



ICAO

International Civil Aviation Organization

The Combined Tenth Meeting of the South Asia/Indian Ocean ATM Coordination Group (SAIOACG/10) and Twenty—Seventh Meeting of the South East Asia ATS Coordination Group (SEACG/27)

Bangkok, Thailand, 30 March – 03 April 2020

Agenda Item 3: Review of Current Operations and Problem Areas

SID/STAR PROCEDURES

(Presented by the Secretariat)

SUMMARY

This paper re-presents information presented to ATM/SG/7 in August 2019 relating to the implementation of SID/STAR procedures consequential to amendment 7-A to ICAO Doc 4444 *Procedures for Air Navigation Services (PANS-ATM)— Air Traffic Management* in the Asia Pacific Region. It reminds Asia/Pacific Administrations of the APAC Regional implementation strategy, highlights areas of concerns during implementation planning, and discusses safety concerns resulting from non-harmonised implementation of these procedures. Updated information from ICAO Headquarters is included.

1. INTRODUCTION

1.1 The SID STAR procedures introduced in amendment 7-A to ICAO Doc 4444 - *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM), are intended to clarify ATC intention for flight crews, specifically while flying on Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs). They are intended to remove ambiguity from clearances issued by air traffic controllers to flight crews on their obligations to comply with published restrictions on the procedures.

1.2 SID/STAR were also discussed by the South Asia – Indian Ocean ATM Coordination Group (SAIOACG) and South-East Asia ATS Coordination Group (SEACG) at their meetings in 2018 and 2019.

2. DISCUSSION

ATM/SG/5 Outcomes on SID/STAR

2.1 The Fifth Meeting of the Air Traffic Management Sub-Group of APANPIRG (ATM/SG/5, Bangkok, Thailand, 31 July to 04 August 2017) agreed to the following Conclusion:

Conclusion ATM/SG/5-17: SID/STAR Phraseology

That, States are urged to take action to implement the SID/STAR-related phraseology included in Amendment 7 to Doc 4444 – PANS-ATM, ensuring that:

- 1. Any phraseologies published in AIP are amended to comply with the new Doc 4444 standards relating to SID and STAR phraseologies; and*

2. *ATC and aircraft operator procedure manuals and training are updated to incorporate the new SID and STAR phraseologies.*

SAIOACG/8 and SEACG/25 (March 2018) Outcomes on SID/STAR

2.2 IATA discussed the non-harmonized implementation of the new Standard Instrument Departure (SID) and Standard Arrival Route (STAR) phraseologies contained in Amendment 7A to PANS-ATM, and proposed the development of a regional transition strategy with a harmonized implementation date for APAC States that had not yet implemented the new phraseologies.

2.3 Hong Kong, China informed the meeting of their concerns over implementation, having recently completed a safety assessment. The change was more than just a change in phrases but also entailed management of ATM system issues related to safety net alerts. An Aeronautical Information Publication Supplement (AIP SUPP) had been issued to inform airspace users that the date of implementation had been deferred. Amendment 7-A would be adopted when the safety issues were addressed.

2.4 The meeting was informed that a number of working papers on the subject had been submitted to the ATM Operations Panel Working Group 6 meeting (ATMOPSP WG/6) which would be held in April 2018, and that ICAO Headquarters was developing global guidance.

2.5 Noting that the current non-harmonized implementation of Amendment 7-A to PANS-ATM for new SID/STAR phraseologies gives rise to potential safety concerns in terms of confusion and misinterpretation of instructions, the meeting agreed to a Draft Conclusion for consideration by ATM/SG/6, proposing the development of a regional transition strategy for harmonized implementation. The Draft Conclusion was subsequently updated to refer to a strategy that was developed for presentation to ATM/SG/6.

