines on aircraft with close-spaced engine pairs. See separate article on Lightning Strike Risk to Engines.

Defences

- Avoidance. Standard advice to pilots is to remain at least 20 nautical miles displaced from any Cumulonimbus (Cb) cloud. The dangers from Turbulence, Low Level Wind Shear, and In-Flight Icing associated with Cumulonimbus clouds are far greater than the threat of Lightning.

IN FOCUS

Lightning Strike

Accident & Incident Reports Including Lightning as a Factor

Lightning Strike ATR 72, Nagpur

On 06th August 2022, two IndiGo engineers were injured by a lightning strike at Nagpur Airport. They were carrying out routine checks on an IndiGo ATR 72 aircraft that had just landed from Ahmedabad when the incident occurred amidst heavy rain and thunder.

The engineers, identified as Amit Ambatkar (28) and Rishi Singh (33), were reportedly speaking on walkie-talkies at the time of the strike. One of them, Ambatkar, lost consciousness on impact but later revived, while the other engineer experienced weakness in his right hand. Both were immediately taken to Kingsway Hospital, located near the airport, and were reported to be stable and under observation.

The aircraft, an IndiGo ATR 72 (registration VT-IRA) was grounded after the incident, leading to the cancellation of its subsequent flight to Lucknow. Airport sources speculated that the lightning likely struck the tail end of the aircraft. IndiGo confirmed the incident, stating that two of their technical staff were affected and received immediate medical attention, and were both in stable condition.

While modern aircraft are designed to withstand lightning strikes in flight, a strike on the ground, particularly to personnel in close proximity to the aircraft, can pose a significant risk, according to Simple Flying. Airports and airlines emphasize providing ground staff with appropriate safety gear and procedures for operating during storms and high lightning risk, sometimes even temporarily ceasing operations to ensure personnel safety.

IN FOCUS

Lightning Strike

Lightning Strike Prompts Air New Zealand ATR-72 Diversion

Air New Zealand ATR-72 decided to divert to Auckland on Wednesday after a lightning strike incident. The aircraft was operating a scheduled passenger service when the lightning strike happened. The plane went on to safely in Auckland without injuries to passengers or crew.

According to a report in The Aviation Herald, the incident happened mid-morning on Wednesday, November 25. The ATR-72, registered as ZK-MVF, was operating NZ5814 from Wellington to Hamilton. NZ5814 is the scheduled 09:00 departure from Wellington, located at the southern end of New Zealand's North Island. The destination, Hamilton, is situated about 110 kilometers south of Auckland, further up the North Island. Flying time between Wellington and Hamilton on the ATR-72 is normally 75 minutes.

The Aviation Herald report notes the aircraft was approximately 50 nautical miles west of Taupo when the crew suspected a lightning strike incident and decided to divert to Auckland. The ATR-72 touched down at 10:42 local time on Wednesday.

An Air New Zealand spokesperson told New Zealand's One News that lightning strikes are not uncommon and pilots are trained to deal with them.

Air New Zealand has 28 ATR-72s. This particular plane, ZK-MVF, has been flying for less than six years and with Air New Zealand for all of that time. It is unclear how many passengers were onboard yesterday's flight, but Air New Zealand's ATR-72 can carry 68 passengers.

IN FOCUS

Lightning Strike

D228, vicinity Bodø Norway, 2003

On 4 December 2003, the crew of a Dornier 228 approaching Bodø lost control of their aircraft after a lightning strike which temporarily blinded both pilots and damaged the aircraft such that the elevator was uncontrollable. After regaining partial pitch control using pitch trim, a second attempt at a landing resulted in a semi-controlled crash which seriously injured both pilots and damaged the aircraft beyond repair. The Investigation concluded that the energy in the lightning had probably exceeded certification resilience requirements and that up to 30% of the bonding wiring in the tail may have been defective before lightning struck.

SB20, vicinity Sumburgh, UK 2014

On 15 December 2014, the Captain of a Saab 2000 lost control of his serviceable aircraft after a lightning strike when he attempted to control the aircraft manually without first disconnecting the autopilot and despite the annunciation of a series of related alerts. The aircraft descended from 4,000 feet to 1,100 feet at up to 9,500 fpm and 80 knots above Vmo. A fortuitous transient data transmission fault caused autopilot disconnection making it possible to respond to EGPWS 'SINK RATE' and 'PULL UP' Warnings. The Investigation concluded that limitations on autopilot disconnection by pilot override were contrary to the type certification of most other transport aircraft.

