

Subject: Continuous Use of Stop Bars

Ref. Publications:

- Reg. (EU) 2017/373 ATS.TR.265 Control of aerodrome surface traffic in low-visibility conditions
- Reg. (EU) No 139/2014 ADR.OR.D.027 Safety programmes and aerodrome safety committees, CS ADR-DSN.M.730 Stop bars, CS ADR-DSN.M.771 No-entry bar and CS ADR-DSN.M.770 Road-holding position light
- Reg. (EU) No 923/2012 SERA.3210 Right of way
- ICAO Annex 14 Volume I, §5.3.20 Stop bars, §5.3.29 No-entry bar and §5.3.28 Road-holding position light
- ICAO PANS ATM (Doc 4444) §7.13 Procedures for low visibility operations
- ICAO Doc 9870 Manual on the Prevention of Runway Incursions, §10. Stop bars
- ICAO Doc 9157 Aerodrome Design manual, Part 4 – Visual Aids, §10.4.10 – 10.4.17
- ICAO Global Runway Safety Action Plan (GRSAP) – Runway Safety Recommended Actions
- Global Action Plan for the Prevention of Runway Incursions (GAPPRI) recommendations ADR20, ANSP28, AO22, REG7
- Japan Transport Safety Board, Aircraft accident investigation interim report, Japan Coast Guard Bombardier DHC-8-315 and Japan Airlines CO., LTD Airbus A350-941
- Bureau d'Enquêtes et d'Analyses pour la sécurité de l'aviation civile (BEA), Investigation report on runway incursion on 7 March 2016 at Bâle-Mulhouse
- Transportation Safety Board of Canada, Aviation Investigation Report A16O0016
- Comisión de Investigación de Accidentes e Incidentes de Aviación Civil (CIAIAC), Technical report IN-057/2022
- Swiss Transport Safety Investigation Board (STSB), Final Report No. 2354
- Havarikommissionen Luftfartsenheden (HCLJ), Rapport HCLJ510-000811

Applicability:

- Aerodrome Operators
- Aerodrome Air Traffic Control (ATC) service providers
- National Competent Authorities
- EASA Member States

Description:

For over a decade, preventing runway incursions has been a priority in Europe and worldwide. Unfortunately, the number of runway incursion occurrences involving commercial air transport aeroplanes in EASA Member States has increased since the COVID-19 pandemic, both in absolute terms and relative to the number of flights.

This is information only. Recommendations are not mandatory.



Aerodrome operators are responsible for establishing and implementing safety programmes¹ to enhance safety at the aerodromes, including runway safety. In coordination with the aerodrome ATC service provider and as consulted with the Local Runway Safety Team (LRST), various measures can be implemented to more effectively prevent and detect runway incursions.

Although the use of stop bars is widely recognised as one of the most effective barriers in preventing runway incursions, they are not always used to their full potential. Stop bar use is required during low-visibility operations (Runway Visual Range (RVR) values below 550m), unless operational measures are in force such as the limitation to one aircraft on the manoeuvring area at a time². The use of stop bars at any time of the day regardless of visibility conditions is also recommended as an optional barrier that can form part of effective runway incursion prevention measures^{3,4,5}. However, in practice it seems that this measure is only occasionally applied at aerodromes, a situation that is often not corresponding with the local exposure to runway incursions risks.

The investigation of several safety occurrences has indicated the potential for a reduction of the number of runway incursions through the continuous operation of the stop bars, for example:

- On 2 January 2024, an aircraft collided after a night touchdown in good visibility at Tokyo Haneda with another aircraft that had entered the runway for departure without clearance. The aerodrome was equipped with stop bars, which were however out of operation due to construction works and were in any case only operated when the visibility was low or expected to get lower and when air traffic controllers deemed it necessary⁶.
- On 7 March 2016, ATC at Bâle-Mulhouse airport cleared an aircraft to take-off and instructed another aircraft to hold short of the runway. The read-back from the second aircraft was incorrect but went undetected by ATC and the aircraft entered the runway. Stop bars were installed to protect the runways, but they were only used during low-visibility operations⁷.
- On 30 January 2016 at Toronto/Lester B. Pearson airport, an aircraft had to initiate a go-around because another aircraft entered the runway due to a communication error. The investigation report⁸ concluded that given the obscured view of the threshold from the tower, the use of the stop bar (that was available but not in use given the level of visibility) could have been informative.

