CIVIL AVIATION AUTHORITY OF BANGLADESH

Air Navigation Order

Instrument Flight Procedure

VERSION 2.0

2026

Published
by

Civil Aviation Authority of Bangladesh

FOREWORD

In exercise of the power conferred by Section 14 of the Civil Aviation Act,2017 (Act No.18 of 2017), hereinafter referred to as the "Act", the Chairman, the Civil Aviation Authority of Bangladesh (CAAB) is pleased to issue this Air Navigation Order Instrument Flight Procedure, Version 2.0 (ANO IFP, V2.0) on the Instrument Flight Procedures Design Regulations and Implementation Standards, specifying the national standards, requirements and procedures pertaining to the planning, operation and maintenance of Instrument Flight Procedures Design within the Flight Information Region of Bangladesh.

The standards and requirements in this ANO IFP, V2.0 are based mainly on the previously issue of ANO IFP version 1, ICAO Document 8168- Procedures for Air Navigation Services, Aircraft Operations: PANS-OPS. Vol-II and Quality Assurance Manual for Flight Procedure Design Doc. 9906 Vol. I & V, with such modifications as applicable in Bangladesh. The pertinent portions of the ICAO Approved Amendments No. 12, 11 and 4 to the to the PANS-OPS, Volumes I, II, III, respectively, notified through AN 11/19-26/44 dated 19 May 2026 have also been incorporated in this ANO IFP, V2.0.

This ANO IFP, V2.0, when promulgated, will spell out the standards and requirements to regulate the ANS activities in the design of Instrument Flight Procedures (IFP) and in addition will work as a set of directives for the IFPD Offices for the design and maintenance of IFPs within the Dhaka Flight Information Region. This ANO IFP, V2.0 aims to ensure that all published Instrument Flight Procedures intended to be used by aircraft operating under Instrument Flight Rules (IFR) in Dhaka Fight Information Region (FIR), meet national and ICAO requirements for instrument flight procedures.

This Air Navigation Order shall come in force with effect from the date of publication.

Air Vice Marshal Md Mostafa Mahmood Siddiq
BSP, GUP, ndc, afwc, acsc, psc
Chairman
Civil Aviation Authority of Bangladesh

Readers should forward advice of errors, inconsistencies or suggestions for improvement of this order to the addressee stipulated below:

Director (ANS Inspection)
Flight Standard & Regulations Department
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AMENDMENT RECORDS

Amendment No.	Effective Date	Date Entered

CHAPTER 1

DEFINITIONS

When the following terms are used in this document, they have the following meanings:

Aerodrome elevation. The elevation of the highest point of the landing area.

Aerodrome Operating Minima. The limits of usability of an aerodrome either for take-off or landing usually expressed in terms of visibility or Runway visual range, decision altitude/height or Minimum Descent altitude/height and cloud conditions.

Along-track tolerance (ATT). A fix tolerance along the nominal track resulting from the airborne and ground equipment tolerances.

Altitude. The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

Approach procedure with vertical guidance (APV). An instrument procedure which utilizes lateral and vertical guidance but does not meet the requirements established for precision approach and landing operations.

Area navigation (RNAV). A method of navigation which permits aircraft operation on any desired flight path within the coverage of navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Base turn. A turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

Note. — Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

Circling approach. An extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing.

Cross-track tolerance (XTT). A fix tolerance measured perpendicularly to the nominal track resulting from the airborne and ground equipment tolerances and the flight technical tolerance (FTT).

Cyclic redundancy check (CRC). A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

***Decision altitude (DA) or decision height (DH*). A** specified altitude or height in the precision approach or approach with vertical guidance at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Elevation. The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.

Final approach segment. That segment of an instrument approach procedure in which alignment and descent for landing are accomplished.

Final approach track. The flight track in the final approach segment that is normally aligned with the runway center line.

Filed flight plan (FPL or eFPL). The latest flight plan submitted by the pilot, an operator or a designated representative for use by ATS units.

Note. —The FPL denotes a filed flight plan exchanged using aeronautical fixed service while eFPL denotes a filed flight plan exchanged using FF-ICE services. The eFPL allows for the exchange of additional information not contained within the FPL.

Flight plan. Specified information relative to an intended flight or portion of a flight of an aircraft.

Note 1. — The term flight plan may be prefixed by the words "preliminary", "filed", "current" or "operational" to indicate the context and different stages of a flight.

Note 2. — When the word "message" is used as a suffix to this term, it denotes the content and format of the flight plan data as transmitted.

Flight procedure designer. A person responsible for flight procedure design who meets the competency requirements as laid down by the State.

Heading. The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

Height. The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

Holding procedure. A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.

Initial approach fix (IAF). A fix that marks the beginning of the initial segment and the end of the arrival segment, if applicable. In PBN procedures this fix is normally defined by a fly-by waypoint.

Intermediate fix (IF). A fix that marks the end of an initial segment and the beginning of the intermediate segment. In PBN procedures this fix is normally defined by a fly-by waypoint.

Initial approach segment. That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

Instrument approach procedure (IAP). A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

Non-precision approach (NPA) procedure. An instrument approach procedure which utilizes lateral guidance but does not utilize vertical guidance.

