





Runway Safety through Standardized Stop Bars Practices

The UAE National Runway Safety Team (NRST) has identified Management of Stop Bars as one of the highest runway safety priorities in the prevention of runway incursions.



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Background

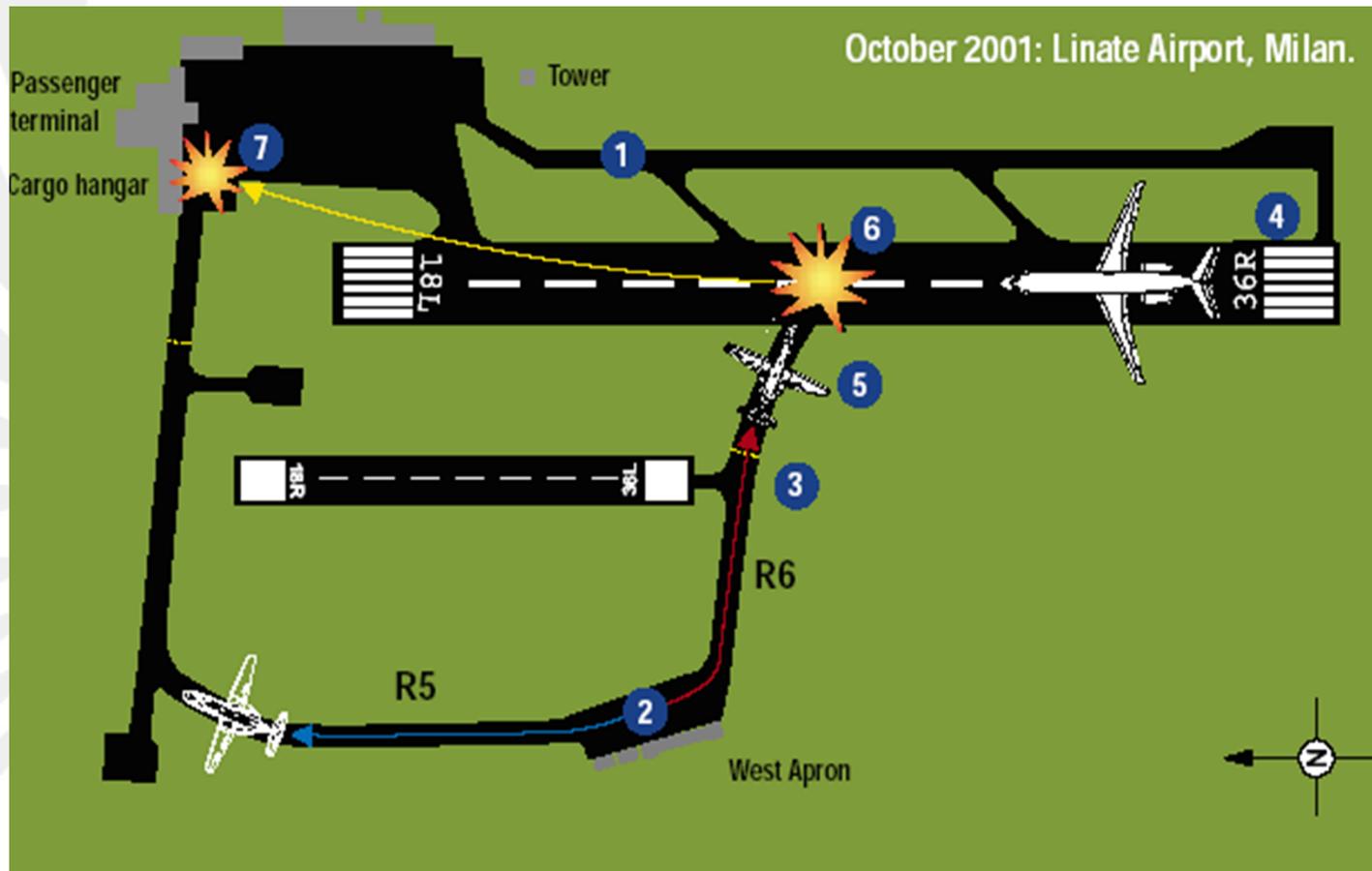
A runway incursion is defined in CAR Part VIII as

“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 an aircraft”.



