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Agenda Item 2: Timely and safe use of new technologies

2.2: Addressing safety risks related to evolving aviation technologies

AUTONOMOUS DISTRESS TRACKING: PREPARING FOR IMPLEMENTATION IN 2025

(Presented by the United States)

EXECUTIVE SUMMARY

The Global Aeronautical Distress and Safety System (GADSS) is intended to mitigate challenges in the global air navigation system regarding the timely identification and localization of aircraft in distress, such as occurred with the accident involving Air France Flight 447 and the disappearance of Malaysia Airlines Flight 370. Beginning in January 2025, ICAO Standards pertaining to GADSS autonomous distress tracking (ADT) will become applicable. Preparation and coordination across the aviation community will facilitate global implementation by the compliance date.

1. INTRODUCTION

1.1 ICAO Standards in Annex 6 — *Operation of Aircraft*, Part I — *International Commercial Air Transport — Aeroplanes*¹ addressing the location of aeroplanes in distress are to become applicable as of 1 January 2025.

1.2 Implementation of the GADSS ADT framework involves a variety of stakeholders, including air traffic services (ATS) and search and rescue (SAR) providers, air operators, manufacturers, and the responsible safety oversight authorities.

1.3 Coordination among the stakeholders is integral to accomplishing the ADT objective of enhancing the ability of SAR providers to locate aircraft in remote areas, including the high seas. The United States is promoting the need for States and the industry to coordinate at the national and regional levels to prepare for the upcoming ADT implementation.

¹ Annex 6, Part I, para. 6.18 et seq. refers.

2. DISCUSSION

2.1 Traditional distress reporting is typically dependent on the pilot reporting a distress condition, air traffic controller observation (e.g., deviation from cleared route/flight level, loss of surveillance/communication, etc.), or a combination of both. Locating an aircraft that has crashed has also been dependent upon emergency locator transmitter (ELT) activation from impact or last observed/reported position of the aircraft.

2.2 ADT provides an additional means of notification that an aircraft in flight might be in distress. It is not meant as a distress alert unless there is some other confirming information (or lack of information).

2.3 ADT is a performance-based concept intended for aircraft in-flight. The standards in Annex 6 establish a required capability but do not specify technology or equipage. Aircraft certificated on or after 1 January 2024 are required to autonomously transmit information from which a position can be determined by the operator, at least once every minute, when in distress.

2.4 The European Organisation for the Safety of Air Navigation (EUROCONTROL) and ICAO have developed the Location of an Aircraft in Distress Repository (LADR) to support global ADT implementation. The LADR is initially operational as of June 2024 (State letter AN 11/1.1.29-24/16 refers).

2.5 Established aeronautical alerting procedures in Annex 11 — *Air Traffic Services* involve the aircraft operator notifying the ATS unit and, as necessary, ATS unit notifying the rescue coordination centre (RCC). ADT will shift the paradigm and will require ATS providers, the SAR community, regulators, and industry stakeholders to adapt policies and procedures accordingly to encompass new inputs received via ADT devices and the LADR.

2.6 The LADR will provide simultaneous initial notifications of ADT messages to subscribers such as the aircraft operator, ATS provider(s), and RCC(s). ADT devices such as the Cospas-Sarsat ELT for Distress Tracking (ELT(DT)), which operates through the Cospas-Sarsat satellite system, will also send notifications to the LADR and the RCC simultaneously. Coordinated preparation for ADT implementation among a State's aircraft operator(s), ATS provider(s), associated RCC(s), and aviation safety regulator(s) is therefore necessary to ensure the establishment of complementary requirements and procedures.

2.7 Results from an upcoming ADT notification tabletop exercise in development by the ICAO North Atlantic Region are anticipated to provide feedback to inform national requirements and procedures.

2.8 Establishment of a formal or informal team comprised of representatives from the State's affected stakeholders (e.g., air operator personnel including both pilot and dispatch positions, ATS and SAR provider personnel, aeroplane and/or device manufacturers as applicable and the responsible safety oversight authorities) could be helpful to preparation for ADT implementation.

2.9 Topics addressed by such a team could include:

- a) Identification of organizations/points of contact to register as users in the OPS Control Directory.
- b) Identification of requirements (e.g., national regulations), guidance documents, or procedures (e.g., air traffic control and SAR procedures) needing revision to account for ADT implementation and the LADR and coordination to ensure complementary changes by affected stakeholders.

- c) Identification of dependencies among preparatory activities.
- d) Coordination of a timeline to complete activities so that all affected stakeholders are prepared to implement new/revised requirements and operating practices in a complementary manner.

3. **CONCLUSION**

3.1 The implementation of the GADSS ADT framework offers potential benefits to the aviation community, such as improved awareness and response time to respond to distress situations.

3.2 Although such occurrences are infrequent, ADT is a multi-dimensional concept that requires coordination to effectively implement.

3.3 The international aviation community is encouraged to take note of the information provided in this paper in preparation for the upcoming ADT applicability date of 1 January 2025.

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