Intermediate approach segment. That segment of an instrument approach procedure between either the intermediate approach fix and the final approach fix or point, or between the end of a reversal, racetrack or dead reckoning track procedure and the final approach fix or point, as appropriate.

Intermediate fix (IF). A fix that marks the end of an initial segment and the beginning of the intermediate segment.

Minimum descent altitude (MDA) or minimum descent height (MDH). A specified altitude or height in a nonprecision approach or circling approach below which descent must not be made without the required visual reference.

***Minimum obstacle clearance altitude (MOCA*)**. The minimum altitude for a defined segment that provides the required obstacle clearance.

Minimum sector altitude (MSA). The lowest altitude which may be used which will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 NM) radius centered on a radio aid to navigation.

Missed approach point (MAPt). That point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.

Missed approach procedure. The procedure to be followed if the approach cannot be continued.

Missed approach holding fix (MAHF). A fix used in PBN procedures that marks the end of the missed approach segment and the centre point for the missed approach holding

Navigation specification. A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

a) Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.3

b) RNAV specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note 1.— *The Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, contains detailed guidance on navigation specifications.*

Note 2. — *The term RNP, previously defined as "a statement of the navigation performance necessary for operation within a defined airspace", has been removed from this Annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.*

Obstacle clearance altitude (OCA) or obstacle clearance height (OCH). The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

Note 4.— See PANS-OPS, Volume II, Part IV, Chapter 2, for area navigation (RNAV) point-in-space (PinS) approach procedures for helicopters using basic GNSS receivers.

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note. — Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity and functionality needed for the proposed operation in the context of a particular airspace concept. Availability of a global navigation satellite system signal in space and/or some other navigation aid infrastructure is considered within the airspace concept in order to enable the navigation application.

Precision approach (PA) procedure. An instrument approach procedure using precision lateral and vertical guidance with minima as determined by the category of operation.

Mountainous area. An area of changing terrain profile where the changes of terrain elevation exceed 900 m (3 000 ft) within a distance of 18.5 km (10.0 NM).

Missed approach holding fix (MAHF). A fix used in RNAV applications PBN procedures that marks the end of the missed approach segment and the centre point for the missed approach holding.

Navigation specification. A set of aircraft and aircrew requirements needed to support Performance-based navigation operations within a defined airspace. There are two kinds of navigation specification.

Obstacle Clearance Altitude (OCA) or Obstacle Clearance Height (OCH). The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

Obstacle Limitation Surfaces. Obstacle Limitation Surfaces are a set of imaginary surfaces that define the limits to which objects may project into the airspace around an aerodrome so as to ensure the safety of aircraft operations.

Obstacle assessment surface (OAS). A defined surface intended for the purpose of determining those obstacles to be considered in the calculation of obstacle clearance altitude/height for a specific APV or precision approach procedure.

Obstacle clearance altitude (OCA) or obstacle clearance height (OCH). The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

Precision approach procedure. An instrument approach procedure utilizing azimuth and glide path information provided by ILS or PAR.

Primary area. A defined area symmetrically disposed about the nominal flight track in which full obstacle clearance is provided. (See also Secondary area.)

Procedure altitude/height. A specified altitude/height flown operationally at or above the minimum altitude/height and established to accommodate a stabilized descent at a prescribed descent gradient/angle in the intermediate/final approach segment.

Procedure turn. A manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Racetrack procedure. A procedure designed to enable the aircraft to reduce altitude during the initial approach segment and/or establish the aircraft inbound when the entry into a reversal procedure is not practical.

RNAV specification. A navigation specification based on area navigation that does not include the requirement for on-board performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

RNP specification. A navigation specification based on area navigation that includes the requirement for on-board performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP.

RNAV operations. Aircraft operations using area navigation for RNAV applications. RNAV operations include the use of area navigation for operations which are not developed in accordance with this manual.

RNP operations. Aircraft operations using an RNP system for RNP navigation applications.

Path and Terminator ("Path Terminator"). A two-letter code, which defines a specific type of flight path along a segment of a procedure and a specific type of termination of that flight path. Path terminators are assigned to all PBN departure, arrival and approach procedure segments in an airborne navigation database.

Performance-based navigation. Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note. — Performance requirements are expressed in navigation specifications in terms of accuracy, integrity, continuity and functionality needed for the proposed operation in the context of a particular airspace concept. Availability of GNSS SIS or some other NAVAID infrastructure is considered within the airspace concept in order to enable the navigation application

RNAV specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note 1.— The Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, contains guidance on navigation specifications.

Note 2. — The term RNP, previously defined as "a statement of the navigation performance necessary for operation within a defined airspace", has been removed from this Annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation 4 specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.

Reference datum height (RDH). The height of the extended glide path or a nominal vertical path at the runway threshold.

Reversal procedure. A procedure designed to enable aircraft to reverse direction during the initial approach segment of an instrument approach procedure. The sequence may include procedure turns or base turns.

Satellite-based augmentation system (SBAS). A wide coverage augmentation system in which the user receives augmentation information from a satellite-based transmitter.

Secondary area. A defined area on each side of the primary area located along the nominal flight track in which decreasing obstacle clearance is provided. (See also Primary area.)

Significant obstacle. Any natural terrain feature or man-made fixed object, permanent or temporary, which has vertical significance in relation to adjacent and surrounding features and which is considered a potential hazard to the safe passage of aircraft in the type of operation for which the individual procedure is designed.