SAIOACG/9 and SEACG/26 (March/April 2019) Outcomes on SID/STAR

2.6 IATA informed the SAIOACG/9 meeting that the fall in the number of pilot reports of problems with SID/STAR phraseology implementation was likely to be due to pilots becoming accustomed to dealing with the confusion caused, which still existed to the same scale as reported to SAIOACG/8 and SEACG/25 12 months ago, and still required a lot of extra communication exchanges for confirmation/clarification of the intent of ATC clearances. IATA also reiterated their concerns on the practice of promulgating ICAO Standards and Recommended Practices (SARPS) and Procedures without any supporting, globally coordinated implementation planning.

2.7 The meeting was informed that the latest updated information from the ICAO SID STAR Implementation Support Team (ISSIST) indicated that a small number of Air Navigation Service Providers (ANSPs) had implemented the new phraseology, there had been limited response to efforts to establish which States had implemented, and that the updated ICAO SID/STAR website, updated with more content to assist States, ANSPs and operational staff, would be available in April 2019.

2.8 IATA stated to the SEACG/26 meeting that it appeared that globally coordinated implementation of the phraseology was not going to happen, and that none of the ISSIST work plan targets appeared to have been met. IATA further stated that the APAC implementation strategy appeared to be ambitious at best, and the need for States to conduct safety assessments may require a revised target date.

2.9 ICAO reminded the meeting that the PANS-ATM Amendment 7A had been formally circulated to all States and International Organizations well in advance of its November 2016 applicability date, and yet the meeting was discussing future safety assessments and largely poor implementation effort in March 2019. It was also suggested that even States that participated in the technical panel that developed the amendment had also not implemented its provisions. The matter would be further communicated with the ISSIST through ICAO Headquarters.

ICAO Activities Supporting Implementation of PANS-ATM Amendment 7A

2.10 The ICAO Secretariat (HQ) established ISSIST to address barriers to a harmonized implementation of the 10 November 2016 PANS-ATM provisions. ISSIST personnel and Regional Officers are available to assist with developing regional strategies for the implementation of the ICAO SID/STAR provisions.

2.11 The ISSIST has conducted meetings with the Regional ATM Officers and representatives from industry. Organizations representing the viewpoints of industry include CANSO, IATA, IBAC, IFALPA and IFATCA. Suggestions received by the ISSIST from industry to improve the implementation of the SID/STAR provisions include:

- Accomplish redesign of SID and STAR procedures where the opportunity exists, to take advantage of the new procedures to improve safety and efficient in terminal airspaces;
- Ensure that the SIDs and STARs are “FMS friendly”. This action will reduce flight crew distractions and improve compliance;
- Train personnel to the level that they can efficiently use the provisions in live traffic scenarios. Some States have reported that although controllers were academically trained to an acceptable level, they were not in all cases prepared to apply the learning in an operational environment;
- Flight crew training remains an area to gain improved results. Some States advised that upon first use of the provisions that pilots were unfamiliar with the phraseologies and radiotelephony was increased due to over-the-air questions. Additionally, one State reported reduced but ongoing noncompliance by flight crews.
- Plans to implement the provisions should involve all stakeholders from the start.
- Harmonize implementations between regions to maximise the benefits arising from implementation of SID STAR procedures, and to further reduce non-compliance by flight crews.

2.12 The ISSIST Work Program, expected to be completed by March 2019, included *inter alia* the following:

1. Establish baseline of States adopting the ICAO SID/STAR procedures – May 2018;
2. Collaboratively determine barriers and develop mitigations of ATC-identified, ICAO Regional Officer-identified, and industry-identified issues – October 2018;
3. Establish vision, develop and send State Letter, write PIRG/RASG working papers, commit support to States requiring assistance – March 2019;
4. Communicate implementation goals and provide tools via trade publications, web and

physical meetings – March 2019;

5. Establish expert resources to provide tailored implementation support to States indicating such needs – March 2019.

2.13 Arising from the ISSIST work program, ICAO developed the SID/STAR Toolkit, available on the ICAO Website at https://www.icao.int/airnavigation/sidstar/Pages/SID_STAR-Toolkit.aspx. The toolkit includes information on background and benefits, ICAO provisions and associated changes, training and education, implementation support, FAQs, and a reminder of the obligations of States and aircraft operators in relation to the publication (in Annex 15) and awareness of differences between State practices and the procedures in Doc 4444.

