MULTIDISCIPLINARY MEETING REGARDING GLOBAL TRACKING

Montréal, 12 to 13 May 2014

Agenda Item 1: Explore the need and means available to track globally all airline flights

AIRCRAFT TRACKING

(Presented by France)

SUMMARY

Recent events have reiterated the need to ensure that there is a capability to track airline flights. Actions have to be recommended. This working paper outlines existing short-term solutions to meet this need through an airlines-led initiative. Mid-/long-term solutions have to be evaluated on a cost efficient and performance based approach.

Action: Action by the meeting is contained in paragraph 4

1.   **INTRODUCTION**

1.1   Events such as AF447 and the disappearance of MH370 for a prolonged period of time have again focused attention on the need to improve global flight tracking. Given available technologies and capabilities there is an expectation that specific actions concerning this issue be addressed in the short term. Global flight tracking of aircraft should consider the cost/benefit of each potential solution and also address security aspects that now have to be taken into account.

2.   **BACKGROUND**

2.1   During international working groups activities, it has been estimated that about 75 per cent of operators already transmit maintenance ACARS data to their maintenance centres. There are just too many aircraft operating at a given time for a system to be able to handle constant downloading of the flight data. Transmitting data will not replace anyhow flight recorders in the near future.

2.2   Triggered transmission is therefore a more realistic solution in terms of cost and manageable quantity of data. It is considered that transmission of basic aircraft parameters, including position at a given frequency (for example via ACARS), would be a good potential solution to help localize an aircraft in flight. It has been proven by a study carried out after the AF447 accident that

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position sent every minute allows for localizing the aircraft within 6 NM radius. Air France, as other French airlines, have already put this solution in place.

2.3   The safety recommendations of the French investigation bureau (BEA) after the AF 447 accident, as well as the reports of the dedicated working groups on flight data recovery and triggered transmission of flight data, however, did not address the security issue which was not seen as a challenge at that time.

3.   **DISCUSSION**

3.1   The A330 registered F-GZCP flight AF447 was transmitting its position regularly. The basic principle is that real-time position information is received from the monitored aircraft and displayed using an on-ground system. All the position reports are displayed simultaneously on a screen at the operational control centre (OCC) and are indicated to a dispatcher. The dispatcher has the information whether the aircraft is on its flight plan or not.

3.2   The aircraft positions were taken from the ACARS position reports for long-haul aircraft every ten minutes. In 2011, Air France modified the aircraft operational communication (AOC) data-link of the Airbus and Boeing fleet which hosts several company operational reports.

3.3   The reporting frequency has been modified from 10 minutes to 1 minute if the aircraft is below the Flight Level 150 from 20 minutes after take-off and up to 30 minutes before landing. The cost for AOC data-link modification is estimated to be one day of engineer for each type of aircraft for the long range family (A330, A340, A380, B777, B747…). The software was then uploaded on each aircraft during weekly check.

3.4   Other French airlines also have systems in place that localize the aircraft continuously using ACARS messages at a frequency of one minute.

3.5   France considers that these short-term solutions for better enhancement of global flight tracking are cost effective and should be encouraged worldwide. The vulnerability in relation to aviation security should nevertheless be addressed carefully.

3.6   To address this security issue, long-term solutions for a worldwide and permanent tracking of aircraft should also be evaluated in terms of cost efficiency, having in mind the added benefit.

3.7   Meanwhile, it appears necessary to find solutions even if not for permanent tracking for the mid-term.

3.8   Informing the competent authorities of the position of a missing aircraft upon request, will require new technological elements on board, or evolution of existing technologies. One possible cost-effective means of compliance, as mentioned in the working papers presented by the European Union, is the new MEOSAR return link service (RLS). This RLS link, exploited by COSPAS-SARSAT, would allow the SAR master control center (MCC) to activate the ELT at distance, in case of ATC request. Combining this feature with automatic triggering of ELT upon distress or unusual situations of the aircraft would allow automatically reporting the aircraft position, even under non-cooperative aircraft events. These new generation ELTs shall only be de-activated by the MCC.

3.9   This means of compliance is expected to be operational from 2018.

4. **ACTION BY THE MEETING**

4.1   The meeting is invited to:

   a) note the information on the paper;

   b) note that short-term cost-effective solutions exist to address the issue of enhanced aircraft tracking and should be encouraged;

   c) note that vulnerabilities in relation to aircraft security have to be addressed;

   d) note that mid-/long-term solutions should be considered in terms of cost efficiency, having in mind the benefit in terms of safety and security;

   e) note that mid-term solutions, as the activation at distance of new generation ELTs combined to airborne triggering in flight in case of unusual situations, is one example of solutions that should be envisaged.

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