Standard instrument arrival (STAR). A designated instrument flight rule (IFR) arrival route linking a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced.

Standard instrument departure (SID). A designated instrument flight rule (IFR) departure route linking the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the en-route phase of a flight commences.

Terminal arrival altitude (TAA). The lowest altitude that will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an arc of a circle defined by a 46 km (25 NM) radius centered on the initial approach fix (IAF), or where there is no IAF on the intermediate approach fix (IF), delimited by straight lines joining the extremity of the arc to the IF. The combined TAAs associated with an approach procedure shall account for an area of 360 degrees around the IF.

Threshold (THR). The beginning of that portion of the runway usable for landing.

Track. The projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

Visual Manoeuvring (circling) area. The area in which obstacle clearance should be taken into consideration for aircraft carrying out a circling approach.

Waypoint distance (WD). Distance on the WGS ellipsoid from a defined waypoint to the aircraft area navigation receiver.

CHAPTER 2

ABBREVIATIONS AND ACRONYMS

AIP	Aeronautical Information Publication
ALS	Aeronautical Lighting System
AMSL	Above Mean Sea Level
ANO IFP V 2.0	Air Navigation Order Instrument Flight Procedure Design Version 2.0
ARP	Aerodrome Reference Point
APV	Approach Procedures With Vertical Guidance
ATC	Air Traffic Control
ATS	Air Traffic Services
ATT	Along-Track Tolerance
BV	Buffer Value
CAAB	Civil Aviation Authority of Bangladesh.
CAT	Category
CDI	Course Deviation Indicator
CRM	Collision Risk Model
DA/H	Decision Altitude/Height
DER	Departure end of the runway
DME	Distance Measuring Equipment
FAF	Final Approach Fix
FAP	Final Approach Point
FATO	Final Approach and Take-Off Area
FMC	Flight Management Computer
FMS	Flight Management System
FTT	Flight Technical tolerance
FL	Flight Level
GP	Glide Path
GPA	Glide Path Angle

HF		Holding/racetrack to a fix
HL		Height Loss
IAF		Initial Approach Fix
IAP		Instrument Approach Procedure
IAS		Indicated Airspeed
IF		Intermediate Approach Fix
IFP		Instrument Flight Procedure
IFR		Instrument Flight Rules
ILS		Instrument Landing System
IMC		Instrument Meteorological Conditions
ISA	I	International Standard Atmosphere
LOC		Localizer
MA/H		Minimum Altitude/Height
MAHF		Missed Approach Holding Fix
MAPt		Missed Approach Point
MATF		Missed Approach Turning Fix
MDA/H		Minimum Descent Altitude/Height
MM		Middle Marker
MOC		Minimum Obstacle Clearance
MOCA		Minimum Obstacle Clearance Altitude
MSA		Minimum Sector Altitude
MSD		Minimum Stabilization Distance
MSL		Mean Sea Level
NM		Nautical Mile
NPA		Non-Precision Approach
OAS		Obstacle Assessment Surface
OCA/H		Obstacle Clearance Altitude/Height
OCS		Obstacle Clearance Surface

OJT	On-The-Job Training
OLS	Obstacle Limitation Surface
OM	Outer Marker
PA	Precision Approach
PANS-OPS	Procedure for Air Navigation Services – Aircraft Operations
PDG	Procedure Design Gradient
Pins	Point-In-Space Approach
RF	Constant radius arc to a fix
RNP	Required navigation Performance
RAIM	Receiver Autonomous Integrity Monitoring
RDH	Reference Datum Height (For APV And PA)
SI	International System Of Units
SID	Standard Instrument Departure
SOC	Start of Climb
STAR	Standard Instrument Arrival
TAA	Terminal Arrival Altitude
TA/H	Turn at an Altitude/Height
TAR	Terminal Area Surveillance Radar
TAS	True Airspeed
THR	Threshold
TMA	Terminal Control Area
TP	Turning Point
VPA	Vertical Path Angle
VSS	Visual Segment Surface
WGS	World Geodetic System
XTT	Cross-Track Tolerance

CHAPTER 3

3. RELATED DOCUMENTS

3.1 For the guidance in Standards & Recommended Practices in IFP Design, which are not included in this ANO IFP, V2.0, the current versions of the following documents will be read and used in conjunction with this ANO IFP, V2.0

SL No.	Document	Name
1	ICAO Doc 8168 Volumes I and II with amendments No. 12, 11 and 4 to the to the PANS-OPS, Volumes I, II, III, respectively	Procedures for Air Navigation Services Aircraft Operations (PANS-OPS)
2	ICAO Doc 9368	IFP Construction Manual
3	ICAO Doc 9371	Template Manual
4	ICAO Doc 9724	CRM Manual
5	ICAO Doc 9365	All Weather Operations Manual
6	Doc. 9906 Vol. I & V	Quality Assurance Manual for Flight Procedure
7	ICAO Doc 9613	Manual of Required Navigation Performance
8	ICAO Doc 9573	RNAV Operations
9	ICAO Doc 9674	World Geodetic System 1984 (WGS 84) Manual
10	ICAO Doc 8697	Aeronautical Chart Manual
11	ICAO Annex 2	Rules of the Air
12	ICAO Annex 4	Aeronautical Charts
13	ICAO Annex 5	Units of Measurement
14	ICAO Annex 6	Aircraft Operations
15	ICAO Annex 11	Air Traffic Services
16	ICAO Annex 14 Vol I	Aerodromes
17	ICAO Annex 14 Vol II	Heliports
18	ICAO Annex 15	Aeronautical Information Services

3.2 In addition, the Director ANSI and the IFPD office shall have either in hard copy/soft copy of the following documents available for the Inspectors and for the Procedure Designers respectively.

