

CIVIL AVIATION AUTHORITY PAKISTAN **FLIGHT STANDARDS DIRECTORATE**



This Information Bulletin, adopted by Flight Standards Directorate aims to keep members of Pakistani Civil Aviation community updated on latest items of common interest and developments within the aviation industry. It is anticipated that, the bulk of material would be of relevance to AOC, Training, Standards and helpful to the Safety Managers who implement their policies.

The Bulletin is designed to serve the objective of Flight Standards Directorate that is “To improve upon Safety Standards”.

INFORMATION BULLETIN

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AIR GROUND VOICE COMMUNICATIONS

Description

Until data link communication comes into widespread use, air traffic control will continue to depend heavily upon voice communications, which are affected by various factors. Any breakdown in communication between pilot and ATCO can result in a hazardous situation, especially in controlled airspace. Alternative means of communication do currently exist but they are still very limited in their capability to substitute for RTF as usually employed.

Problems with Air-Ground Communications have been a significant cause or a contributory factor in many aircraft accidents and serious incidents.

Types of Communication Breakdown

Communication breakdown may result from:

- Failure to hear or to respond to a message because of:
 - Communication equipment problems caused by malfunction or complete failure of aircraft or ground equipment - becoming less of an issue with improved system redundancy;
 - Radio interference, which makes the message difficult or impossible to read;
 - Blocked Transmission;
 - Call-sign Confusion - the message was wrongly addressed or was taken by another aircraft;
 - Flight crew unintended mis-management of radio frequency or box selection - which remains one of the main causes of prolonged loss of communication;
- A breakdown in radio discipline resulting in the pilot receiving and acting on an incorrect version of the message passed, due for example to:
 - Failure to use standard phraseology;
 - Poor language skills;
 - Failure of the read-back/hear-back process;

Effects

Communication breakdown may result in:

- The pilot not flying the required vertical profile which may lead to a level bust, or not following the required horizontal profile:
 - Either situation may cause the aircraft to make an unauthorised entry of designated airspace (airspace infringement) which may leading to disruption of air traffic causing risk to other airspace users and increased workload for pilots and controllers, or may put the infringing aircraft at risk from ground hazards such as artillery firing;

- Either situation can lead to loss of separation from other aircraft, or airborne objects (Ballons or parachutists for example) which may result in collision.
- Level bust may also lead to collision with an obstacle or the ground (CFIT);
- Injury, especially to cabin crew or passengers, may be occasioned by sudden manoeuvres to avoid collision with other aircraft or the ground, or as a result of a wake vortex turbulence encounter;
- The pilot changing to an incorrect frequency or not implementing a frequency change, leading to:
 - Loss of situation awareness;
 - Inability to respond to further clearance or to emergency instructions, e.g. avoiding action.
 - This is exacerbated if the pilot fails to check in on *any* frequency having acknowledged a requested change;
- Runway Incursion and other hazardous situations while on the ground.
- Confusion between, and increased workload for, ATCOs.

Defences

The principal defences against the **occurrence** of communication breakdown are adherence to relevant SOPs and good radio discipline.

Defence against the **effects** of communication breakdown include the following:

- Onboard aircraft equipment designed to warn of potential collision with other aircraft (ACAS/TCAS).
- Ground-based equipment designed to warn of potential collision with other aircraft: Short Term Conflict Alert (STCA), potential collision with the ground, Minimum Safe Altitude Warning (MSAW), or airspace infringement Area Proximity Warning (APW).

Typical Scenarios

- The pilot or ATCO does not use Standard Phraseology resulting in the message being misunderstood.
- Part of the message is lost due to radio interference, or because of Blocked Transmission.
- The pilot mishears all or part of a clearance, the pilot does not read back the clearance and the ATCO does not challenge the absence of a read-back (read-back/hear-back).
- The pilot reads back all or part of the clearance incorrectly but the ATCO does not note the error and does not correct the pilot's read-back (read-back/hear-back).
- The pilot accepts a clearance intended for another aircraft (call-sign confusion).

Contributory Factors

- Pilot workload.
- ATCO workload;
- Inadequate language proficiency;
- Frequency congestion;
- Non-standard phraseology;
- Radio interference;
- Distractions or interruptions;

- Fatigue;
- Weather;
- Emergency Communications.

Solutions

- Improved pilot and ATCO training to ensure that pilots and ATCOs understand and follow SOPs, particularly with regard to:
 - Radio discipline;
 - Prevention of blocked transmissions
 - Emergency communications.
- Recognise and understand respective pilot and ATCO working environments and constraints.
- Listen to other communications on the frequency to build situational awareness, avoid talking over transmissions by other users, and be alert to potential call sign confusion.
- Promotion of, and training in, Crew Resource Management in order to ensure that SOPs are applied in best possible way to ensure:
 - The flight clearance is understood. This includes checking to ensure that both pilots agree and understand the flight clearance (cross-checking is a role overseen by the monitoring pilot/crew member);
 - The aircraft follows the flight clearance and does not unintentionally deviate from it. This includes checking the settings made to technical equipment and monitoring the performance of that equipment and the aircraft in order to detect any error or malfunction.
- Action within ATM to improve Team Resource Management, thereby ensuring that:
 - The flight crew understand the flight clearance;
 - Deviation from an essential element of the clearance is detected and corrected at an early point.
- Improved technical equipment.

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