Milan Linate 08 October 2001

Fatalities 118



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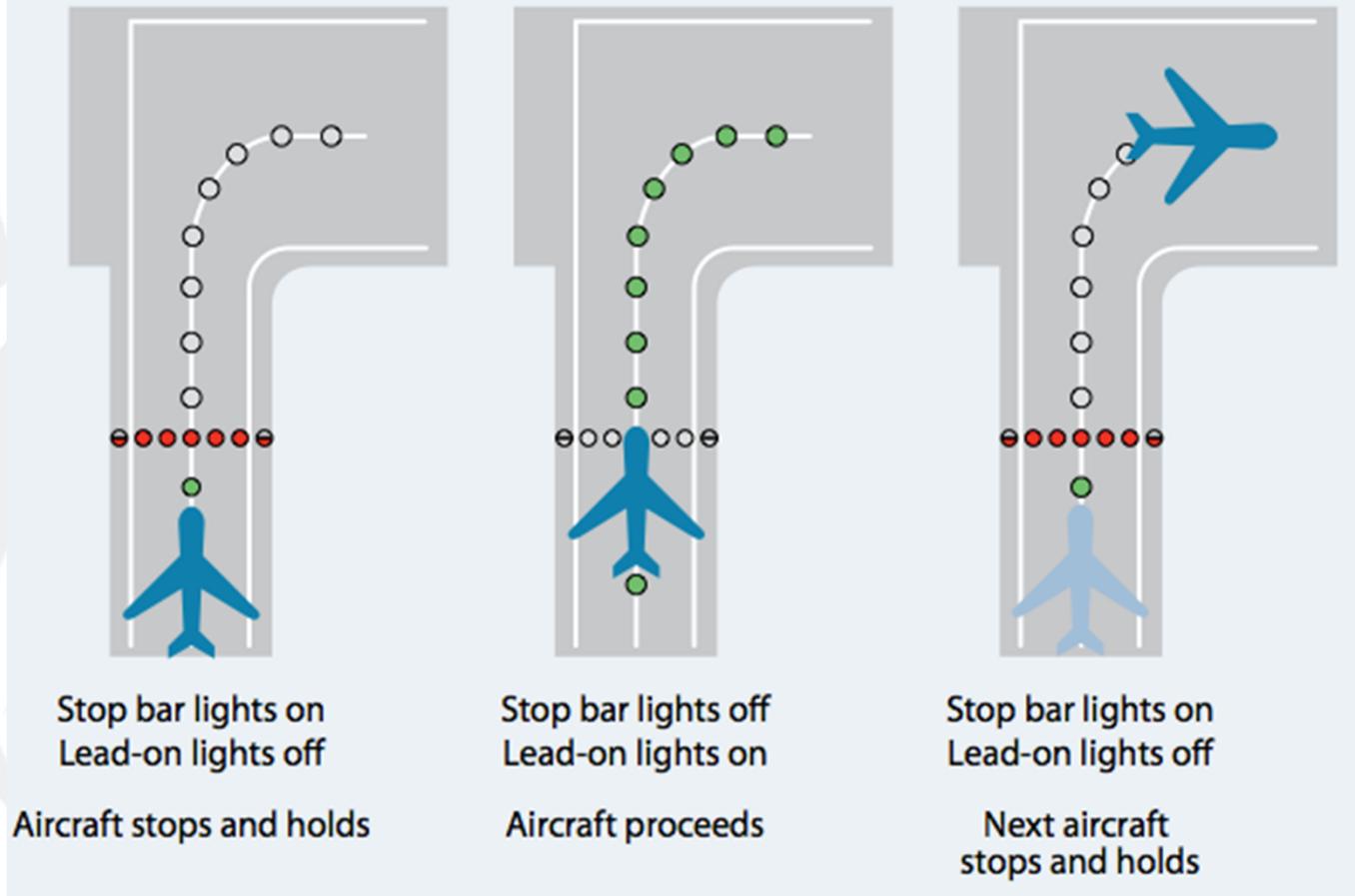
What is a Runway Stop Bar



A series of unidirectional red lights, embedded in the pavement, right angles to the taxiway centerline, at the associated runway holding position, the lights are spaced 3 meters apart ,across the taxiway located 0.3 meters before the holding point lines.



Simple Sequence in Stop Bar Concept



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The minimum ICAO requirement for the application of Stop Bars is for runways that are intended to be used with Cat II/III ILS operations i.e. runways with RVR values of less than 550 m.