SL No	Document
1.	ANO IFP V2
2.	Doc. 8168 Procedure for Air Navigation Services Aircraft Operations (PANS-OPS)
3.	Doc. 9368 Instrument flight procedures constriction manuals
4.	Doc. 9371 Template Manual for Holding, Reversal and Racetrack Procedures.
5.	ANO 14 Vol I and II

6.	Doc. 9274 Use of the CRM
7.	Doc. 4444 Air Traffic Management (PANS- ATM) ATM)
8.	Doc. 7030 Regional Supplementary Procedures (Supps)
9.	Doc. 8400 ICAO Abbreviations and Codes (PANS-ABC)
10.	Aerodrome Data
11.	Minimum Sector Altitude
12.	Holding pattern
13.	Non-precision Approach
14.	ILS Approach
15.	Instrument departure procedure
16.	Instrument Arrival procedure
17.	RNAV GNSS Approach procedure

CHAPTER 4

4 ORGANIZATIONAL REQUIREMENTS

The Air Navigation Services Inspection (ANSI) Division – CAAB

General: The Air Navigation Services Inspection (ANSI) Division of Civil Aviation Authority of Bangladesh (CAAB) plays a crucial role in ensuring the safety, compliance, and efficiency of Instrument Flight Procedure (IFP) Designs. The Inspection Division ensures that Instrument Flight Procedures are safe, compliant, and operationally viable through rigorous oversight, validation, and continuous monitoring. Its role is critical in maintaining the integrity of the air navigation system of Bangladesh.

4.2 Air Navigation Services Inspection (ANSI) Division's responsibilities shall be but not limited to:

a) ensuring that an Instrument Flight Procedure design service is in place in accordance with ANO 11 Appendix 7.

b) ensuring that IFP designs comply with this ANO IFP, V2.0 along with ICAO Doc 8168 (PANS-OPS) and/or Doc 9906 (RNAV/RNP);

c) verifying adherence to obstacle clearance criteria, navigation accuracy, and airspace protection requirements;

d) confirming that procedures align with aircraft performance capabilities and air traffic control (ATC) requirements;

e) ensuring that the Air Navigation Service Provider responsible for IFP designs conducts safety assessments of new or modified instrument procedures (e.g., SIDs, STARs, Approaches) before approval of such procedures;

f) ensuring that the Air Navigation Service Provider responsible for IFP designs seeks approval of each procedure before finalizing and publication of such procedures;

g) overseeing flight validation trials (ground and airborne) to confirm procedure usability and safety;

h) conducting periodic inspections and audits of the procedure design office (e.g., Air Navigation Service Provider);

i) investigating incidents or deviations related to instrument procedures and recommend corrective actions;

j) ensuring that IFP designers and validators meet qualification and training requirements;

k) reviewing design methodologies and software tools used for procedure development;

l) conducting regular audits on the IFP Design Office to ensure the CAP-PANS OPS standards.

4.3 In addition, the ANS Inspectorate Division may issue the following, as and when required, to supplement this CAO:

(a) Safety Directive – This is a mandatory requirement to be complied by the IFPD Office. It is published for purposes of immediate promulgation of local standards and recommended

practices in response to, but not limited to, amendments to the ICAO documents. These Safety Directives will be incorporated into subsequent amendments of the CAO.

(b) Safety Publication – This is published for purposes of promulgating supplementary guidance materials to the standards and recommended practices in the CAO. The publications are intended to provide recommendations and guidance to illustrate a means, but not necessarily the only means, of complying with the CAO. Safety Publications may explain certain regulatory requirements by providing interpretive and explanatory materials.

(c) Information Circular – This is published for purposes of bringing to the attention of the IFPD Office educational materials related to aviation safety. The publications could be initiated as a result of ICAO State letters which do not require immediate changes to local regulations, new safety initiatives or international best practices as identified by ANS Division. The IFPD Office is encouraged to review and adopt the material if practicable. Where appropriate, the material in the publications may be incorporated into subsequent amendments of the CAO.

4.4 Duties and Responsibilities of the IFPD Office responsible for Instrument Flight Procedures Designs (IFPD)

The duties and Responsibilities of the IFPD Office responsible for Instrument Flight Procedures Designs (IFPD) shall be to:

4.4.1 Maintain an appropriate instrument design office to enable the IFP designer to carry on design work in instrument flight procedures in accordance with the requirements set out in the Construction of Instrument Flight Procedures (IFP), CAC-IFPD-01/2026

4.4.2 Ensure a documented organizational structure in the IFPD Office.

4.4.3 Ensure clearly defined lines of responsibility of the personnel in respect of the Instrument Flight procedure designs in the organizational structure.

