CIVIL AVIATION AUTHORITY, BANGLADESH
AIR NAVIGATION ORDERS
FLIGHT OPERATIONS REQUIREMENTS

PART – H - ACCIDENT PREVENTION AND FLIGHT SAFETY PROGRAMME

ANO (OPS) H-1	FLIGHT DATA ANALYSIS PROGRAMME

SECTIONS

1. General

1.1 Pursuant to Rule 4 of CAR'84, Chairman Civil Aviation Authority is pleased to issue this ANO regarding the establishment of Flight Data Analysis (FDA) Program by Commercial Air Transport Operators of Bangladesh.

1.2 This ANO is developed in conjunction with Rule 123 (5) of CAR'84 to comply with the standard of the International Civil Aviation Organization (ICAO) as dictated in Annex-6, Part-1, Chapter-3, Para-3.3.6 wherein it is mentioned, "An operator of an aeroplane of a maximum certificated mass in excess of 27000 kg shall establish and maintain a Flight Data Analysis Programme as a part of its Accident Prevention and Flight Safety Programme".

2. Background

2.1 Extensive analysis of aviation incidents and accidents reveals that, in majority of the cases, flight crew induced deviations from standard procedures and normal practices result into incidents and/or accidents.

2.2 Flight Data recorders, installed in the aircraft, provide vital information as regards to flight performance and associated details. Periodical collection and analysis of data provide up-to-date valuable information. Information derived from these flight data recorders entail any deviation or trend of deviations that take place during the conduct of flight.

3. Objectives

3.1 The objectives of Flight Data Analysis Programme are as follows:

(a) To identify undesirable and unsafe trends;

(b) To identify operational hazards in aircraft, airports and in specific procedures including air traffic control procedures;

(c) To put in place appropriate risk mitigation measures to alleviate any foreseeable or predicted unacceptable risk.

(d) To monitor results of mitigation measures and to adjust such measures as required, and

(e) To verify and optimize the effectiveness of training programmes and SOPs towards safe conduct of flights.

4. Applicability

This ANO is applicable to all commercial air transport operators of Bangladesh, shall come into force from the date of issue shown thereon and shall supersede all orders, notices or directives issued in this regard.

5. Implementation

5.1 FDA Programme involves the analysis of flight data on a routine basis to reveal situations requiring corrective actions to prevent similar occurrence in future. To institute such a program, airlines/operators shall incorporate methods to capture the relevant data of the FDR, transform the data into appropriate format for analysis and generate reports. The following procedures shall be adopted:

5.1.1 Management Team

Each Operator shall form a Management Team comprising of one Manager, one or more analyst(s) and an monitoring group of technically qualified personnel. These individuals shall manage the FDA program in strict adherence to this ANO. The team shall be responsible to collect parameters, analyse/review data and determine as well as ensure corrective actions.

5.1.2 Data Capture

The first step of the programme shall be to capture the data of the FDR for the relevant duration of the flight. The data items are referred to as ‘parameters’. Each parameter represents information from a discreet source, such as an instrument or sensor.

5.1.3 Data Transfer

Data transfer from an FDR can be accomplished whenever an aircraft is brought offline for periodic maintenance. The FDR is physically removed from the aircraft and sent to a central location for data transfer and can be fitted back to the aircraft for the ensuing flights.

An alternative to physical recording system is the use of data-link to transmit information directly to the ground based system. Data would be transmitted on a radio-frequency link from the aircraft to a receiving station after the aircraft lands. In turn, a local-area network would transfer the data to the ground analysis station. Data encryption and other methods would be use to ensure the security of the transmitted FDA data.

Transfer of FDA data shall be on regular basis.

5.1.4 Data Retention

Operators shall retain the detailed FDA data for one year but shall preserve the trend data for as long as the same is likely to be required for future corrective actions.

5.1.5 Data Processing and Analysis

Each airline shall have a ground analysis system to process and analyze the collected data. The ground analysis system transforms the raw digital flight records into usable form to process in order to detect any abnormal condition or deviation form normal operating practices.

Various categorization schemes are used to classify the seriousness of the deviation. Deviations are typically specified on the basis of a strategy for identifying those that have the greatest potential for safety and performance conditions.

The ground analysis software validates the quality and integrity of the collected data and filters out any marginal or transitory irregularities. Ground analysis systems also include protective mechanisms, such as the de-identification of pilot and specific flight information, and user-access privileges based on assigned passwords. As the data are processed, thee flight number and day of month are removed and saved into a separate file.

