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AGENDA ITEM 3: AVIATION SAFETY

**CLOSING GAPS IN THE IMPLEMENTATION OF ICAO
ANNEX 8 TO ENHANCE IN-SERVICE SAFETY:
A COLLABORATIVE REGULATOR–OEM APPROACH**

Presented by the Republic of Korea and Flight Safety Foundation (FSF)

INFORMATION PAPER

SUMMARY

System Component Failure (SCF) remains one of the leading contributors to non-fatal accidents and serious incidents in the Asia and Pacific Region. While ICAO Annex 8 requires continuing airworthiness information to be shared with States of Design to support continued operational safety, practical challenges remain in ensuring that Service Difficulty Reporting (SDR) data are consistently analyzed and effectively shared with Original Equipment Manufacturers (OEMs).

This paper presents collaborative initiatives undertaken by the Republic of Korea, Boeing, and the United States FAA to strengthen SDR quality, root cause analysis, and Continued Operational Safety (COS) through regulator–OEM cooperation. These activities demonstrate a practical approach to improving continuing airworthiness information and supporting more effective risk-based oversight.

Based on these experiences, the paper encourages greater regional collaboration and the exchange of best practices among regulators, operators, MROs, and OEMs to strengthen the implementation of ICAO Annex 8 and enhance in-service safety across the Asia and Pacific Region.

CLOSING GAPS IN THE IMPLEMENTATION OF ICAO ANNEX 8 TO ENHANCE IN-SERVICE SAFETY: A COLLABORATIVE REGULATOR–OEM APPROACH

1. INTRODUCTION

1.1 According to the Airworthiness Needs Analysis Study conducted by the Flight Safety Foundation (FSF) in the APAC region, System Component Failure or Malfunction – Non-Powerplant (SCF-NP) and Powerplant (SCF-PP) occurrence categories, when considered together, accounted for the largest share of non-fatal accidents and serious incidents in the APAC region over the 2017–2023 analysis period, and they also ranked among the top emerging risk categories for non-fatal accidents and serious incidents in the global level. These findings have been presented at multiple ICAO regional and global meetings including [APRAST/22–WP/10](#), [APRAST/23–WP/11](#), [A42-WP/280](#), [COSCAP-SEA SCM/22 DP-2](#). SCF-NP has been included in the [Global Aviation Safety Plan \(GASP\) 2026–2028](#) as other global risk categories of occurrences.

1.2 Based on an analysis conducted by Boeing using regional Available Seat Kilometres (ASK) data from IATA's World Air Transport Statistics (WATS) database, an accident or serious incident involving System Component Failure (SCF) was approximately twice as likely to occur in the APAC Region as in the North America, Central America and Caribbean Region. Consistent with these findings, the Regional Aviation Safety Plan (RASP) 2026–2028 identifies both SCF-NP and SCF-PP as regional priorities under the ICAO Asia and Pacific Regional Aviation Safety Team (APRAST) Safety Enhancement Initiatives (SEIs), to be addressed through the Operational (OPS) Roadmap.

1.3 While the Prioritized and Focused Regional SEIs of SCF will be developed within the triennium, the [Global Aviation Safety Roadmap 2026 – 2028](#) recommends safety actions such as performing thorough root cause analysis to understand the underlying reasons and implement corrective actions (SEI Actions-17A (e)). This was supported by the findings and recommendations of the FSF study. Training programs focused on Service Difficulty Reporting (SDR) completion and root cause analysis are essential to enhance the quality of submissions. FSF also recommends that operators and MROs, in collaboration with their regulators, adopt standardized reporting protocols to ensure that information shared with regulators and OEMs is accurate, comprehensive, and actionable.

1.4 While the ROK collects continuing airworthiness information through Service Difficulty Reports (SDRs), ensuring that relevant safety information is consistently shared with OEMs and effectively utilized to support continued operational safety remains a challenge. To address this, the ROK partnered with Boeing to improve SDR quality, strengthen root cause analysis, and facilitate more effective information sharing among operators, MROs, regulators, and OEMs.

1.5 Effective Risk-Based Oversight (RBO) requires not only the collection of safety data by regulators, but also timely analysis and collaboration with OEMs to identify systemic safety issues and support appropriate corrective actions. Such cooperation strengthens the implementation of the State Safety Programme (SSP) and contributes to the objectives of Continued Operational Safety (COS).

2. DISCUSSION

2.1 Many States utilize Service Difficulty Reports (SDRs) to enable a risk-based approach to safety oversight under their State Safety Program (SSP). This data serves as valuable leading indicators for identifying emerging safety risks and trends within the system. In the ROK, Article 33 of the Aviation Safety Act mandates that certificate holders must report occurrences of any specified failures, malfunctions, or defects in writing to the regulatory authority within 96 hours of the occurrence.

2.2 While this regulatory framework ensures a continuous flow of safety information to the authority, a significant challenge remains in ensuring that safety-critical information is also shared accurately and consistently with the Type Certificate (TC) holder. This information-sharing gap can

weaken the feedback loop envisaged by ICAO Annex 8 (Part II, Chapter 4) and delay the identification of emerging System Component Failure (SCF) trends and potential design improvements.

2.3 The GASP, the APAC Regional Aviation Safety Plan (RASP), and the Flight Safety Foundation (FSF) study have consistently highlighted the need for stronger root cause analysis and more standardized approaches to Service Difficulty Reporting. These findings prompted the ROK to collaborate with Boeing in developing a practical approach to strengthening continuing airworthiness information and supporting more effective safety oversight.

2.4 Reflecting these findings, the ROK and Boeing jointly conducted tailored Root Cause Corrective Action (RCCA) workshops to strengthen root cause analysis capabilities among regulators, operators, and MROs. The workshops introduced a structured methodology aligned with the ROK regulatory framework, encouraging participants to identify underlying systemic causes rather than focusing solely on immediate technical failures. This approach supports more consistent corrective actions and improves the quality of safety information available for continued operational safety.

2.5 Building on the RCCA programme, the United States FAA and Boeing subsequently conducted Continued Operational Safety (COS) workshops in the ROK. These workshops demonstrated how improved SDR quality and root cause analysis can support OEM safety assessments, inform design improvements where appropriate, and contribute to the continuous enhancement of in-service safety performance.

2.6 Post-workshop surveys indicated that the majority of participants considered both workshops practical and directly applicable to their operational responsibilities. The ROK will continue collaborating with OEMs, including Boeing, to further strengthen SDR quality, enhance root cause analysis capabilities, and promote more effective implementation of ICAO Annex 8 continuing airworthiness requirements across the region.

3. ACTION BY THE CONFERENCE

3.1 The Conference is invited to:

- a) note the information presented in this Discussion Paper;
- b) encourage the exchange of national best practices, particularly collaborative models and technical workshops involving regulators, operators, MROs, and OEMs;
- c) encourage States to review and strengthen SDR analysis and continuing-airworthiness information-sharing arrangements to support the timely identification and mitigation of SCF risks; and
- d) explore ways to use these shared experiences to enhance regional safety partnerships and capability-building activities.

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