4.4.4 Develop job descriptions for its PANS OPS technical staff as per ICAO Doc 10068.

4.4.5 Designate an Office Head for the IFPD Office.

4.4.6 Declare, Design, Verify and Maintain an appropriate instrument design office to enable the IFP designer to carry on with the design work in Instrument Flight Procedures in accordance with the requirements set out in this CAO.

4.4.7 Ensure that the units of measurement to be used in Air and Ground Operations as specified in the published ANO-5 are used, in the design of Instrument Flight Procedures where applicable.

4.4.8 Assess and document the number of technical staff required for effective functioning of the IFPD Office.

4.4.9 Ensure that the quality and safety of the procedure design products are assured through review, verification, coordination and validation at appropriate points in the process, so that corrections could be made at the earliest opportunity in the process.

4.4.10 Implement the provisions in the ANO IFP, V2.0 in a consistent manner, using processes that will minimize the possibility of errors, identify errors that do occur before they impact safety, and provide for continuous improvement of the procedure design process in order to eliminate or reduce future errors.

4.4.11 Ensure availability of equipment appropriate for the design, design verification, flight validation, and maintenance of the types of instrument flight procedures.

4.5 Where there is a difference between a standard in this ANO IFP, V2.0 and that of the mentioned ICAO documents in Chapter 3, the standard in this Manual shall prevail.

4.6 In this Order, standards are preceded by the word "shall", whereas recommended practices are preceded by the word "should". The IFPD Office shall always comply with all standards and should endeavor to comply with all recommended practices.

4.7 When the IFPD Office is not able to comply with any standards specified or referenced in this ANO IFP, V2.0, the IFPD Office shall apply to ANS Inspectorate Division for exemption or deviation from the relevant standards. Applications shall be supported in writing with the reasons for such exemption or deviation including any safety assessment or other studies undertaken, and where appropriate, an indication of when compliance with the current standards can be expected.

4.8 When the IFPD Office is not able to comply with any recommended practices specified or referenced in this ANO IFP, V2.0, the IFPD Office shall notify the ANS Inspectorate Division of the non-compliance or deviation with the supporting reason including any safety assessment or other studies undertaken, and where appropriate, an indication of when compliance with the current recommended practices can be expected.

4.9 The IFPD Office shall ensure that the of Instrument Flight Procedure Designs are in accordance with:

(a) applicable standards as set out in this ANO IFP, V2.0;
(b) applicable standards set out or referred to in ICAO Doc 8168 and
© applicable standards set out or referred to in ANO 4, 5, 6, 11, 15 and 19

4.10 The IFPD Office shall make provisions for a person(s) trained in IFP design to check and verify independently the plans of each instrument flight procedure designed.

Note –*Verifying an instrument flight procedure is a reference to the process of checking the procedure (including all data, computations and drawings for the procedure) in accordance with the applicable standards set out in the ANO IFP, V2.0.*

4.11 Instrument approaches, arrival & departure procedures shall be named in accordance with the naming convention contained in ICAO PANS-OPS DOC 8168, Vol.-II.

4.12 The IFPD Office shall make provisions, at a minimum, for standardized operational procedures, products, services, equipment and infrastructures in conformity with the respective ANOs and Annexes to the Convention on International Civil Aviation.

4.13 The specific operating regulations for IFPDS should include but are not limited to the transposition of the relevant provisions of ANO 11, ANO IFP, V2.0, ANO 15 and PANS-AIM.

4.14 The IFP design office shall carry out safety assessments in respect of proposals for new flight procedure designs or for any significant changes in a revised procedure.

4.15 The IFP design office shall ensure that an acceptable level of safety will be met while doing the safety assessment in the case of proposals for new flight procedure designs or for any significant changes in a revised procedure.

4.16 The IFP design office shall ensure that the results and conclusions of the safety assessment and mitigation process of a new or changed IFP Design Procedures are specifically documented, and that this documentation is maintained throughout the life of the instrument flight procedure.

4.17 The IFP design office shall establish general criteria and develop adequate procedures for the establishment of aerodrome operating minima? e.g., MDA/H, DA/H for instrument

4.18 The IFP design office responsible for IFP design service shall publish obstacle clearance altitude/height (OCA/H).

4.19 The IFP design office shall ensure that all the functions and responsibilities of the PANS-OPS staff are adequately and technically defined.

4.20 The IFP design office shall ensure the use of a PBN safety assessment checklist in the submission of RNAV design procedures.

4.21 The IFP design office shall ensure that published instrument flight procedures are subjected to a periodic review so that they continue to comply with changing criteria and meet user requirements. The maximum interval for this review will be 05 (five) years.

CHAPTER 5

5. INSTRUMENT FLIGHT PROCEDURE DESIGNER QUALIFICATIONS AND TRAINING

5.1 IFP Designer Qualifications

5.1.1 IFP designers shall have the following minimum academic qualifications.

a) Master's Degree in Physics/Mathematics or an Honours degree in Physics/ Mathematics; or

b) Bachelor's Degree in Aeronautical / Aerospace Engineering in with Air Traffic Control; and

c) Air Traffic Controllers meeting the academic qualifications as stated in a) or b) with safety background.

5.1.2 The IFPD Office shall ensure that a person designing or amending an Instrument Flight Procedure Design demonstrates the required competency level for flight procedure design.

