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		14 October , 2006

File No AV.15022/ 46 /2006-AS

This AIC is issued under the provisions of Rule 133A of the Aircraft Rules, 1937 for information, guidance and compliance by all concerned while operating at Indian airports.



(K Gohain)

DIRECTOR GENERAL OF CIVIL AVIATION

SUBJECT: RUNWAY INCURSIONS

Runway incursion is defined as any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface, designated for the landing and take-off of aircraft.

With the growth in traffic runway incursions have been showing a growing trend the world over, and have been causing safety concerns. Prevention of runway incursions has become a priority area.

Runway incursion prevention programme involves 4 groups of persons/services.

1. Pilots of aircraft.
2. Drivers of vehicle /Pedestrians/Personal working at the airports.
3. Aerodrome owner/operator.
4. Air Traffic Controllers.

Miscommunication between controller and pilot, improper use of ICAO phraseology, read back and hear back error, lack of knowledge of the operational area by airport staff engaged in different airport operations were found to be the contributory factors.

In order to avoid Runway incursion causing safety hazard which may eventually lead to serious incident/accident this AIC details guidelines to be observed by all concerned while operating at Indian Airports.

I. Guidelines for Pilots:

Detailed investigations of runway incursions have identified three major areas where pilots can help.

- **Communications**
- **Airport knowledge**
- **Cockpit procedures for maintaining orientation.**

1. **Communications:** Effective pilot/controller communications are key to safe surface operations. Clear understanding of instructions should never be compromised, especially during busy times when the frequency is congested.
 - a) Listen before you transmit.
 - b) If able, monitor RT communication to have mental picture of Airport activity.
 - c) Keep communications with the controller clear and concise.
 - d) Ensure you understand all instructions. Never assume.
 - e) Read back runway hold short instructions verbatim.
2. **Airport knowledge:** Ground operations can be the most demanding and complex phase of the flight.
 - a) Review airport diagrams before taxing or landing.
 - b) Keep the airport diagrams including taxi routings readily available.
 - c) Be alert to airport vehicle and pedestrian activity.
 - d) Maintain situational awareness of proximity to Runway at all times.
 - e) Comply with Holding Point markings/signage
3. **Cockpit procedures:** Pilots can use proven and effective procedures in the cockpit to help conduct safe operations on the ground and during takeoff and landing.
 - a) Avoid unnecessary conversation, during movements, takeoff, and landing.
 - b) Constantly scan outside the cockpit, especially when on runways.
 - c) If lost notify Air Traffic Control immediately.
 - d) Make your aircraft visible by proper use of aircraft lights.
 - e) If unfamiliar with the airport do not hesitate to request progressive taxi instructions.
 - f) Insure proper radio telephony operation and check audio panel, volume control and squelch settings.
4. **Stay alert especially when visibility is low:** Extra vigilance is required when visibility decreases and the ability for pilots and controllers to maintain desired level of situational awareness becomes significantly more difficult.
5. **Report confusing or deteriorating surface markings and signs:** Report confusing or deteriorating surface markings and signs and inaccurate airport diagrams to the tower or airport manager.

