



WORKING PAPER

MULTIDISCIPLINARY MEETING REGARDING GLOBAL TRACKING

Montréal, 12 to 13 May 2014

Agenda Item 3: Explore the potential for strengthening ICAO provisions on flight following

TRANSMISSION OF FLIGHT DATA

(Presented by Philippe Plantin de Hugues, Chairman of the ICAO Flight Recorder Panel (FLIRECP))

SUMMARY

This paper examines Agenda Item 3 and proposes that the Global Flight Tracking Meeting considers the applicability and implementation timescale for the ensuing amendment proposal.

Action by the meeting is in paragraph 3.

1. INTRODUCTION

1.1 On 1 June 2009, Air France flight AF447, Airbus A330-200, registered F-GZCP, disappeared over the ocean while flying en-route between Rio de Janeiro (Brazil) and Paris-Charles de Gaulle (France). Four undersea search campaigns were necessary to locate the wreckage over a vast area of the Atlantic Ocean. The search for the wreckage and the flight recorders was finally successful during Phase 4 in March 2011. Both recorders and part of the wreckage were recovered from the sea floor at the beginning of May 2011, nearly two years after the accident.

1.2 Since 1969, there have been fifty-two accidents over water. However, thirty-eight of these occurred from 1996 onwards. Since 1 June 2009 and the accident of AF447, ten recorders have not been recovered from the eleven accidents over water.

1.3 Prompted by the difficulties experienced recovering the flight data recorders of AF447, as well as other difficult sea recovery operations, in October 2009 the Bureau d'enquêtes et d'analyses pour la sécurité de l'aviation civile (BEA) created an international working group called Flight Data Recovery Working Group (FDRWG). Its aim was to look into new technology to safeguard flight data and/or to facilitate the localization and recovery of on-board recorders. This working group met twice in the Fall of 2009 and areas such as flight data transmission via satellite, as well as new flight recorder or underwater locator beacon (ULB) technology, were evaluated.

1.4 In the second AF447 interim report, dated 17 December 2009, the BEA issued recommendations based on the results of this working group. These results are summarized in a document available on the BEA website:

<http://www.bea.aero/en/enquetes/flight.af.447/flight.data.recovery.working.group.final.report.pdf>

1.5 The results were presented at the ICAO High-level Safety Conference (HLSC) in March 2010. During this meeting¹, it was decided that “ICAO should pursue as a matter of high priority a review of SARPs and guidance materials with the aim of proposing to States for consideration any amendment which would be necessary to ensure that the data necessary to support investigation of accidents are available, including provisions for the recovery of data and information from flight recorders”.

1.6 The FDRWG identified the transmission of flight data when an upcoming catastrophic event is detected as a solution with good potential. However, it was not recommended in the AF447 second interim report, as additional work was deemed necessary to assess the operational suitability of this solution. This is why the BEA decided to consult members of the group again and created in March 2010 the Triggered Transmission of Flight Data Working Group. Its final results were published by the BEA on 18 March 2011. See:

<http://www.bea.aero/en/enquetes/flight.af.447/triggered.transmission.of.flight.data.pdf>

1.7 In cases where long periods transpire or if recorders are not recovered, it greatly reduces the likelihood of discovering the actual cause of these accidents, and in order to improve the recovery of wreckage and flight recorders following an accident or incident, EUROCAE ED-62A/RTCA DO-204A “Minimum Operational Performance Standards for 406 MHz Emergency Locator Transmitters (ELT)” have defined performance standards for ELTs.

1.8 COSPAS-SARSAT is implementing a new MEOSAR system based on the use of search and rescue transponders on new global positioning systems (GPS), global navigation satellite systems (GLONASS) and GALILEO satellites and accompanied new ground segment. This new MEOSAR system will significantly improve the timeliness and accuracy of alerts provided by ELTs and allow for new services to be provided (e.g. return link services). In conjunction with the new MEOSAR system, COSPAS-SARSAT is developing a new second-generation beacon specification.

1.9 A review and possible revision of ED-62A/DO-204A standards for first generation beacons and the creation of specifications for second generation beacons are required in order to ascertain if it is sufficient for application to all aircraft used in commercial operations or is under or over prescriptive.

1.10 A joint working group has been created with the groups EUROCAE WG-98 and RTCA SC-229 to improve the ED-62A/DO-204A minimum operational performance specifications and to create a minimum aviation system performance standards (MASPS) defining the triggering criteria, with a completion date of December 2015.

¹ See HLSC’s report at <http://www2.icao.int/en/HLSC/Lists/Advance%20Copy%20of%20the%20HLSC%202010%20Report/Attachments/1/HLSC.2010.DOC.9335.EN.pdf>

2. DISCUSSION

2.1 Based on the work done by the Flight Data Recovery and Triggered Transmission of Flight Data Working Groups, the Flight Recorder Panel discussed all preferred solutions described in the reports during the fourth and fifth meetings of the FLIRECP Working Group of the Whole (FLIRECP/WG/WHL) which was held from 19 to 21 July 2011 in Reykjavik, Iceland and from 29 to 31 October 2012 in Montréal. The FLIRECP proposed amendments for Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes*, are herewith:

“6.17 Emergency location locator transmitter (ELT)

...

6.17.7 All aeroplanes of a maximum certificated take-off mass of over 27 000 kg for which the individual certificate of airworthiness is first issued after 1 January 2020, shall have the capability to either automatically transmit positional information or an emergency locator signal prior to an accident occurring, or be fitted with a deployable ELT in order that an accident site for an aeroplane shall be established within a 6 NM radius.

Note 1.— One or more of the following may be used as a means of compliance:

- *regular transmission of the position of the aeroplane at an appropriate rate;*
- *the transmission of the position of the aeroplane at an appropriate rate when triggered by an emergency situation;*
- *a ground/air-based surveillance system such as by means of automatic dependent surveillance or radar;*
- *an ELT capable of transmitting an emergency locator signal or aeroplane position automatically prior to impact; and*
- *an automatic deployable flight recorder incorporating an ELT.*

Note 2.— Manual deployment of an ELT (AD) is not considered a suitable means of compliance.

6.17.8 Recommendation.— All aeroplanes of a maximum certificated take-off mass of over 5 700 kg and less than 27 000 kg for which the individual certificate of airworthiness is first issued after 1 January 2020, *should have the capability to either automatically transmit positional information or an emergency locator signal prior to an accident occurring, or be fitted with a deployable ELT in order that an accident site for an aeroplane can be established within a 6 NM radius.*”

2.2 The ANC referred these proposals back to the FLIRECP for reconsideration twice. The FLIRECP is again going to discuss this performance-based proposal during the seventh meeting of the Flight Recorder Panel Working Group of the Whole (FLIRECP/WG/WHL/7) which will be held from 30 September to 2 October 2014 in Montréal.

3. **ACTION BY THE MEETING**

The meeting is invited to consider the work of the international working groups and the FLIRECP concerning the position of an aircraft up to the point of impact.

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