IN FOCUS

Lightning Strike

Accident & Incident Reports Including Lightning as a Factor

AS3B, en-route, northern North Sea UK, 2008

On 22 February 2008, a Eurocopter AS332 L2 Super Puma flying from an offshore oil platform to Aberdeen was struck by lightning. There was no apparent consequence and so, although this event required a landing as soon as possible, the commander decided to continue the remaining 165nm to the planned destination which was achieved uneventfully. Main rotor blade damage including some beyond repairable limits was subsequently discovered. The Investigation noted evidence indicating that this helicopter type had a relatively high propensity to sustain lightning strikes but noted that, despite the risk of damage, there was currently no adverse safety trend.

SU95, Moscow Sheremetyevo Russia, 2019

On 5 May 2019, a Sukhoi RRJ-95B making a manually-flown return to Moscow Sheremetyevo after a lightning strike caused a major electrical systems failure soon after departure made a mismanaged landing which featured a sequence of three hard bounces of increasing severity. The third of these occurred with the landing gear already collapsed and structural damage and a consequential fuel-fed fire followed as the aircraft veered off the runway at speed. The subsequent evacuation was only partly successful and 41 of the 73 occupants died and 3 sustained serious injury. An Interim Report has been published.

IN FOCUS

Lightning Strike

A332, Perth WA Australia, 2014

On 26 November 2014, an Airbus A330-200 was struck by lightning just after arriving at its allocated stand following a one hour post-landing delay after suspension of ramp operations due to an overhead thunderstorm. Adjacent ground services operatives were subject to electrical discharge from the strike and one who was connected to the aircraft flight deck intercom was rendered unconscious. The Investigation found that the equipment and procedures for mitigation of risk from lightning strikes were not wholly effective and also that perceived operational pressure had contributed to a resumption of ground operations which hindsight indicated had been premature.

E145, vicinity Manchester UK, 2001

On 25 September 2001, an Embraer 145 in descent to Manchester sustained a low power lightning strike which was followed, within a few seconds, by the left engine stopping without failure annunciation. A successful single engine landing followed. The Investigation concluded that the cause of failure of the FADEC-controlled AE3007 engine (which has no surge recovery logic) was the aero-thermal effects of the strike to which all aircraft with relatively small diameter fuselages and close mounted engines are vulnerable. It was considered that there was a risk of simultaneous double engine flameout in such circumstances which was impossible to quantify.

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SAFETY JOURNAL

Aviation Hazards During Pre-Monsoon

Description :- Absolute safety is generally an unachievable and very expensive goal. Therefore the concept of acceptable safety has been adopted in risk-bearing industries, including aviation. The term "acceptable risk" describes an event with a probability of occurrence and consequences acceptable to the society, i.e. the society is willing to take or be subjected to the risk that the event might bring. It is the role of the safety regulatory authorities to translate the society expectations and perceptions into a qualitative or quantitative target level of safety.

“The **acceptable level of safety** expresses the safety goals of an oversight authority, an operator, or a services provider. From the perspective of the relationship between oversight authorities and operators/services providers, it provides the minimum safety objective(s) acceptable to the oversight authority to be achieved by the operators/services providers while conducting their core business functions.” (*ICAO Annex 11, Attachment E*).

Traditionally, in many industries including aviation, safety regulation has been carried out prescriptively, i.e. the regulator defines the rules and standards to be followed and uses audit and inspection to check compliance with them. This approach requires a great deal of specialist resource on the part of the regulator and is often over-constraining for the regulated entity, particularly in the introduction of new processes and technologies.

SAFETY JOURNAL

Aviation Hazards During Pre-Monsoon

Recognition of these difficulties has led to an objective-based approach to safety regulation, in which safety is much more clearly the responsibility of the operator/service provider, the regulator's role being mainly to ensure that the service provider discharges his responsibilities properly. The regulator sets objectives for the achievement and demonstration of safety - acceptable (or tolerable) safety levels - and the service provider has to show (by argument and evidence) that those objectives have been met.