In addition, Civil Aviation Safety Investigation Authorities (SIA) have issued Safety Recommendations directly addressing the continuous use of stop bars:

- Following an incident at Seville Airport on 6 October 2022, the Spanish investigation authority (CIAIAC)⁹ recommended the provider of the aerodrome control service to make the use of the stop bars mandatory, even under visual meteorological conditions and for all operations.

¹ Regulation (EU) No 139/2014 ADR.OR.D.027 Safety programmes and aerodrome safety committees

² EASA Certification Specifications and Guidance Material for Aerodrome Design CS ADR-DSN.M.730(a)(1)

³ ICAO Annex 14, Volume I, §5.3.20, Note 2

⁴ EASA Certification Specifications and Guidance Material for Aerodrome Design GM1 ADR-DSN.M.730(b)

⁵ GAPPRI, Appendix A Section 8 and Appendix B Section 16

⁶ [Interim Report Japan Coast Guard – Japan Airlines Ltd aircraft accident by JTSB](#)

⁷ [Investigation report serious incident at Bâle-Mulhouse on 7 March 2016 by BEA](#)

⁸ [Aviation Investigation Report A1600016 by the Transportation Safety Board of Canada](#)

⁹ [Technical Report IN-057/2022 by the Comisión de Investigación de Accidentes e Incidentes de Aviación Civil \(CIAIAC\)](#)

This is information only. Recommendations are not mandatory.



- Following a converging conflict between two aircraft that occurred at Geneva Airport on 24 July 2015, the Swiss investigation authority (STSB)¹⁰ recommended that the competent authority should demand that all intersections and runway thresholds are to be equipped with stop bars and that these are activated in any weather conditions during the airport's hours of activity.
- As a result of the investigation of a runway incursion at Copenhagen airport on 26 November 2010, the Danish investigation authority (HCLJ)¹¹ recommended the evaluation and optimisation of the use of stop bar lights and the proximity denotations of runway-holding positions at Danish airports (like continuous (H24) use of stop bar lights and enhanced taxiway centreline markings).

The Global Action Plan for the Prevention of Runway Incursions (GAPPRI)¹² also recommends the implementation of continuous (H24) stop bar use, as it ensures that the critical boundary of the runway is clearly marked at all times.

The continuous operation of the stop bars is expected to reduce the probability of an inadvertent crossing of the runway holding point onto the runway, as it:

- provides a direct warning to flight crews and vehicle drivers which is not subject to the delays of relaying a warning that is visible or audible only to the air traffic controllers (ATCOs);
- addresses the main causal event types of runway incursion occurrences, such as clearance deviations and communication errors, which are factors that are not related to visibility conditions; and
- reduces the differences between normal and low-visibility operations, minimising the possibility of confusion and increasing the level to which ATCOs, pilots and vehicle drivers are accustomed to the relevant procedures.

If H24 stop bar use is introduced and according to the same rationale, also available no-entry bars¹³ and road-holding position lights¹⁴ should be operated continuously for consistency and enhanced safety.

The implementation of continuous stop bar use is a complex change that requires thorough coordination and robust planning, typically involving all relevant stakeholders via the LRST. The transition may introduce safety risks which should be assessed and mitigated under the change management of the safety management systems (SMS) of the aerodrome operator and aerodrome ATC service provider. It is important to develop a detailed implementation plan, taking into account the potential impact on runway throughput and ATC workload. While it is possible to introduce H24 stop bar use with limited or no impact, depending on the operational exposure of the aerodrome and the traffic density, additional investments may be necessary, such as:

- installing single runway holding positions, replacing the current CAT I and CAT II/III holding positions, or additional stop bars at CAT I holding positions to maintain the required capacity;

¹⁰ [Final Report No. 2354 by the Swiss Transport Safety Investigation Board STSB](#)

¹¹ [HCLJ recommendation DENM-2010-005](#)

¹² [Global Action Plan for the Prevention of Runway Incursions \(GAPPRI\)](#) recommendations ADR20 and ANSP28

¹³ EASA Certification Specifications and Guidance Material for Aerodrome Design GM1 ADR-DSN.M.771

¹⁴ EASA Certification Specifications and Guidance Material for Aerodrome Design CS ADR-DSN.M.770

This is information only. Recommendations are not mandatory.