5.1.3 IFP designers shall acquire and maintain this competency level through training and supervised on-the-job training (OJT). This is to ensure that the quality assurance in the procedure design process and its output, including the quality of aeronautical information/data, meets the requirements of ANO-4 and ANO-15.

5.2 Training for IFP Designers

5.2.1 The IFPD Office shall establish policies for the recruitments and training of its Procedure Designers.

5.2.1 The training for IFP designers shall include initial, recurrent and advanced trainings at periodic intervals.

5.2.2 The IFPD Office shall ensure that the IFP designer is able to demonstrate a basic level of competency through initial training.

5.2.3 The Initial Training for the IFP Designers shall include at a minimum, the following elements:

a) Overview of ICAO Standards and Recommended Practices (SARPs) relating to IFP design and promulgation;

b) Knowledge of information contained in

i. ANO IFP, V2.0 and ICAO Doc 8168 – PANS-OPS, and other related ICAO provisions relevant to procedure designs; and having knowledge of-

ii. General criteria in IFP designing;

iii. Non-precision approach design;

iv. Precision approach design;

v. Instrument departure design;

vi. Criteria for RNAV, GNSS and RNP; and

vii. Experience of having practical exercises in the design of procedures.

5.3 The IFPD Office shall ensure that the IFP designer is able to demonstrate a basic level of competency through recurrent training that includes at least the following elements:

a) Knowledge about updates in ICAO provisions and other provisions pertaining to procedure design; and
b) Maintenance and enhancement of knowledge and skills in the design of procedures.

5.4 The competency of the Flight Procedure Designer shall be subject to periodic verification by the in-charge of the FPD Office or a designated person to ensure continued compliance with the ICAO and regulatory requirements.

5.6 As OJT is aimed at permitting the new IFP designer to integrate his basic knowledge with actual practice, the IFPD Office shall ensure that new IFP designers undergo an adequate, supervised OJT.

5.7 The competency of the IFP designer shall be subject to periodic verification by ANS Division to ensure continued compliance with the requirements in this ANO IFP, V2.0.

5.8 The Flight Procedure Designers of the FPD office shall undergo authorized refresher training in FPD at least once in three years.

5.9 The IFPD Office shall assess and document the number of technical staff required for effective functioning of the office?

5.10 The IFPD Office shall develop a formal periodic Training Program and Training Plan detailing and prioritizing what training will be provided within the established time.

5.11 The IFPD Office shall maintain training records for their IFP designers.

CHAPTER 6

6. OPERATIONS MANUAL

General:

An IFPD Provider's operational manual is not just a compliance document—it is the backbone of safe, standardized, and auditable procedure design. Aligning it with ICAO Doc 9906, ICAO Doc 8168 (PANS-OPS), and ANO IFP, V2.0, ensures both international credibility and local regulatory compliance. It shall be comprehensive, structured, and compliant with ICAO and CAAB regulatory requirements and shall include regulatory alignment, safety management, documentation control, staff qualifications, and continuous updating to reflect changes in standards and procedures.

The Operations Manual shall contain standards and recommended practices for designing, reviewing, and publishing processes of Flight Procedures (FP) in the Dhaka Flight Information Region. It shall ensure that all published FPs intended to be used in the Dhaka Flight Information Region (FIR) meet CAAB regulatory requirements and ICAO requirements

6.1 The IFPD Office shall develop and maintain an Operations Manual with the approval of the Chairman CAAB. The Operations Manual shall serve to demonstrate how the service provider will comply with the requirements set out in the ANO IFP, V2.0.

6.2 The Operations Manual shall ensure that the quality and safety of the procedure design through the review, verification, coordination, and validation at appropriate points in the process, so that corrections can be made at the earliest opportunity in the process.

6.3 The IFPD Office shall amend the operations manual whenever necessary to keep its content up to date and shall submit a copy with the latest amendments to the Director ANSI.

6.4 Any exemption or deviation granted to the IFPD Office shall also be recorded in the Operations Manual. The Operations Manual shall also contain the details of the exemption or deviation, such as the reason that the exemption or deviation was requested and any resultant limitations or conditions imposed.

6.5 The IFPD Office, in order to maintain transparency concerning the details and assumptions, used by the procedure designer personnel, responsible for ensuring the compliance and the validation requirement shall ensure its documentation before publication.

6.6 The contents of the Operations Manual shall include but are not limited to the following:

a) the information required from the IFPD Office as mentioned in this ANO IFP, V2.0 and
b) a description of the IFP design office that shows the role, responsibilities and job functions of the IFP design office personnel who are responsible for ensuring the compliance of the IFPD Office;

6.7 The IFPD Office shall:

a) keep the Operations Manual in a readily accessible form;
b) ensure that the IFP designer has ready access to the operations manual; and
c) shall submit a copy of the most current Operations Manual to the ANS Inspection Division.

CHAPTER 7

7. RESOURCE REQUIREMENTS

7.1 The ANS Service Provider shall provide and maintain the following facilities for the design work on instrument flight procedures. This would include:

a) having available equipment appropriate for the design, design verification, flight validation, and maintenance of the types of instrument flight procedures;

b) access to relevant and current data including, but not limited to, aeronautical data, land contour data, and obstacle data for the design, design verification, flight verification, and maintenance of the instrument flight procedures; and

c) ready access to copies of relevant documentation comprising technical standards, practices, and instructions, and any other documentation that may be necessary for the design, design verification, flight validation, and maintenance of the types of instrument flight procedure.

