



ICAO

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North American, Central American and Caribbean Office

WORKING PAPER

NACC/WG/SAR/TF/3 — WP/04
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**Third NAM/CAR North American, Central American and Caribbean Working Group
Search and Rescue Implementation Task Force (NACC/WG/SAR/TF/3) Meeting**
ICAO NACC Regional Office, Mexico City, Mexico and On-line, from 17 to 19 October 2022

Agenda Item 2: Search and Rescue (SAR) Global and Regional Affairs
2.2 Review of the SAR Plan of the CAR Region

AUTONOMOUS DISTRESS TRACKING (ADT) FLOWCHART

(Presented by United States)

EXECUTIVE SUMMARY	
To meet ICAO's requirement for certain new-built large commercial aircraft to carry autonomous distress tracking (ADT) devices, the major aircraft manufacturers have advised that they will begin installing ADT devices in early to mid-2023. Appendix to this paper contains a flowchart of actions for aircraft operators, ATS units, and rescue coordination centres to consider following activation of an ADT device. It is proposed that this flowchart be placed in the Caribbean Regional SAR Plan and considered for interregional coordination.	
Action:	Suggested actions are presented in Section 3
<i>Strategic Objectives:</i>	<ul style="list-style-type: none">• Strategic Objective 1 – Safety
<i>References:</i>	<ul style="list-style-type: none">• Report of the Second NAM/CAR Air Navigation Implementation Working Group Search and Rescue Implementation Task Force Meeting (ANI/WG/SAR/TF/02)

1. Introduction

1.1 The Report of ANI/WG/SAR/TF/02 noted that the work programme and activities of the Task Force included "Conduct a thorough review of the CAR Region SAR Plan and identify content that requires updating." Autonomous distress tracking (ADT) is a new means of notification that an aircraft in flight might be in distress. New procedures will need to be developed among aircraft operators, air traffic services, and rescue coordination centres. Guidance in the CAR Region SAR Plan would be beneficial until reaction to ADT notifications become standard and routine.

2. Background

2.1 ADT was discussed at the ANI/WG/SAR/TF/02 meeting in September 2021. The ICAO NACC *Global Aeronautical Distress and Safety System (GADSS) Virtual Workshop* held February 2022 had a specific presentation and discussion on ADT requirements and functioning. An update on that ADT presentation is being provided to this meeting.

2.2 The 2022 edition of the *International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual* became applicable on 1 June 2022. IAMSAR Manual Volume II contains Appendix V *Autonomous distress tracking of aircraft in flight*. Appendix V has extensive guidance on ADT in general and has Figure V-1 – *Schematic sequence of events arising from an autonomous distress tracking device activation*. The seventh meeting of the ICAO Asia/Pacific Regional Search and Rescue Work Group in May 2022 modified the IAMSAR Manual Figure V-1 by adding explanatory notes and inserted it as an appendix to its Asia/Pacific SAR Plan.

2.3 It will be necessary to develop common ADT procedures at a national and regional level, among the three primary stakeholders (aircraft operators, ATS units, and RCCs) for efficient handling of information received from the ADT system. The 2022 edition of the IAMSAR Manual provides a comprehensive overview of ADT. The IAMSAR Manual, Volume II Appendix V *Autonomous distress tracking of aircraft in flight*, includes Figure V-1 *Schematic sequence of events arising from an ADT device activation* that serves as a flowchart of actions for the three primary stakeholders. The schematic sequence of events together with added explanatory notes is attached to this working paper for consideration by NACC/WG/SAR/TF/03 as a new Appendix to the Caribbean Regional SAR Plan and also for interregional coordination.

