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WORKING PAPER

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**NAM/CAR Search and Rescue (SAR) Implementation and Civil-military Coordination Meeting
(SAR/CM)**

Mexico City, Mexico, 5 – 7 November 2018

**Agenda Item: 1 Global and Regional Search and Rescue (SAR) Matters
1.1 States Obligations Under ICAO's SAR Provisions**

IMPLEMENTATION OF FUNCTIONS OF THE GLOBAL AERONAUTICAL DISTRESS AND SAFETY SYSTEM

(Presented by United States)

EXECUTIVE SUMMARY	
This document provides information on the many outputs and initiatives taken to implement the functions of the Global Aeronautical Distress and Safety System.	
Action:	The suggested actions are presented in Section 4
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Safety

1. Introduction

1.1 The 2019 edition of the IAMSAR Manual will contain general guidance regarding the Global Aeronautical Distress and Safety System (GADSS) that applies to certain aircraft. Attention now must focus on implementation of GADSS functions. The first phase commences 8 November 2018 for the aircraft tracking function of automated reporting of position at least every 15 minutes. The next phase commences 1 January 2021 for the Autonomous Distress Tracking (ADT) function of reporting at least once every minute. ICAO has numerous initiatives and experts groups to create guidance and procedures documents and to inform all stakeholders. In many ways, there is a broad lack of knowledge and awareness of GADSS across the globe.

1.2 The primary benefit of GADSS, particularly the ADT function, is for SAR in international (oceanic) airspace. (International/oceanic airspace starts at the end of the territorial sea that extends to a maximum of 12 nautical miles.) ICAO and other organizations are actively working on many aspects of GADSS implementation. SAR services must be involved as GADSS functions are implemented over the next several years. Some of the outputs and initiatives are outlined below.

2. Outputs and initiatives related to implementation of GADSS functions

2.1 **ICAO Circular 347 Aircraft Tracking Implementation Guidelines:** This circular is for aircraft operators and civil aviation authorities, and applies to the aircraft tracking function that commences 8 November 2018. Of particular relevance is Section 8.2 and Appendix C *Missed 4D/15 Position Report Form for Operator*. The operator is required to notify the Air Traffic Services Unit (ATSU) of a missed aircraft 4D/15 tracking report (four-dimensional position of individual aircraft in flight at 15-minute intervals). The information that the operator has to provide the ATSU closely aligns with what the ATSU has to provide the Rescue Coordination Centre (RCC). However, the ATSU-to-RCC requirement does not have a standard form and it is not automated (machine-to-machine). The form in Appendix C may be helpful when considering distribution of information required for autonomous distress tracking.

2.2 **Draft ICAO Document 10054 Manual on Location of Aircraft in Distress and Flight Recorder Data Recovery:** This manual will provide an excellent overall view of guidance for implementing the new requirements (standards) of ICAO Annex 6, Part I. Chapters 1 and 2 provide helpful information on location of aircraft in distress. Chapter 2 discusses ATSU processes and RCC processes. Chapter 3 on 'flight recorder data recovery' is not a SAR responsibility but has some useful information.

2.3 **ICAO ANWP Job-Card Implementation of the GADSS:** ANWP Job-Card V 4.0, approved by the Air Navigation Commission, provides an overview of the outputs from the GADSS Advisory Group and the basic work plan for it and other ICAO expert groups. The Job-Card has tasks for working on guidance material and procedures, and possible future amendments to ICAO Standards and Recommended Practices (SARPs), for the next several years. Several ICAO expert groups are involved, including the GADSS Advisory Group. The tasks support the implementation of aircraft tracking activities, especially autonomous distress tracking. Two of the tasks are not yet assigned to an ICAO expert group but the outputs directly apply to the ICAO regions:

- Task G14: Conduct workshop for states and operators - Develop the workshop materials for States and Operators.
- Task G15: Assist PIRGs to develop rollout plan - Develop high level rollout plan to assist regions to develop regional plans.

2.4 **Cospas-Sarsat:** Initiatives including development of the Emergency Locator Transmitter (ELT) for Distress Tracking (ELT(DT)) and participation in various ICAO experts groups. The ADT requirement for "expected duration of operation" is not defined and Cospas-Sarsat is planning on 370 minutes duration for ELT(DT) under the ICAO practice for aircraft of "extended diversion time operations (EDTO)" previously known as extended operations ETOPS).

2.5 **European Aviation Safety Agency (EASA):** Held July 2018 SAR Workshop on "Location of an aircraft in distress". EASA is the European Union body in charge of civil aviation in Europe and will conduct the rulemaking activity. EASA is focused on having regulations in place to meet the 1 January 2021 date for new-built aircraft to have the ADT capability. It is considering three ADT devices: (1) ELT(DT), (2) automatic deployable flight recorder (ADFR) with an ELT, and (3) other technology (High Rate Tracking/broadband constantly delivering tracking reports). The 'other technology' is not defined or known at this time. The SAR community was very firm about the need for the 121.5 MHz homing capability or its equivalent with other technology that does not require new equipment for the SAR responders. EASA supported the SAR perspective.

2.6 **ICAO Thirteenth Air Navigation Conference (AN-Conf/13):** AN-Conf/13 held at ICAO Montreal, Canada, 9-19 October 2018. SAR included as Agenda Item 4.4 *Implementing search and rescue (SAR) processes and procedures* under the broader Agenda Item 4 *Implementing the global air navigation system and the role of planning and implementation regional groups (PIRGs)*. All seven ICAO regions have PIRGs that hold various levels of meetings throughout the year. Six papers were submitted on SAR to ANC 13. Inclusion of SAR and GADSS functions within the ICAO Global Air Navigation Plan (GANP) was part of the discussion in ANC 13. The GANP provides the road map for ICAO over the next several years and will help maintain SAR visibility and resources at ICAO Montreal.

3. **Some issues of significant concern to SAR**

3.1 The sharing of GADSS alerting information requires global coverage and a global interoperable systems approach. Aircraft tracking and ADT alert information for aircraft emergency conditions need rapid distribution to the aircraft operator, responsible ATSU and the responsible RCC. Effective sharing of this information to the responsible stakeholders requires well defined, accurate and readily accessible global Flight Information Region and SAR region data, plus reliable 24-hour contact details for the aircraft operators, ATSUs and RCCs. For many States, these are key areas needing improvement to enable effective SAR response.

3.2 ICAO Annex 6 allows the ADT device to replace the installed automatic ELT. If an automatic ELT is replaced by an ADT as described in Annex 6 Part I, 6.17.3 (also, 6.18, Appendix 9 and Attachment K apply), it is possible that there will be no 121.5 MHz homing signal for post-accident localization other than a manually activated ELT. ICAO Montreal is hesitant to support another amendment to Annex 6 to address this concern. The GADSS Advisory Group is viewing possible mitigating strategies; and the European Aviation Safety Agency is considering a regulatory solution.

4. Suggested Actions

4.1 The meeting is invited to:

- a) note the information provided in this paper regarding implementation of functions of the Global Aeronautical Distress and Safety System; and
- b) encourage national SAR services to ensure processes are in place for rapid distribution of Autonomous Distress Tracking (ADT) alert information (such as well defined, accurate and readily accessible flight information region and SAR region data, plus reliable 24-hour contact details for the aircraft operators, ATSU's and RCCs).

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