II. Guidelines applicable to Airport owners/ Operators and Airside vehicle Drivers:

1. The term ground aids commonly refers to Aerodrome Signs, Markings, Lightings and any other appearance or object that is utilized to help guide the users of the Airport.
2. It is important to emphasize that effective and consistent training in the use of aerodrome ground aids is crucial in reducing the runway incursion problem. It is therefore important that all personnel having access to aerodrome operational areas and aerodrome ground aids undergo training in correct interpretation of information provided by signs markings and lightings. The training programme should be well coordinated and should make ample use of SARPS and guidance material as outlined in Annex 14 and associated technical manuals. A runway includes a runway strip , it is not just the pavement surface , but includes grass/gravel areas. Edge of the strip is marked, which needs to be always followed.
3. One of the primary causes of runway incursion is the lack of familiarization with the aerodrome lay out, it is important for the ground vehicle drivers to have on sight training experience in getting to know the aerodrome signs, markings and lighting. Maintain situational awareness of proximity to Runway at all times
4. All operations by vehicles on the runways or taxiways require individual authorization from control tower, even for pass holders in each individual case.
5. Pilots of aircraft and vehicles operating on or near the runway are expected to keep watch for light or other signals that might be issued from control tower according to local procedures. Radio equipped aircraft and vehicles should maintain continuous listening watch on Tower or Ground Control frequencies.
6. Faded signs and incorrectly placed signs often lead to runway incursion. Frequent and random inspection shall be carried out to prevent the above.
7. Deficiency in the aerodrome marking and visual aids often lead to runway incursion.
8. All runway markings are white. This is to differentiate them from taxiway markings.
9. Equip all airside vehicle with ICAO compliant markings and lighting .
10. Provide airside escort vehicle to, vehicles/ aircraft unfamiliar with aerodrome layout/ procedure.
11. Runway side strip markings shall always be provided for precision approach runway.

12. All taxiway markings are yellow to differentiate them from runway markings.
13. Runway holding position marking shall be in yellow color.
14. Aerodrome signs are divided into mandatory instruction signs and information signs.
15. Mandatory instruction signs are made in red background with white inscriptions. Aircraft and vehicles are not allowed to proceed beyond these points unless specifically authorized by control tower. These include runway designation sign, runway holding position sign, no entry sign and road holding position sign.
16. Information signs are made of combination of yellow and black colors. Information sign includes location signs, destination signs and direction signs. Location sign is in black background with yellow inscription and when it is stand-alone will have yellow border. All other information signs will have black inscription on yellow background.
17. A location sign shall be provided in conjunction with a direction sign except it may be omitted when aeronautical studies indicate that it is not needed.
18. Aerodrome lights include the stop bar lights or runway guard lights. All traffic shall stop and hold at all lit stop bars and only proceed when specifically authorized by aerodrome control tower.

III. Guidelines for Air Traffic Controllers:

1. Apply existing ICAO standards and recommended practices and procedures.
2. Vehicles and aircraft shall not be permitted to hold closer to the runway than the applicable runway holding positions.
3. Do not use conditional phrases such as: - “behind landing aircraft” or “after departing aircraft” for movements affecting active runways unless appropriate pilot or the controller both see the aircraft concerned.
4. Controller shall listen to the read back of clearances and instructions to enter, land on, take-off, hold short of, cross and back-track on any runway whether active or not to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancy revealed by the read back.
5. **ROGER** and **WILCO** do not constitute a read-back. **Correct read-backs are mandatory.**
6. **Controller shall listen to the read back instructions carefully to avoid Read back and Hear back error** i.e. controller confirming instructions as right although it is wrong.
7. Be alert for similar call signs, change call signs temporarily if required.

8. Avoid expectation bias i.e. hearing what is expected instead of what is really said.
9. In poor visibility conditions visual surveillance may be augmented by Radar if available.
10. If Surface Movement radar is either not provided or unserviceable during low visibility operations, all aircraft and vehicles must report having vacated active runway. Also by having the aircraft report airborne, the controller can be assured that the aircraft is no longer on the active runway.
11. When a taxi clearance contains a taxi limit beyond a runway, it shall contain an explicit clearance to either “cross” or “hold short” of that runway.
12. To reduce the potential for misunderstanding, the take-off clearance shall include the designator of the departure runway.
13. If the control tower is unable to determine, either visually or by Radar that a vacating or crossing aircraft has cleared the runway, the aircraft shall be requested to report when it has vacated the runway. **The report shall be made when the entire aircraft is beyond the relevant runway holding position.**
14. One of the reasons for misunderstanding due to differences in FAA and ICAO phraseology has now been done away with. The phrase “**TAXI TO HOLDING POINT RUNWAY 27**” shall be used instead of **TAXI TO HOLDING POSITION**”.

All runway incursion incidents come under the category of incidents and must be reported as per procedure established for ATS incidents.

For additional information on avoidance of Runway Incursion, the “ICAO Runway Safety Tool Kit “ be referred.

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