In aviation, the acceptable level of safety is generally defined in terms of the probability of an aircraft accident occurring. It is defined individually for each operator/service provider on the basis of the target level of safety set by the regulator. An array of factors such as the complexity of operations, the operational context, past safety performance, existing safety regulatory framework, applicable safety standards, etc. are taken into account. "Each agreed established level of safety should be commensurate with the complexity of individual operator/service providers' operational contexts, and the level to which safety deficiencies can be tolerated and realistically addressed." (ICAO Annex 11, Attachment E).

The concept of acceptable level of safety is expressed by two specific metrics, namely safety performance targets and safety performance indicators.

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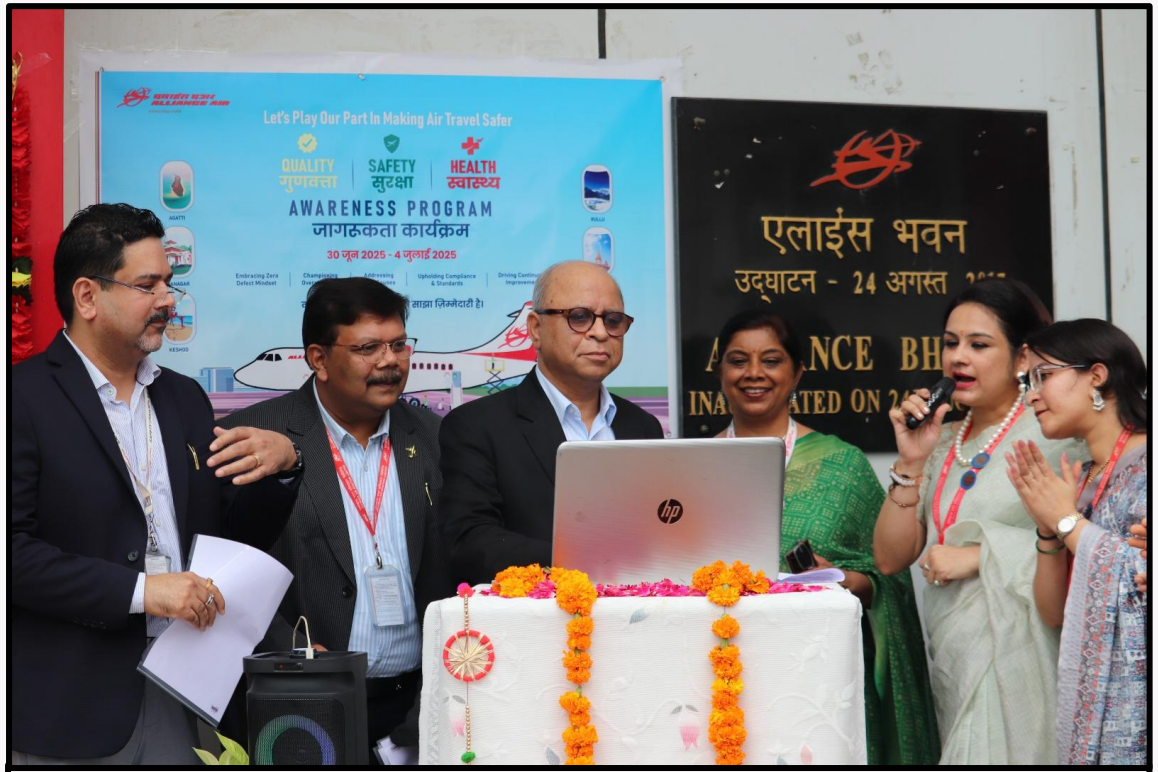
MEETINGS/ENGAGEMENTS