The FDA monitoring team investigates each deviation to determine what occurred and the magnitude of the deviation. An analyst will review the parameter values surrounding the event and other information to determine if the deviation was valid requiring corrective actions to be taken or if the deviation was based on bad data, a faulty sensor or some other invalidating factor.

Depending on the particular circumstances of the deviation, the FDA Manager or authorized person may contact flight crew to gather more information. After reviewing the situation to determine the cause of deviation, the FDA monitoring team will determine any necessary corrective action. Corrective action can range from additional flight-crew training to revisions of the operating procedures and/or redesigning of equipment.

5.1.6 Trend Analysis

On a periodic basis, airlines shall aggregate and analyze deviations over a period of time. This type of analysis provides valuable information to the airline, especially in terms of whether the airline's performance is improving, holding steady or deteriorating. On the basis of the trend analysis, FDA Management Team can advise for corrective action to reduce or eliminate occurrences of these deviations.

6. Basic Requirements

6.1 The following are the basic requirements :

- An organizational set up
- A suitable tool (software) for decoding and analysis of flight data.
- Hardware such as computer, laptop etc.
- System for collection of data from aircraft.
- Dedicated and reliable technically qualified personnel.
- Training of the personnel.

6.2 FDA Manage – Qualification and Experience :

6.2.1 The Manager of an operator's FDA programme, may preferably have Engineering Degree from any recognized university having Aeronautical or Mechanical or Electrical and Electronic discipline.

OR

The Manager FDA programme may have airline transport pilot background with no less than 5000 hours experience on commercial air transport operation having served in the position of senior Management in the airline.

6.2.2 Additionally, he should have wide experiences in the field of aviation on flight operations, Engineering, Flight Safety and other subjects as mentioned in Para 6.2.1.

6.2.3 The FDA Manager shall be directly responsible to the CEO of the organization who should have direct access to all departmental heads of flight operations and other relevant department of the organizations. He/She should be a full time ground based employee of the airline.

6.3 FDA Manager and other Staff/Training

6.3.1 FDA Manager and other staff of FDA programme should have adequate training and knowledge on the following subjects :

a. Aircraft basic, its systems, operations, and performance.
b. Type Technical Course.
c. Air Law, REgulations of CAAB, ICAO, etc.
d. Aviation Physiology, Aviation Psychology and Human Factors.
e. Safety Management and Safety Oversight
f. Accident/incident investigation.
g. Aerodynamics and Theory of Flight
h. Communication Skills.
i. Safety/quality audit and inspections and its techniques and procedures.
j. Flight Operations Management.
k. Flight Operations Inspectors Course
l. Hazard Identification and Risk Analysis
m. Risk Management
n. Crisis Management and Emergency Planning
o. Quality Operations.
p. Other subject(s) related to Flight Operations, Safety, FDA and FOQA.

6.3.2 In addition to the above, the FDA Manager and other members of the team should remain abreast with the continuous and progressive safety concept and requirement on a regular basis.

7. Responsibility of Operator

7.1 Operators shall develop a Flight Data Analysis Programme within their organization in line with the implementation concept outlined in Section 5 of this ANO. They shall use the knowledge of any deviation or trend of deviations from the normal flight parameters as would be evidenced through flight data recorder as means to corrective measures for avoidance of in-flight and/or on-ground incidents/accidents for over all improvement of safety standard. Therefore, the effectiveness and proposals for corrective action resulting from the Flight Data Analysis programme shall remain the responsibility of the operator.

7.2 Operators shall analyse FDA data for each equipment and publish the findings in the form of a bulletin on a regular basis, at least twice in a year, and in addition, analyse the data and publish the findings in the form of a special bulletin when situation warrants.

7.3 Operator shall establish a system to monitor compliance with, and the adequacy of, procedures required to ensure safe operational practices. Compliance monitoring must include the following:

7.3.1 A feed-back system to the Chief Executive Officer to ensure corrective action as necessary.

7.3.2 A quality assurance programme that contains procedures designed to verify that all operations are being conducted in accordance with applicable requirements, standards and procedures.

7.3.3 A compliance and verification of policies of state and company regulations are accomplished through periodic 'quality audits'.

7.4 A Flight Data Analysis programme shall be confidential, anonymous, and non-punitive and shall contain adequate safeguards to protect the source(s) of data.

7.5 Should an operator contracts the operation of a Flight Data Analysis Programme to another party, the party in question shall act as a service provider only while the overall responsibility for the FDA programme shall remain with the operator's Flight Safety Programme itself.

This order when approved by the Chairman shall supersede and replace ANO(OPS) H-1 dated 29-03-2005.

Chairman
Civil Aviation Authority, Bangladesh