



Civil Aviation Authority of Nepal

Advisory Circular 07/2020			
Subject:	GUIDANCE ON THE ESTABLISHMENT OF A FLIGHT DATA ANALYSIS PROGRAMME (FDAP)		
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- 1.0 PURPOSE**

1.1 This advisory circular provides information and guidance to Air Operators for the establishment of a Flight Data Analysis Programme (FDAP).

2.0 APPLICABLE REGULATIONS

- 2.1 Rule 82 of CAAN, Civil Aviation Rules 2002.

3.0 BACKGROUND

- 3.1 ICAO Annex 6 Part 1 Chapter 3 requires operator of an aeroplane of a maximum certificated take-off mass in excess of 27 000kg shall establish and maintain the FDAP as part of its accident prevention and flight safety programme from 1 January 2005.
- 3.2 Flight Data Analysis Programme (FDAP) is a continuous pro-active safety programme that utilises Quick-Access Recorder (QAR) data to collate and analyse digital flight data in routine line operations. The programme 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.
- 3.3 Data gathered can also be analysed to improve crew performance, operating procedures, flight training, air traffic control procedures, air navigation services, or aircraft maintenance and design.
- 3.4 In Incident Investigation, the FDAP provides the Quantitative description of the event supplementing the Contextual crew report.
- 3.5 Additionally, flight profile and engine operations parameters can also be collated through FDAP for the operator's maintenance programme and as part of the continuing airworthiness programme to monitor, analyse and improve operational efficiency as part of continuing airworthiness. This represent a separate part the FDAP programme which is distinct from flight parameters exceedance detection.

4.0 SCOPE

- 4.1 The scope of this AC is to provide guiding principles to Air Operators for implementation and management of an effective Flight Data Analysis Programme.

5.0 OBJECTIVES OF A FLIGHT DATA ANALYSIS PROGRAMME

- 5.1 Identification of Undesirable and Unsafe Trends through Exceedance Detection and Routine Operational Measurements
- 5.1.1 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.

5.1.2 De-identified exceedance detection data gathered and lessons learnt are shared with the operator's flight crew for risk awareness.

5.1.3 The FDAP also enables the continued monitoring of the effectiveness of remedial actions introduced.

5.2 Incident Investigation

5.2.1 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 establishing the cause and effect of the event.

5.2.2 In the safety investigation of mandatory reportable incidents, the FDAP's protocol of data confidentiality would not apply. Crew narrative of the incident, providing the context of the incident and the applicable specific human factor issues contributing to the incident is an important part of the investigation.

5.2.3 Additionally, in the event that the FDAP reveals a flight profile and/or operating parameter that are classified as a mandatory reportable incident under ICAO Annex 13 or NCAR and FOR the event must be immediately identified and incident report filed accordingly and investigated by the operator. (NCAR Part M, M.A. 202 and Part 145.A.60).

5.3 Continuing Airworthiness

5.3.1 Routine and specific event data from the FDAP can be utilised as an integral part of an operator's continuing airworthiness function as required under ICAO Annex 8. The data is analysed to ensure that the operator's aircraft are in a condition for safe and efficient operation.

5.3.2 FDAP can also be used by the operator as an engine-monitoring programme to analyse 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.

5.3.3 Routine or specific event data acquired from FDAP for continuing airworthiness forms part of the operator's maintenance and efficiency programme and is 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.

5.4 Integrated Safety Analysis

5.4.1 FDAP data should be kept in a central safety database and linkable to, or accessible by other safety databases, such as incident reporting systems and technical fault reporting systems, while safeguarding the confidentiality of the FDAP data.

5.4.2 This cross-reference capability enables a multi-dimensional and circumferential understanding of events providing accurate information on the overall safety health of flight and maintenance operations.

6.0 IMPLEMENTATION

6.1 Reference Documents

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

- (i) ICAO Doc 10000 *Flight Data Analysis Programme Manual (FDAPM)*
- (ii) ICAO Doc 9422 *Accident Prevention Programme* (iii) ICAO Annex 13 Attachment E *Legal Guidance for the Protection of Information from Safety Data Collection and Processing System*

6.2 Pilot Support

6.2.1 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.

6.2.2 De-identification of crew involved in exceedance events 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.

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

6.3 FDAP Committee

6.3.1 Administration of the FDAP should involve all stakeholders and the formation of a committee. Members of the FDAP Committee team should include the following:

- (i) Safety Department
- (ii) Pilot representative
- (iii) Data Analyst/ Technical Interpreter
- (iv) Flight Operations Fleet management
- (v) Flight Operations Training department
- (vi) Human Factor interpreter

6.3.2 The FDAP Committee is responsible for the formulation of the pilot re-engagement programme in gross exceedance events. Such re-engagement programmes should be documented and validated by the continuing FDAP trending.

6.4 Just Culture

6.4.1 The FDAP places emphasis on data de-identification as a mean to support the non-punitive nature of the programme. In gross exceedance events, the FDAP provide learning lessons and trends can be identified without the threat of censure to the event actors.

6.4.2 Operators should balance the benefits of a Just Culture within the overall Safety Culture in the organisation against wilful violations of Standard Operating Procedures detected by the FDAP. The emphasis on the non-punitive aspect of the FDAP must not be all encompassing and be allowed to evolve into a No-Blame Culture which may erode disciplined adherence to safe operational procedures. In cases of gross exceedance events attributable to wilful violation resulting in an unsafe or undesirable aircraft state, the operator must seek to identify the violator through the FDAP committee and prescribe a re-engagement programme to prevent recurrence. In such cases, the FDAP committee should not withhold the identification of the event without compelling justification.

7.0 CONTACT OFFICE

Issued under the authority of:

Director General
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For more information, please contact:

Raju Shrestha
Chief
Flight Safety Standards Department
Civil Aviation Authority of Nepal
raju.shrestha@caanepal.gov.np

Suggestions for amendment to this document are invited, and should be submitted to:

Deepak K Lama
Deputy Director, Flight Operations Division
Flight Safety Standards Department
Civil Aviation Authority of Nepal
dipakk.lama@caanepal.gov.np