Inaugural of Quality/ Safety / Health awareness week on 30th June 2025



Releasing of E-Safety Poster to PAN India by Chairman, Alliance Air

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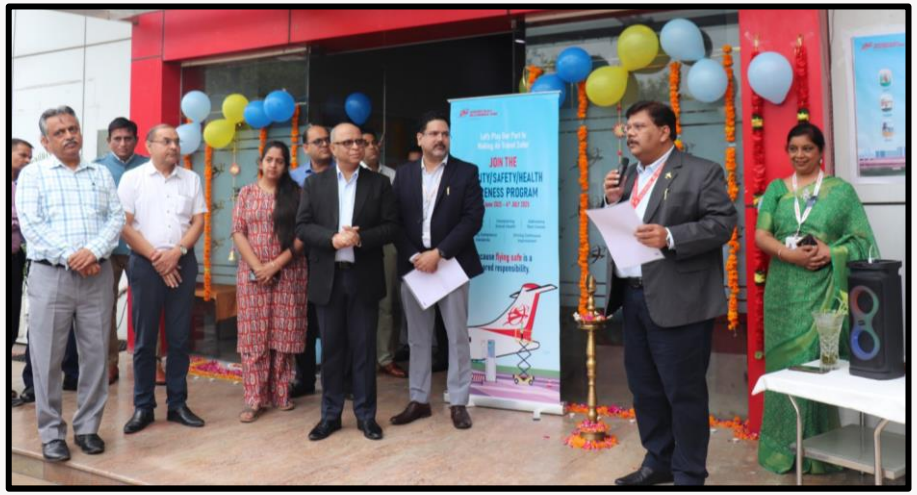

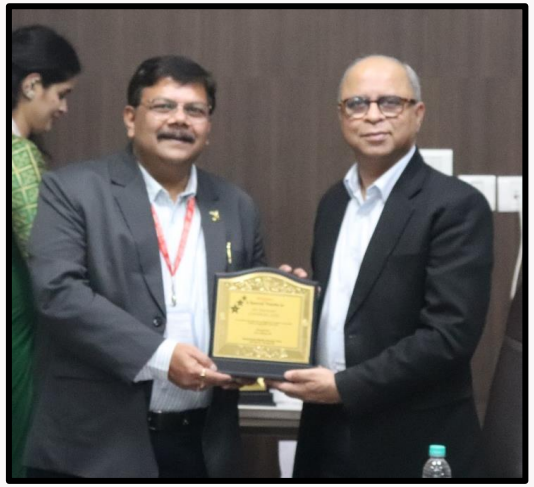

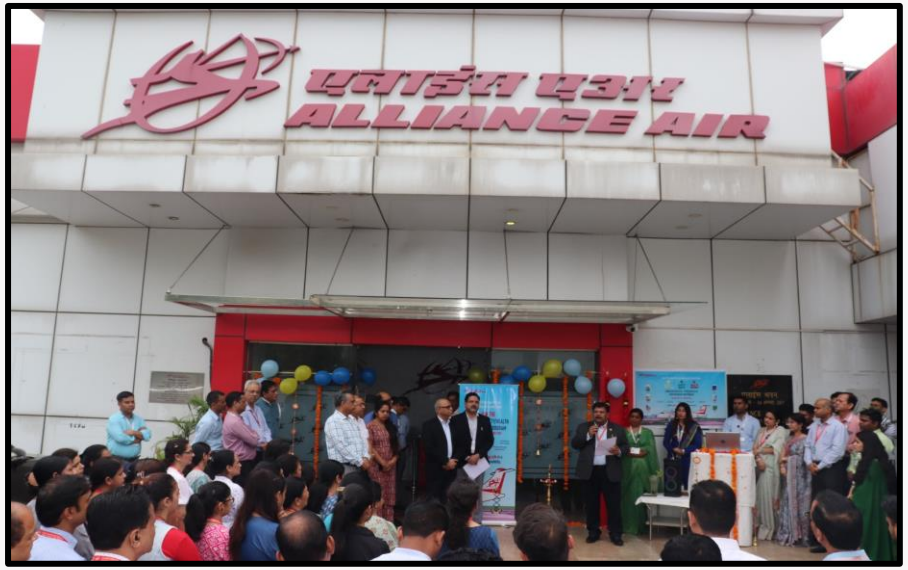

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Schedule of Quality / Safety / Heath Awareness week (30th June to 4th July 2025)

