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FLIGHT SAFETY FOUNDATION



Runway Safety

ICAO Runway Safety Team Handbook

<http://www.icao.int/safety/RunwaySafety/Documents%20and%20Toolkits/ICAO%20RST%20Handbook%202nd%20Edition%202015%20REV2.pdf>

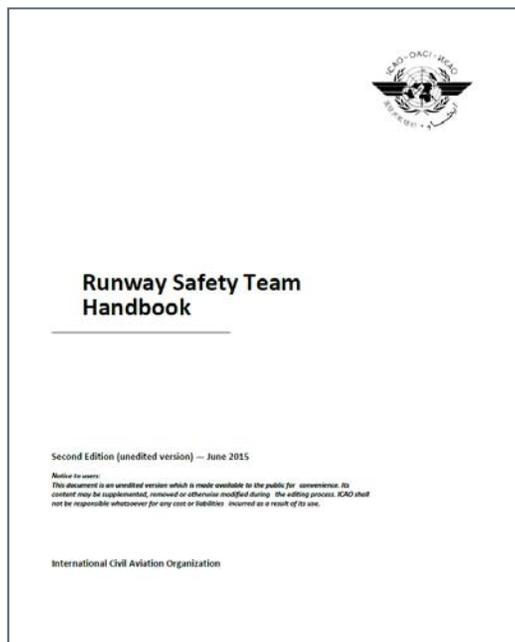
Zhuliany Intl Airport, Ukraine, 12 June 2018

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Introduction to the Handbook



- ICAO Assembly resolution **A37-6** (2010) urges States to enhance runway safety
- ICAO promotes and supports the establishment and enhancement of **multi-disciplinary Runway Safety Teams (RSTs)** at aerodromes
- The requirement for airports to establish a RST is one of the main outcomes of the ICAO **Global Runway Safety Symposium** (2011)
- ICAO **Runway Safety Programme (RSP)** promotes the establishment of RSTs at airports as an effective means to reduce runway related accidents and serious incidents



Handbook is designed to:

- describe the components of an effective RST
- serve as a single reference for RST activities
- promote the sharing and exchange of safety information between stakeholders



Scope of the Handbook:

- A successful RST allows all key stakeholders interested in improving runway safety to cooperate in a collaborative manner
- Handbook is a reference for
 - aerodrome operators
 - air traffic services organizations
 - commercial air operators
 - organizations representing the general aviation community
 - the regulatory authority
 - meteorological services
 - other stakeholders



Definitions

Clearway. A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an airplane may make a portion of its initial climb to a specified height.

Hazard. A condition or an object with the potential to cause death, injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function.

Hot spot. A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

Risk mitigation. The process of incorporating defenses or preventive controls to lower the severity and/or likelihood of a hazard's projected consequence.

Runway. A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

Runway confusion. An error when an aircraft makes "unintentional use of a wrong runway or taxiway for landing or take-off".

Runway end safety area (RESA). An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an airplane undershooting or overrunning the runway.

Runway Excursion. Any occurrence at any aerodrome involving the departure, wholly or partly, of an aircraft from the runway in use during take-off, a landing run, taxiing or maneuvering.



Definitions (cont'd)

Runway Incursion. 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 takeoff of aircraft.

Note: In the context of runway incursions, the protected area of a surface designated for the landing and take-off of aircraft is comprised of: the runway; the stopway; the runway end safety area (RESA); the area along each side of the runway whose width is the runway-holding position distance; and, if provided, the clearway.

Runway Safety. The state in which risks associated with the operation of aircraft on runways are reduced and controlled to an acceptable level.

Runway Safety Team. A team comprised of representatives from [the aerodrome operator], air traffic service providers, airlines or aircraft operators, pilot and air traffic controllers associations and any other group with a direct involvement in runway operations [at a specific aerodrome,] that advise the appropriate management on the potential runway [safety] issues and recommend mitigation strategies.

Note: This definition is based on ICAO Doc 9870 – Manual on the Prevention of Runway Safety Incursions, but takes into consideration evolving concepts resulting from recent work of the ICAO Runway Safety Program.