7.2 If an aeronautical database and aeronautical data is required for designing an instrument flight procedure, the IFPD Office shall ensure the integrity of the database and the data. The data used shall be current, traceable, and meets the required level of verifiable accuracy for the design.

7.3 IFP Design office shall obtain approval from the Chairman, CAAB before undertaking any instrument flight procedure design.

7.4 IFP Design office shall ensure that adequate and competent personnel are assigned the task of construction of visual and instrument flight procedure design.

7.5 No person shall not act as a procedure designer unless specifically authorized by the Chairman, CAAB. The minimum qualification required for procedure designers are prescribed in Chapter 9 of this ANO IFP, V2.0.

CHAPTER 8

8. IFP DEVELOPMENT PROCESS & DOCUMENTS AND RECORDS CONTROL SYSTEM

8.1 The IFPD Office shall establish an IFP development process which shall cover the entire lifespan of a flight procedure, from the initial development, including the approval and publication, and up to the withdrawal of the flight procedure.

8.2 The IFPD Office shall have a documented procedure approved by the Chairman CAAB, for the approval of the IFP Design and publication of the IFP Design.

8.3 The IFPD office shall ensure that the initial documents are signed by the designer.

8.4 The IFPD office shall document data anomalies or errors found during the design process.

8.5 The IFPD Office shall retain all the documentation relating to procedure design for the operational lifetime of the procedures.

8.6 The IFPD Office shall employ sufficient number of qualified PANS-OPS technical staff to carry out its flight instrument procedure designs.

8.7 The IFP design process shall establish a quality system for the IFP development process at each stage of the instrument flight procedure design process as per guidance provided in ICAO Doc 9906 Vol I for such a quality system.

8.8 The IFPD Office shall establish and put into effect a system for controlling documents and records relating to the instrument flight procedures on which the designer carries on design work, including the policies and procedures for making, amending, preserving and disposing of those documents and records.

8.9 The IFPD Office shall ensure that current and complete survey data and information are controlled and monitored by a person(s) trained in procedure design.

8.10 The IFPD Office shall keep the personal files of the procedure Designers in a secured location with a documented access control mechanism.

8.11 The IFPD Office shall, at ANS Division's request, make the documents and records, copies or extracts from them, available for inspection by ANS Division.

8.12 User requirements – the needs of Air Traffic Service provider and operators who will use this procedure;

8.13 Airport infrastructure such as runway classification, lighting, communications, runway markings, and availability of local altimeter setting;

8.14 Environmental considerations; and

8.15 Any other potential issue associated with the procedure.

CHAPTER 9

9 PROCEDURE DESIGN INFORMATION PROCESS

9.1 Information Collection

9.1.1 As current and complete survey data and information is crucial for the design of safe IFPs the IFPD Office shall ensure that the survey and subsequent IFP design activities are controlled and monitored by a person(s) trained in procedure design.

9.1.2 The information acquisition process shall be monitored through a surveillance mechanism established by the DANSI.

9.2 Obstacle Survey for Procedure Design

9.2.1 The IFP designer shall consider the following:

a) All obstacles shall be accounted for. Items, such as trees and heights of tall buildings shall be accounted for either by physical examination of the site or by addition of a suitable margin above terrain contours;

b) The accuracy of the vertical and horizontal data obtained may be adjusted by adding an amount equal to the specified survey error to the height of all measured obstructions and by making a corresponding adjustment for specified horizontal error and

c) The procedure design information shall be coordinated with all relevant stakeholders.

9.3 Inputs for Procedure design aspects

As input for the procedure design process the following aspects need to be assessed:

a) Airport, navigation aid, obstacle, terrain coordinate and elevation data, based on verified surveys and complying with ICAO Annex 11, 14 and 15 requirements;

b) Airspace requirements;

CHAPTER 10

10 INSTRUMENT FLIGHT PROCEDURE DESIGN PROCESS

Introduction

The Instrument Flight Procedure Design process (see Appendix 1) encompasses the acquisition of data, design and promulgation of procedures. It starts with compilation and verification of the many inputs and ends with ground and/or flight validation of the finished product, and documentation for publication.

10.2 Procedure Design

10.2.1 IFP shall be accompanied by a narrative, which describes the procedure in textual format.

10.2.2 Procedures shall be designed according to ANO IFP, V2.0 and ICAO Doc 8168 criterion.

10.2.3 Coordination with all concerned parties shall continue throughout the procedure design and validation process to ensure that the procedure meets the needs of the user and the community.

10.2.4 Each new or revised procedure shall be verified by a person(s) trained in procedure design other than the one who designed the procedure, to ensure compliance with applicable criteria.

10.3 Periodic Review

10.3.1 Published procedures shall be subject to periodic review to ensure that they continue to comply with changing criteria and meets user requirements.

10.3.2 The maximum interval for this review is five years.

10.4. Procedure Design Documentation

10.4.1 The documentation provided by the IFP designer shall be divided into three categories which are:

a) Documentation required for publication in the AIP in accordance with ICAO Annexes 4 and Annex 15;

b) Documentation required to maintain transparency concerning the details and assumptions used by the IFP designer, which should include supporting information/data used in the design, such as, controlling obstacle for each segment of the procedure;

c) Effect of environmental considerations on the design of the procedure;

10.4.2 The IFPD Office shall ensure that all such documentations undergo a final verification for accuracy and completeness prior to validation and publication.

