



## FIJI AERONAUTICAL INFORMATION CIRCULAR

Civil Aviation Authority of Fiji  
Private Bag (NAP0354), Nadi Airport  
Republic of Fiji  
Tel: (679) 8923 155; Fax (679) 6721 500  
Website: [www.caaf.org.fj](http://www.caaf.org.fj)

AIC [07/25]

Effective  
15 MAY 25  
OPS

### GUIDANCE ON THE ESTABLISHMENT OF A FLIGHT DATA ANALYSIS PROGRAM (FDAP)

#### 1. Introduction

- 1.1 This AIC provides information and guidance to Air Operators for the establishment of a Flight Data Analysis Program (FDAP) in compliance with the Annex 6 requirements

#### 2. Background

- 2.1. ICAO Annex 6 Part 1 Chapter 3 requires the operator of an aeroplane of a maximum certificated take-off mass in excess of 27 000kg to establish and maintain a flight data analysis program as part of its safety management system.
- 2.2. It also recommends that an operator of an aeroplane of a certificated take-off mass in excess of 20 000 kg should establish and maintain a flight data analysis program as part of its safety management system.
- 2.3. This AIC is to provide air operators with guidance on the establishment of an effective flight safety document system for the use and guidance of operational personnel. All air operators should review this guidance material for the implementation and management of an effective flight safety document system.
- 2.4. ICAO Annex 6 Part III Chapter 1 recommends the operator of a helicopter of a certified take-off mass in excess of 7000 kg or having a passenger seating configuration of more than 9 and fitted with a flight data recorder should establish and maintain a flight data analysis program as part of its safety management system.
- 2.5. FDAP shall contain adequate safeguard to protect the source(s) of data in accordance with Appendix 3 to Annex 19.
- 2.6. Flight Data Analysis Program (FDAP) is a continuous pro-active safety program that utilizes Quick Access Recorder (QAR) data to collate and analyse digital flight data in routine line operations. The program is also known as the Flight Data Monitoring (FDM) or Flight Operations Quality Assurance (FOQA). It is mainly used to identify adverse safety trends from Flight Operations and enable corrective actions can be introduced before unsafe trend leads to accidents. It provides a tool for the systematic, proactive identification of hazards. FDA is a complement to hazard and incident reporting,

line operations safety audit (LOSA) and Evidence-based training. It provides a tool for the systematic, proactive identification of hazards. FDA is a complement to hazard and incident reporting, line operations safety audit (LOSA) and Evidence-based training.

- 2.7. The FDAP places emphasis on data de-identification as a mean to support the positive safety culture. Exceedance events provide learning lessons and trends are to be generated without the threat of censure to the event actors
- 2.8. An FDAP may be described as a proactive programme for the routine collection and analysis of flight data to develop objective information for advancing safety. Data gathered can be analysed to improve flight crew awareness, training effectiveness, operational procedures, maintenance and engineering, and air traffic control (ATC) procedures.
- 2.9. In Incident Investigation, the FDAP provides the Quantitative description of the event supplementing the Contextual crew report and provides valuable information for investigation and follow-up of other technical reports.
- 2.10. Additionally, flight profile and engine operations parameters can also be collated through FDAP for the operator's maintenance program and as part of the continuing airworthiness program to monitor, analyze and improve operational efficiency as part of continuing airworthiness. This represents a separate part the FDAP program which is distinct from flight parameters exceedance detection.
- 2.11. This AIC provides information and guidance to Air Operators performing commercial air transport operations with aeroplanes and helicopters for implementation and management of an effective Flight Data Analysis Program.

### **3. Applicability to Industry**

- 3.1 This AIC provides information and guidance to Air Operators for the establishment of a Flight Data Analysis Program (FDAP). All air operators should review these guiding principles for the implementation and management of an effective Flight Data Analysis Program.

### **4. Purpose**

The purpose is that the Air operators develop effective flight safety document systems for the use and guidance of operational personnel.

The CAAF confirms air operators have implemented effective flight safety document systems in accordance with ICAO SARPs requirements for the use and guidance of operational personnel.

## **5. SCOPE**

- 5.1 The scope of this AIC is to provide guiding principles to Air Operators performing commercial air transport operations with aeroplanes and helicopters for implementation and management of an effective Flight Data Analysis Program.

## **6. OBJECTIVES OF A FLIGHT DATA ANALYSIS PROGRAM**

### **6.1 Identification of Undesirable and Unsafe Trends through Exceedence Detection and Routine Measurements**

- 6.1.1 FDAP enables analysis of flight data to identify areas of operational risk through a pro-active and routine collation of a pre-determined core set of flight parameter exceedances. These de-identified non-standard flight operations, deviation from prescribed operating procedures and unsafe circumstances can be detected and quantified into undesirable and unsafe trends for remedial action(s) to be taken.
- 6.1.2 De-identified exceedance detection data gathered, and lessons learnt are shared with the operator's flight crew for risk awareness.
- 6.1.3 The FDAP also enables the continued monitoring of the effectiveness of remedial actions introduced.

### **6.2 Incident Investigation**

- 6.2.1 The FDAP is not specifically designed for Incident Investigation. However, the FDAP provides quick and valuable quantifiable recorded data for safety investigation of mandatory reportable incidents. FDAP captured flight parameters, performance and system status assist in concluding the cause and effect of the event.