2.14 ISSIST provided the following summary of activities in the past year to date:

- Worked with IATA, IFALPA and IFATCA to raise awareness through articles in respective publications (e.g. *The Controller*), reissuing of safety bulletins and presentations at safety-related meetings;
- Papers were presented to Planning and Implementation Regional Groups (PIRGS);
- Set up an e-mail-based help desk;
- Revamped the website;
- A version 2 of the associated instructional videos are in the process of being finalised;
- Made efforts to establish a baseline of implementation (little progress due to poor response from States).

2.15 ISSIST further advised that there has been little progress in establishing the implementation baseline due to poor response from States, and there has little use of the email-based help desk. Resource constraints are contributing to the delayed finalization of the instructional videos.

Current Asia/Pacific Region Implementation

2.16 An informal survey was circulated to all Asia/Pacific Administrations in May 2018, asking whether the SID/STAR-specific phraseology provisions of Amendment 7-A of PANS ATM had been implemented or, if not, when implementation was planned. Few responses were received. A further post-implementation date survey, originally planned for Q1 2020, will be conducted to provide ATM/SG/7 with updated information.

Regional Implementation Strategy

2.17 ATM/SG/6 agreed to the following Conclusion:

Conclusion ATM/SG/6-4: Asia/Pacific Regional SID/STAR Phraseology Implementation Strategy

That,

1. *The Asia/Pacific Regional SID/STAR Phraseology Implementation Strategy at Appendix D to the Report be adopted, and uploaded to the ICAO Asia/Pacific Regional Office Website, together with an Appendix of information on lessons learned, updated on receipt of new information; and*
2. *All Asia/Pacific Administrations respond to a survey on the implementation status of the SID/STAR phraseology, and report final implementation of the phraseology to the ICAO Asia/Pacific Regional Office.*

2.18 The Regional Implementation Strategy, provided in **Attachment A**, is available on the ICAO APAC eDocuments web-page at <https://www.icao.int/APAC/Pages/eDocs.aspx>. While not exhaustive, it includes a checklist of actions and requirements that should be considered by all Asia/Pacific Administrations that have published, or plan to publish, SIDs and/or STARs in the AIP.

2.19 The Strategy includes a Regional implementation date of not later than 07 November 2019.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) discuss the status of current or planned implementation of the new SID/STAR phraseologies;
- c) respond to any further surveys on SID/STAR phraseology implementation; and
- d) discuss any relevant matters as appropriate;

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ASIA/PACIFIC REGIONAL SID/STAR PHRASEOLOGY IMPLEMENTATION STRATEGY

Considering that:

1. The harmonized use of phrases for ATC clearances promulgated in ICAO Doc 4444 – Procedures for Air Navigation Services (PANS-ATM) is a safety-critical requirement to ensure common understanding of pilots operating in many different terminal areas, in many different Flight Information Regions (FIRs);
2. The PANS-ATM Amendment 7-A, applicable on 10 November 2016, included new provisions relating to ATC clearance phrases for use in Standard Instrument Departure (SID) and Standard Instrument Arrival (STAR) operations;
3. The application of phrases used by ATC and pilots for SID/STAR operations prior to PANS-ATM Amendment 7-A was inconsistent and frequently confusing to pilots;
4. The Air Traffic Management Sub-Group (ATM/SG) of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG) concluded:

Conclusion ATM/SG/5-17: SID/STAR Phraseology

That, States are urged to take action to implement the SID/STAR-related phraseology included in Amendment 7 to Doc 4444 – PANS-ATM, ensuring that:

- 1. any phraseologies published in AIP are amended to comply with the new Doc 4444 standards relating to SID and STAR phraseologies; and*
 - 2. ATC and aircraft operator procedure manuals and training are updated to incorporate the new SID and STAR phraseologies.*
5. The implementation of the new phrases in PANS-ATM Amendment 7-A for use in SID/STAR has not been uniform across the Region, and continues to result in confusion to pilots and potential safety risks;
 6. Explanatory material supporting the implementation of the SID/STAR phraseology is available on the ICAO website at https://www.icao.int/airnavigation/sidstar/Pages/CHANGES-TO-SID_STAR-PHRA-SEOLOGIES.aspx; and
 7. The ICAO SID/STAR Implementation Support Team (ISSIST) was established to address barriers to harmonized implementation of PANS-ATM Amendment 7-A SID/STAR phraseology;

The APAC Regional SID/STAR Phraseology Implementation Strategy is as follows:

1. Asia/Pacific Administrations are urged to implement the use of the SID/STAR-specific phrases specified in PANS-ATM Sections 6.3.2.4 and 6.5.2.4 by **no later than 07 November 2019**;
2. The application of SID/STAR-specific phrases must occur on a common date for all SID/STAR promulgated in the State Aeronautical Information Publication (AIP);
3. Neighboring States should consider common implementation dates;

4. Implementation of SID/STAR-specific phrases should be undertaken as a joint project of the Air Navigation Service Provider, and the State Aviation Regulator;
5. The following checklist of actions should be followed by each Administrating when planning and implementing the use of the SID-STAR-specific phraseology:
 - a. Form a SID/STAR-specific phraseology implementation team, including appropriately qualified pilots, ATC, instrument flight procedure designers, AIS, ATM automation system and safety management experts, and regulators.
 - b. Ensure all steps in the implementation process are subject to appropriate safety management and regulatory oversight processes, as part of an overall project plan that includes a safety case;
 - c. Determine the implementation date for SID/STAR-specific phraseology, taking into account the checklist actions below;
 - i. The implementation date must conform with the Aeronautical Information Regulation and Control (AIRAC) provisions of Annex 15 – *Aeronautical Information Services*;
 - d. Evaluate current SID/STAR published in AIP, in collaboration with appropriately qualified operational pilot and ATC personnel;
 - i. Consider the impact of SID/STAR-specific phraseology;
 - ii. Make amendments as necessary to remove as far as possible the need for ATC interventions during normal operations; and
 - iii. Ensure any amended SID/STAR are promulgated in accordance with AIRAC;
 - e. Evaluate ATC information processing and/or ATM automation system capability to accommodate SID/STAR-specific phraseology and any amended SID/STAR:
 - i. Plan and prepare any necessary process changes and/or system upgrades.
 - f. Promulgate an Aeronautical Information Circular (AIC) informing all stakeholders of:
 - i. the SID/STAR-specific provisions of PANS-ATM Amendment 7-A;
 - ii. the planned implementation date; and
 - iii. the availability of advisory, guidance or other reference material;
 - g. Develop and deliver SID/STAR-specific phraseology training, for all Air Traffic Control (ATC) staff providing ATC clearances to flights for operations on SID/STAR;
 - i. Include both theoretical instruction and practical training in ATC training simulator, supported by both theory and practical examinations to ensure competency.
 - h. Include assessment of the correct use of SID/STAR-specific phraseology in ATC performance assessment and other relevant licensing processes;
 - i. Prepare SID/STAR-specific phraseology information and training packages for pilots;

- j. Coordinate and conduct safety oversight of the development and delivery of SID/STAR-specific phraseology procedures and training for pilots;
- k. Promulgate SID/STAR-specific phraseology in AIP Amendment or AIP Supplement, effective on the applicable AIRAC date and published in accordance with the advance-notification requirements of Annex 15.
- l. Monitor effective implementation.

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