- adapting the human-machine interface (HMI) to facilitate the use of stop bars by ATCOs and redesigning operational procedures for the H24 use of stop bars compared to the use during low visibility only.

This Safety Information Bulletin (SIB) addresses aerodromes with existing stop bars and recommends making optimal use of this equipment. Nevertheless, it is self-evident that the use of stop bars also at aerodromes that do not offer low visibility operations is one of the most effective barriers in the prevention of runway incursions¹⁵. Depending on the traffic density of the aerodromes and the local risk of runway incursions, providing stop bars should also be considered as an additional defence for those aerodromes.

At this time, the safety concern described in this SIB is not considered to be an unsafe condition that would warrant Safety Directive (SD) action under Commission Regulation (EU) No [139/2014](#), Annex II, ADR.AR.A.040 or Commission Implementing Regulation (EU) [2017/373](#), Annex II, ATM/ANS.AR.A.030.

Recommendation(s):

To optimise the use of existing stop bar infrastructure and enhance runway safety, the European Union Aviation Safety Agency (EASA) recommends the following:

1. Aerodrome operators of aerodromes with stop bars already installed:

- As lead of the Local Runway Safety Team (LRST), discuss the topic addressed in this SIB as part of the regular meetings.
- In coordination with the aerodrome ATC service provider, implement continuous stop bars use as part of the aerodrome operator's safety programmes, giving due consideration to the local risk of runway incursions, unless the risk is found to be sufficiently mitigated by other technologies and/or operational concepts for the prevention and detection of runway incursions (e.g. ground movement surveillance, Triple One...).
- If continuous use is agreed upon, ensure robust planning and contribute to modifying the stop bar human-machine interface (HMI) as necessary based on local arrangements.
- If deciding not to implement continuous stop bar use, conduct a safety risk assessment together with the aerodrome ATC service provider to support this decision and consult with the LRST. Regularly review the assessment and related safety data to ensure that the arguments remain valid.
- Make use of the appropriate aeronautical information to promulgate information on the continuous operation of stop bars to air operators.

2. Aerodrome ATC service providers:

- In coordination with the aerodrome operator, implement continuous stop bar use, giving due consideration to the local risk of runway incursions, unless the risk is found to be sufficiently mitigated by other technologies and/or operational concepts for the prevention and detection of runway incursions (e.g. ground movement surveillance, Triple One...).
- If continuous use is agreed upon, adapt any related HMI for the use of stop bars by ATCOs and related working procedures, in collaboration with the aerodrome operator.

¹⁵ EASA Certification Specifications and Guidance Material for Aerodrome Design GM1 ADR-DSN.M.730 (b)

This is information only. Recommendations are not mandatory.



- Contribute to the safety risk assessment conducted together with the aerodrome operator in case it is decided not to implement continuous stop bar use. Regularly review the assessment and related safety data to ensure that the arguments remain valid.

3. National Competent Authorities:

- Take these recommendations into account in the context of the continuous oversight activities, ensuring appropriate follow-up of this SIB by relevant aerodrome operators and ATC services providers.
- Assess if this SIB is addressed in the LRST and discussed with the relevant stakeholders.

4. EASA Member States:

- Consider including actions in the State Plan for Aviation Safety to encourage aerodrome operators and aerodrome ATC providers to implement continuous stop bar operation.

Contact(s):

For further information contact the EASA Runway Safety Team.

E-mail: runway-safety@easa.europa.eu.

This is information only. Recommendations are not mandatory.



An agency of the European Union