### **6.3 Continuing Airworthiness**

- 6.3.1 Routine and specific event data from the FDAP can be utilized as an integral part of an operator's continuing airworthiness function as required under ICAO Annex 8. The data are analyzed to ensure that the operator's aircraft are in a condition for safe and efficient operation. Effective use of the FDAP data can potentially provide significant savings in operating costs and dispatch reliability.
- 6.3.2 FDAP can also be used by the operator as an engine-monitoring program to analyze engine performance and its efficiency. Other use of the data includes airframe drag measurements, avionics and other system performance monitoring, flight control performance, taxi fuel monitoring, brake and reverse thrust usage.
- 6.3.3 Routine or specific event data acquired from FDAP for continuing airworthiness forms part of the operator's maintenance and efficiency program and are

separate from the flight parameters exceedance detection and safety trend data collection. Therefore, the extent and dimension of data collection in this category remains solely at the discretion of the operator provided the non- punitive and confidentiality aspect of the FDAP is maintained.

## **6.4 Integrated Safety Analysis**

- 6.4.1 Findings gathered from the FDAP should be considered as safety data and safety information sources in support of the operator's SMS in order to obtain a more complete understanding of safety issues.
- 6.4.2 Automatic data capture systems and safety reporting systems work complementarily in terms of safety data and safety information collection and processing to support safety management.
- 6.4.3 Operator should define adequate procedures and provide protections to safeguard the confidentiality of FDA data when linking to identifiable data, like a safety report.

## **7. IMPLEMENTATION**

### **7.1 Reference Documents**

To assist with the implementation of the Flight Data Analysis Program, operators should make reference to:

- (i) ICAO Annex 6 Operation of Aircraft- Part I International Commercial Air Transport- Aeroplanes.
- (ii) ICAO Annex 6 Operation of Aircraft- Part III International Operations- Helicopters.
- (iii) ICAO Doc 10000 Flight Data Analysis Programme Manual (FDAPM).
- (iv) ICAO Doc 9995 Manual of Evidence-Based Training.
- (v) ICAO Annex 19 Appendix 3 Principles for the protection of safety data, safety information and related sources.

### **7.2 Pilot Support**

- 7.2.1 Pilot support and cooperation is essential for a successful implementation of the FDAP. The narrative provided by the pilots on exceedance detection provides an important part in the investigation and analysis loop. Raw data itself collated from the FDAP will not provide meaningful understanding of hazards and the associated risk.
- 7.2.2 De-identification of crew involved in exceedance events from management contributes to the development of trust for the FDAP. De-identification of gross exceedance data also forms the tool for the non-punitive aspect of the FDAP.

7.2.3 Formal agreement/ protocol between the management and pilots on the procedures and data protection for gross exceedence events should be reached prior to FDAP implementation. It should be stressed that such agreement only encompass gross exceedence data management and must not include data required by the operator for reportable incident investigation and continuing airworthiness aspect of the FDAP.

### 7.3 **FDAP Team**

7.3.1 Administration of the FDAP should involve all stakeholders and the formation of a team which can vary in size from one person for a small fleet, to a dedicated section for large fleets. However, it is recommended that the FDAP be managed by a dedicated staff with a high degree of specialization and logistical support.

7.3.2 Members of the FDAP team should include the following:

- (i) Team leader
- (ii) Flight operations interpreter
- (iii) Technical interpreter
- (iv) Flight crew contact person
- (v) Engineering technical support
- (vi) Air safety coordinator
- (vii) Replay operative and administrator

### 7.4 **Positive Safety Culture**

7.4.1 FDAP provides learning lessons, facilitates generation of trends and review of organizational processes and procedures for their safety impact. A consistent and competent programme management characterizes not only successful FDAPs but also positive safety culture, in support of the operator's SMS.

7.4.2 Indications of a positive safety culture of an operator include:

- (i) top management's demonstrated commitment to promoting a positive safety culture;
- (ii) the cooperation and accountability of all organizational levels and relevant personnel representatives, meaning that anyone believing to have identified a hazard should feel able to report and expect follow-up action to be considered to address related safety risks. From the line pilot to the fleet manager all have responsibility to act;
- (iii) a written policy for the protection of safety data, safety information and related sources that covers FDA and makes clear that the main objective of an FDAP should be to maintain and improve safety, and not for disciplinary, civil, administrative and criminal proceedings against employees, operational personnel or organizations;
- (iv) an identified safety manager whose role and functions are defined following the recommendations of the Safety Management Manual (SMM) (Doc 9859);

- (v) dedicated staff under the authority of the safety manager and involvement of persons with appropriate expertise when identifying hazards and assessing the associated safety risks. For example, flight crews experienced on the aircraft type being analysed are required for the accurate diagnosis of operational hazards emerging from FDA analyses;
- (vi) a focus on monitoring fleet trends aggregated from numerous operations. The identification of systemic issues adds more value for pro-active safety management;
- (vii) a well-structured de-identification system to protect the confidentiality of the data; and
- (viii) an efficient communication system, to permit timely safety action, for disseminating information on the prevention of consequences of hazards identified and subsequent safety risk assessments internally and to other organizations