ICAO Annex 14, Volume I - 5.3.20

“Runway incursions may take place in all visibility or weather conditions. The provision of Stop Bars at runway holding positions and their use at night and in visibility conditions greater than 550 m runway visual range can form part of effective runway incursion prevention measures”.



UAE National Runway Safety Team

Where Stop Bars are installed:

they should be used during operational hours
regardless of weather conditions regardless of
whether the runway is active or not



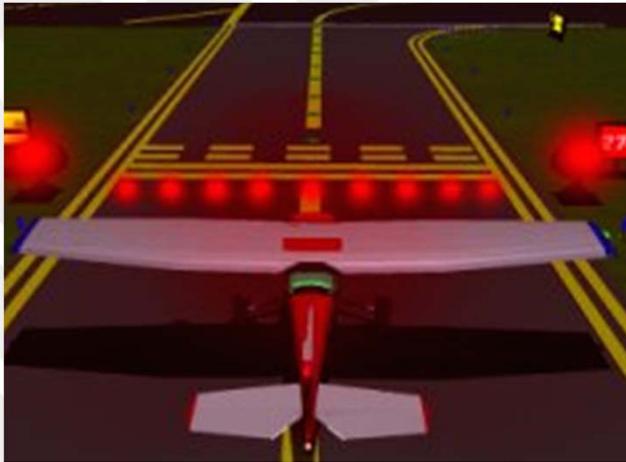
Key to a successful use of stop bars 24 hours per day is:

A clear and standardized stop bar policy from each significant organization:

- aircraft operators;
- air navigation service providers;
- aerodrome operators.



Pilots and Drivers



- Never cross an illuminated Stop Bar
- Only proceed past a Stop Bar when ATC provides the appropriate verbal instruction AND switches the Stop Bar lights off.



If given a clearance to enter or cross the runway for any purpose and the Stop Bar remains on, do not proceed and advise ATC that the Stop Bar is on and wait for further clearance. Do not cross an illuminated Stop Bar.





The requirement for a pilot or vehicle driver to stop at an illuminated Stop Bar is clearly given by ICAO

Annex 2 Rules of the Air

- *3.2.2.7.3 An aircraft taxiing on the maneuvering area shall stop and hold at all lighted Stop Bars and may proceed further when the lights are switched off.*



ATC

Air traffic controllers should never instruct a pilot or vehicle driver to cross an active Stop Bar except when contingency measures are in place.

The red Stop Bar light is switched off as the verbal instruction by ATC is given to reinforce that an aircraft or vehicle is cleared to enter the runway



When issuing a Conditional Clearance, ATC should only extinguish the Stop Bar when the subject of the condition has passed and it is safe for the aircraft or vehicle to enter the runway at that entry point at that time.



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Stop Bar Contingencies

When a Stop-Bar becomes inoperable and is unable to be switched off, an aircraft may be instructed to cross a lit Stop-Bar. Contingency plans must be put in place.





Short Term Contingency Options

(the aircraft is at the holding point)

- Re-route the Aircraft via an alternate taxiway with a serviceable stop bar, or if not possible
- The ATCO must give a plausible explanation and give clear, unambiguous and positive clearance to cross the red Stop Bars.



- *“ABC123 line up and wait runway 30R cross the red lights; I say again cross the red lights I am unable to switch the Stop Bar off [as they are unserviceable]” or*
- *“ABC123 cross the K10 Stop Bar, unable to deselect due to unserviceable”*



Long Term Contingency Options

- Use of Follow Me cars to guide the aircraft through the lit Stop Bar.
- If it is night-time/LVO or IMC then the affected runway becomes an arrival only runway.
- Issue a NOTAM.



3 meter spacing (ICAO Standard)



1.5 meter LED spacing (NRST Recommendation)



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Conclusions

- The use of Stop Bars in a non-standard manner creates confusion and could possibly lead to serious incidents and accidents.
- Unfortunately, the ICAO provisions as they are today in relation to Stop Bar related procedures are not consistent and unambiguous in all relevant ICAO documents.



Adhering to the NRST guidance (based on UAE, ICAO, European and world best practices) for Stop Bars will enhance and help to standardize the management of Stop Bars.

It is everyone's interest to harmonize and use consistent Stop Bar practices at least within our national aviation industry.