Definitions (cont'd)

Safety. The state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.

Safety management system (SMS). A systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures.

Safety risk. The predicted probability and severity of the consequences or outcomes of a hazard.

Safety risk probability. The likelihood or frequency that a safety consequence or outcome might occur.

Safety risk severity. The extent of harm that might reasonably occur as a consequence or outcome of the identified hazard.

State Runway Safety Programme (RSP). An integrated set of regulations and activities aimed at improving runway safety.

Stopway. A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.



RUNWAY SAFETY TEAM (RST)

Goals and general description

The primary role of a RST is to advise relevant operators and service provider's management and operational staff on prevailing safety-related conditions on the runway, taxiways and adjacent areas, other issues of concern, and develop mitigating measures and solutions to identified issues.

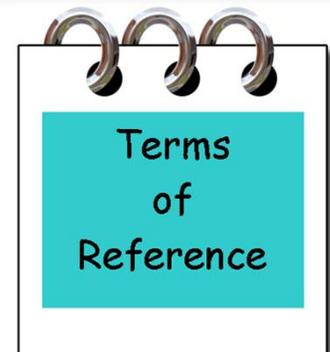


RST should cover a wide range of issues related to runway safety, including the following ICAO occurrence categories:

- Abnormal runway contact;
- Bird strike;
- Ground collision;
- Ground handling;
- Runway excursion;
- Runway incursion;
- Loss of control on ground;
- Collision with obstacle(s);
- Undershoot / overshoot, aerodrome
- Use of the wrong runway (runway confusion)
- High Speed Rejected Take-Off
- Wildlife Event
- Damage from Foreign Object Debris (FOD)



RST TERMS OF REFERENCE



- Objectives, scope of oversight, and expected frequency of RST meetings
- Membership selection processes
- Roles and responsibilities of individual RST members
- Processes and formal agreements governing sharing of safety data, safety reports, and safety information as well as the protection of the sources of information shared within the RST
- Consultation, decision-making and conflict resolution processes
- Regularly review the airfield to ensure its adequacy and compliance with ICAO SARPs
- Ensure that the recommendations contained in the ICAO Doc 9870 - Manual on the Prevention of Runway Incursions are implemented
- Documentation and reporting requirements



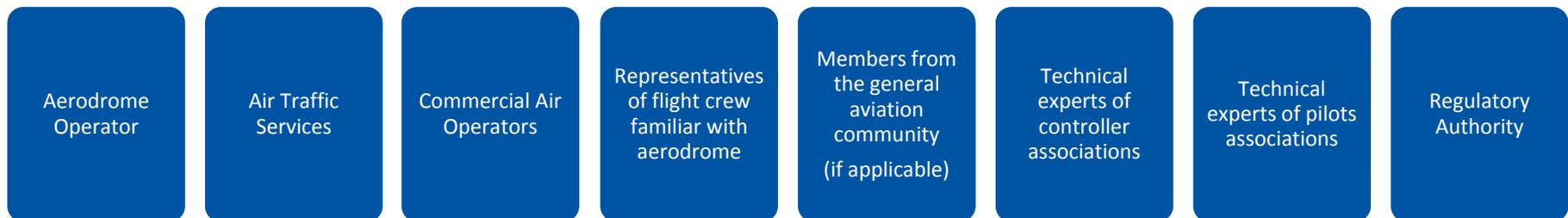
TORs (Cont'd)

- Monitor runway incidents by type, severity and frequency of occurrence
- Identify risk factors and local issues, particular locations where risk exist (e.g., hot spots), and problems in daily operations and suggest improvements
- Solicit assistance by safety experts from within the industry
- Contribute to active development of solutions to these issues
- Ensure that the best possible solution is implemented
- Learn lessons from other incidents and consider the outcome of other investigation reports
- Disseminate information on developed solutions to stakeholders
- Initiate a comprehensive safety-awareness campaign to ensure that all stakeholders' staff are aware of safety issues, such as producing and distributing local hot spot maps or other guidance material



RST ORGANIZATIONAL STRUCTURE

RST Chairperson



The team may also include upon invitation : military operator (if applicable, based on joint use of the airport or other military roles); support services (de-icing, catering, ground handling, etc.); emergency response service providers; subject matter experts (meteorologists, ornithologists, accident investigation authority, etc.); and consideration may be given to periodically inviting members of other airport RSTs to enable sharing of information and learning.