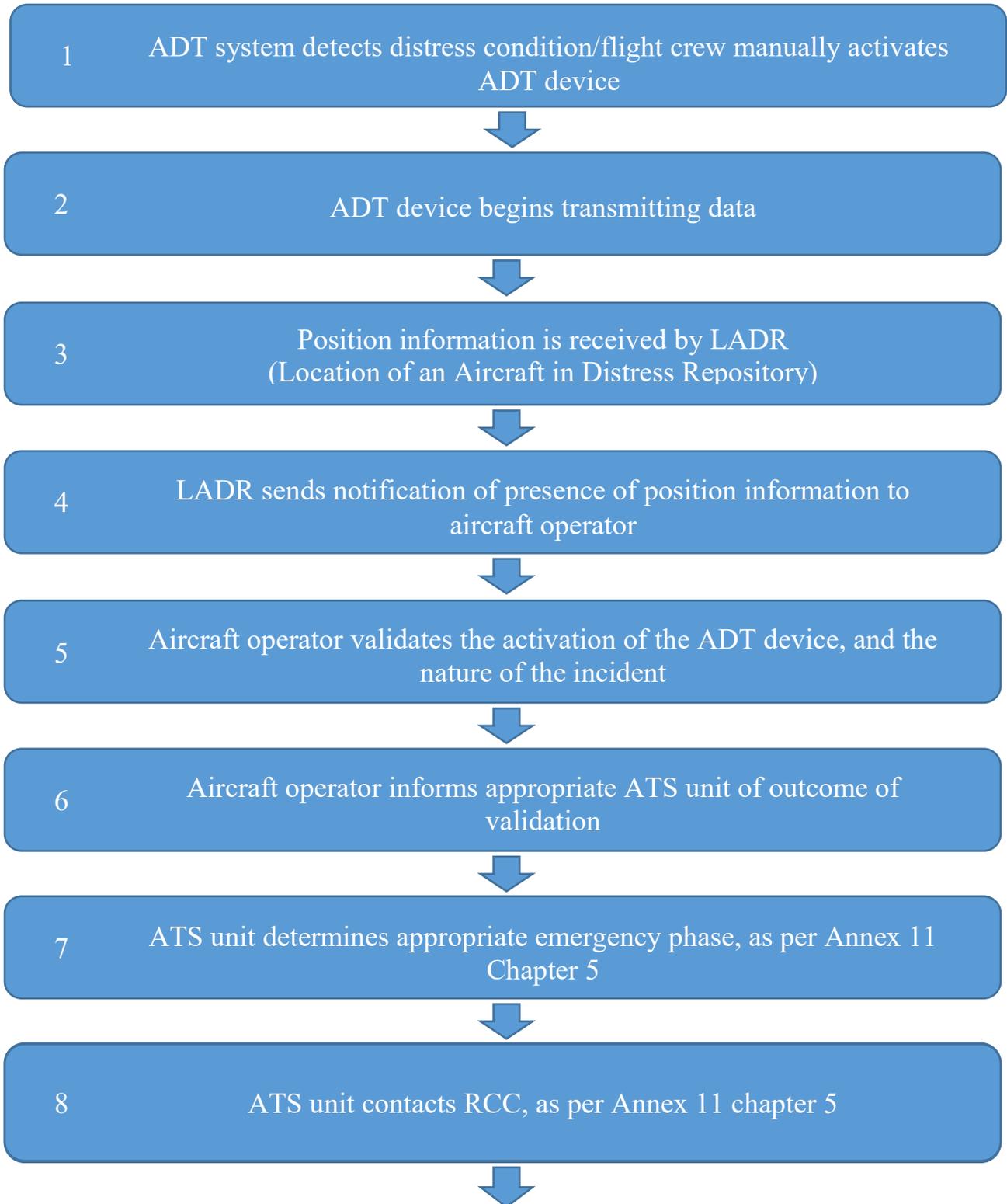
3. Suggested Actions

3.1 The meeting is invited to:

- a) note the information provided;
- b) provide comments on the Appendix and consider it for inclusion within the Caribbean Regional SAR Plan and for interregional coordination; and
- c) If the Appendix is accepted for the Caribbean Regional SAR Plan, consider the text in paragraph 2.3 above for a paragraph within the Caribbean Regional SAR Plan to link the reader to that Appendix.

APPENDIX
Flowchart of actions following activation of an ADT device

Reproduced from IAMSAR Manual Volume II Appendix V Figure 1, with explanatory notes



9 RCC checks the location of an aircraft in distress repository (LADR) for latest position information

1. ADT system detects distress condition/flight crew manually activates ADT device.
 - a. The ADT system activates under certain conditions when the aircraft is in flight, there is no requirement to operate after an accident.
 - b. Activated automatically or manually by flight crew. De-activated by the same means it was activated.
2. ADT device begins transmitting data
 - a. Aircraft operator (airline) required to obtain information from which a position can be determined at least once every minute, and make the position information available to the appropriate ATS unit and RCC.
3. Position information received by the LADR
 - a. All ADT devices send ADT information to the LADR.
 - b. The ELT (DT) also sends a Cospas-Sarsat formatted message to the relevant RCC.
 - c. The mandatory ADT information to be sent to the LADR is:
 - i. Last known position (latitude/longitude, altitude, time stamp, flight track (past position reports))
 - ii. Date and time of transmission
 - iii. Aircraft operator identifier (3-Letter Designator (3LD))
 - iv. Nationality mark and Aircraft registration mark (i.e., tail number)
 - v. Contributor, data source (e.g., Cospas-Sarsat).
 - d. Optional information may also be in the LADR.
4. LADR sends notifications to subscribers
 - a. Subscribers (RCCs, ATS units, aircraft operator)
 - b. Subscribers are notified that ADT information is available to view or download
 - c. Notification sent from LADR for the first received position and normally not sent for each position report.
 - d. New LADR notification sent when an aircraft is distress transits from one FIR to a second (and any subsequent) FIR.

- e. Notification from LADR sent by email, SMS, or ATS message over AFTN/AMHS
 - f. ELT (DT) data also automatically sent to relevant RCC in a Cospas-Sarsat SIT 185 message.
 - g. Cospas-Sarsat MCC will automatically send all ADT information to the LADR but will not send all ELT (DT) messages to the RCC because of the large number of transmissions.
5. Aircraft operator validates/attempts to validate
- a. Aircraft operator has various methods to validate if its aircraft is in distress or not.
 - b. Aircraft operator needs to be aware that the relevant ATS unit and associated RCC have likely been notified.
 - c. ADT concept envisioned the current alerting process as per Annex 11 chapter 5 would not change.
6. Aircraft operator informs appropriate ATS unit
- a. Aircraft operator needs to be aware that the relevant ATS unit and associated RCC have likely been notified.
 - b. Aircraft operator, ATS unit and RCC need common ADT procedures, nationally and regionally, for efficient handling of information received from the ADT system.
7. ATS unit determines emergency phase
- a. As per Annex 11 chapter 5.
 - b. ATS unit, RCC and aircraft operator need common ADT procedures, nationally and regionally, for efficient handling of information received from the ADT system.
8. ATS unit contacts RCC
- a. As per Annex 11 chapter 5.
 - b. ATS unit, RCC and aircraft operator need common ADT procedures, nationally and regionally, for efficient handling of information received from the ADT system.
9. RCC checks the LADR
- a. In addition to the initial notification other information may be available.
 - b. If aircraft is equipped with an ELT (DT), the RCC will also receive an ELT(DT) message from the Cospas-Sarsat system.
 - c. RCC, ATS unit and aircraft operator need common ADT procedures, nationally and regionally, for efficient handling of information received from the ADT system.