Day -1 (30th June 2025)	▪ Inauguration ceremony by Chairman-AAAL followed by Presentation on Quality and Safety aspects to competent authority and HOD's. ▪ Familiarization of Safety/Quality audit checklist to station managers and Nodals.
Day - 2 (01st July 2025)	▪ **ORG** ISARP's Compliance interactive meet with the team of HR. ▪ **IFS** ISARP's Compliance interactive meet with the team of IFS. ▪ Blood and Urine sample collection for heath checkup as per CGHS rates by Lal path Lab.
Day - 3 (02nd July 2025)	▪ **Interactive Meeting** with Pilots, Cabin, Crew , Engineers through web-ex/Physical. ▪ **ERP Mock drill.** ▪ **Engineering** ISARP's Compliance interactive meet with the team of Engineering. ▪ **Cargo** ISARP's Compliance interactive meet with the team of commercial.
Day - 4 (03rd July 2025)	▪ **Health Camp** for all AAAL employees. ▪ Blood test reports will be provided. ▪ Flight Dispatch & Flight Operations ISARP's Compliance interactive meet with the team of operations. ▪ **Security and Ground handling** ISARP's Compliance interactive meet with the team of security and airport operations.
Day - 5 (04th July 2025)	▪ QUIZ Competition. ▪ Closing ceremony of the Safety /QMS /Medical Awareness Week. ▪ Rewards distribution to the winners of Quiz competition by CEO.

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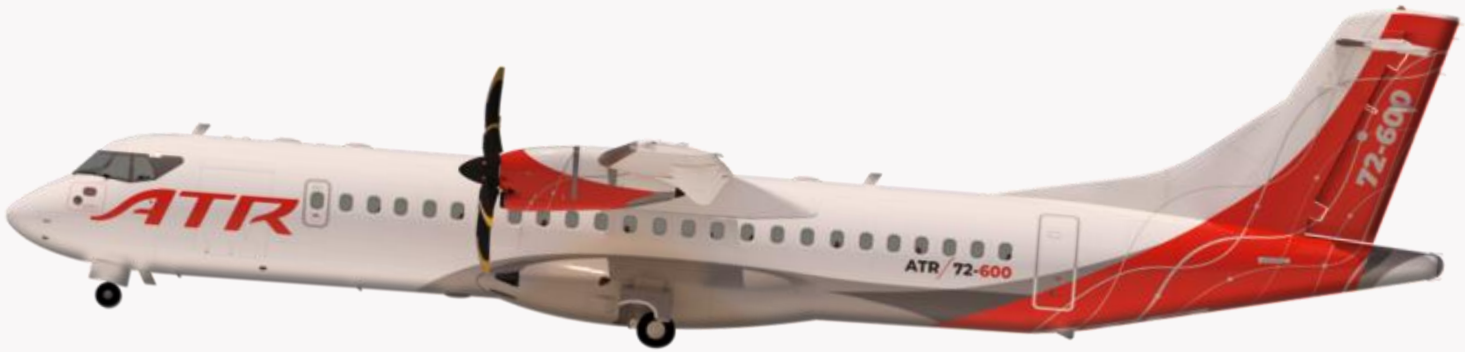
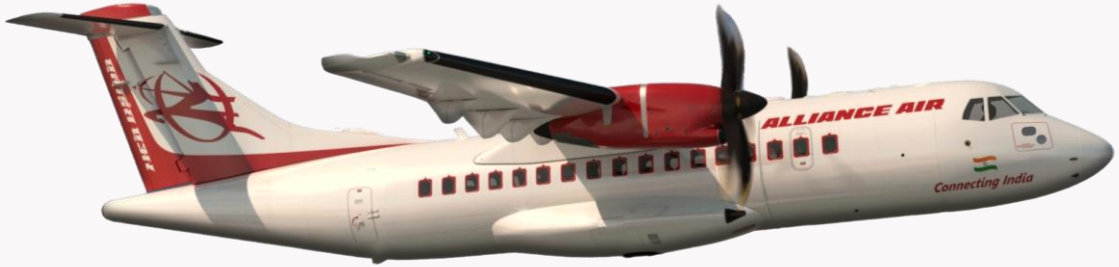
OUR FLEET

ATR 72-600



ATR 42-600



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Azadi Ka Amrit Mahotsav

सादर/ Regards,

विकास शर्मा / Vikas Sharma

उड़ान संरक्षा प्रमुख / Chief of Flight Safety, Head-ERP

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FLIGHT SAFETY DEPARTMENT, AAAL