RST TECHNICAL PROCESSES

- Meetings
- Identify hazards and associated consequences
- Safety risk assessment using SMS
- Developing recommendations and action plan
- Record keeping – data sharing





RST SET-UP CHECKLIST

- checklist provided to assist both existing and new RSTs in determining if gaps exist in their programme, or if improvements can be made
- items on the checklist are designed to identify gaps in the system that would hinder the RST from achieving the goal of improving runway safety



Item	Question	Response	Comments
1. Terms of Reference (ToR)			
1.1	Is there a ToR agreement in place?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.2	Does the ToR define the scope of work of the RST?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.3	Does the ToR define the roles for members of the RST?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.4	Does the ToR define a process for handling data/reports received from the participating organizations?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.5	Does the ToR describe the decision-making process to be used by the RST?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
1.6	Does the ToR define a process for resolving disagreements between RST members?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2. Hazard identification			
2.1	Does the RST have a formal safety data collection and processing system for documenting operational hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.2	Do all RST members contribute to the formal safety data collection and processing system by sharing identified operational hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.3	Does the RST define and document specific consequences for the operational hazards?	<input type="checkbox"/> Yes <input type="checkbox"/> No	



Item	Question	Response	Comments
3. Safety Risk Management			
3.1	Does the RST have a formal process to manage the operational risk?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.2	As part of the risk management process, are the consequences of the operational hazards assessed in terms of probability and severity?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.3	Is there a formalized process to determine the level of risk the RST is willing to accept?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.4	Does the RST develop risk mitigation strategies to control the level of risk within the operational environment?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.5	Is there a formalized process for the RST to make recommendations to applicable stakeholders?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.6	Is there a formalized process to document the decisions made by the RST during the risk management process?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.7	Are the decisions made by the RST periodically reviewed to determine if the desired effect was achieved by their mitigations/recommendations?	<input type="checkbox"/> Yes <input type="checkbox"/> No	



Item	Question	Response	Comments
4. Communication			
4.1	Does the RST have a formal process to communicate with applicable stakeholders?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.2	Does the RST periodically provide runway safety material to key frontline employees?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.3	Does the RST participate in information sharing activities with other RSTs?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.4	Does the RST solicit safety-related information from all airport users via common links embedded within websites of the RST participating organizations?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5. Continuous improvement			
5.1	Does the RST have a formal process to continuously improve their processes & products?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.2	Does the RST engage in formal, periodic reviews of their programme to ensure they are improving runway safety?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
5.3	Are the results of the continuous improvement programme documented?	<input type="checkbox"/> Yes <input type="checkbox"/> No	



RST Handbook Appendices

- APPENDIX A — RST MEETING ORGANIZER TOOL (EXAMPLE)
- APPENDIX B — RUNWAY SAFETY TEAM MEETING AGENDA (EXAMPLE)
- APPENDIX C — RUNWAY SAFETY MANAGEMENT FORM
- APPENDIX D – LIST OF NATIONAL/LOCAL AGENCIES AT AN AIRPORT EXPECTED TO PARTICIPATE IN A RS GO-TEAM MISSION
- APPENDIX E – TEMPLATE FOR RS GO-TEAM ON-SITE MISSION PROGRAMME/AGENDA
- APPENDIX F – LIST OF REQUIREMENTS IN STATE/AIRPORT FOR THE GO-TEAM MISSION
- APPENDIX G — AN EXAMPLE OF RST CASE
- APPENDIX H — LIST OF USEFUL REFERENCES

An ICAO I-Kit is available, containing available Runway Safety Products from various stakeholders, at http://cfapp.icao.int/tools/RSP_ikit/story.html



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Thank you