10.5 Information Acquisition Process: Diagram 10.1 below describes the information acquisition process in detail. Starting from design, going through the documentation process,

subsequent validation of the information and publication of the processed information are all described in the diagram.

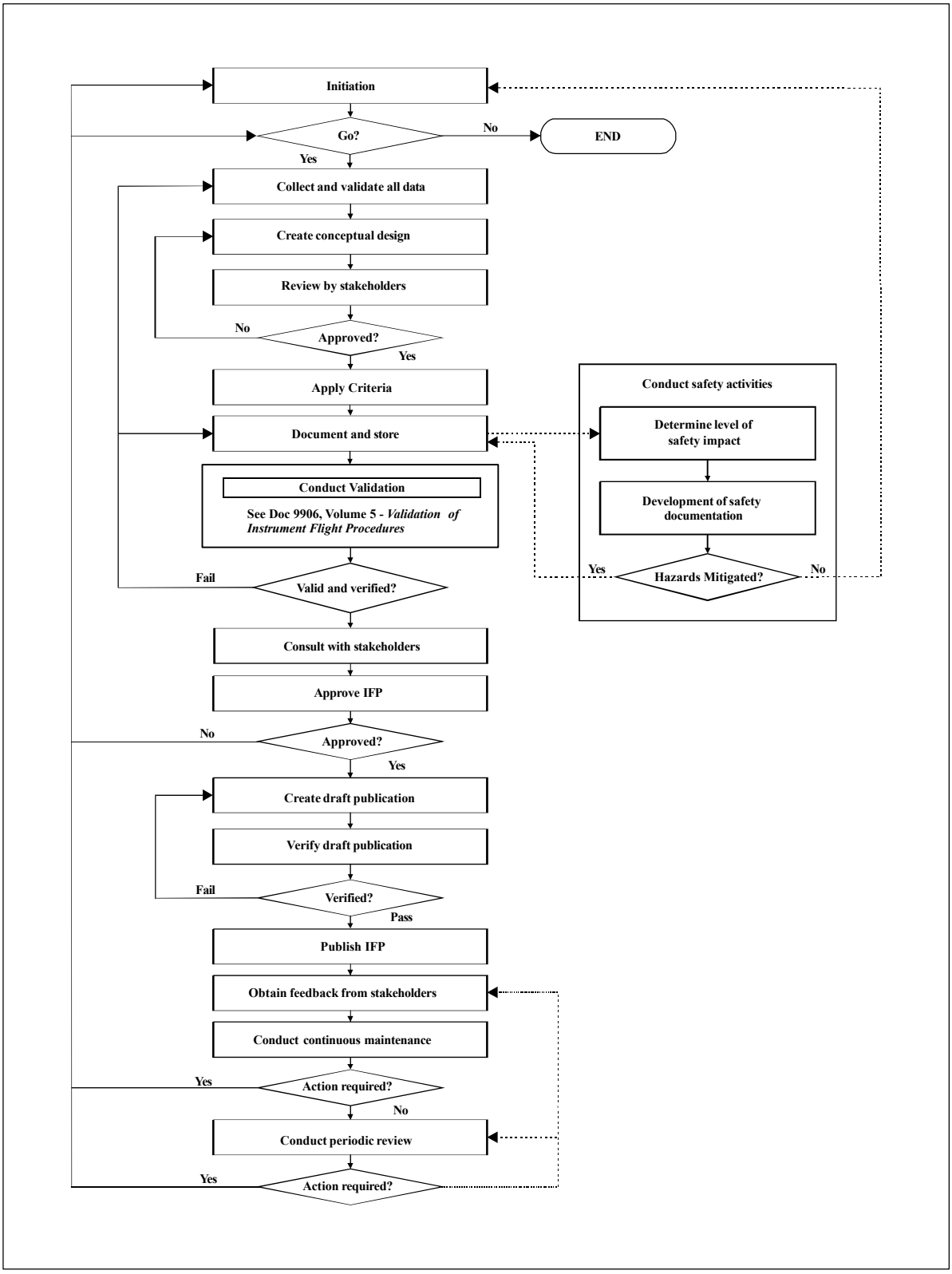


Fig 10.1. Information Acquisition process

10.6 The ANSP shall ensure that steps detailed in the Fig 10.1 shall meticulously be followed in the acquisition process, starting from design, through the documentation process, subsequent validation of the information and publication of the processed information.

CHAPTER 11

11 NORMAL AND EMERGENCY OPERATIONS

11.1 While designing Instrument Flight procedures the ANSP shall assume normal operations and that all engines of the aircraft are operating.

11.2 It is the responsibility of the operator to conduct an examination of all relevant obstacles and to ensure that the performance requirements of ANO 6 are met by the provision of contingency procedures for abnormal and emergency operations.

11.3 Where terrain and/or obstacle considerations permit, the contingency procedure routing should follow that of the departure/arrival procedure.

11.4 The ANSP shall make available the obstacle information as described in **ANO 4** and **ANO 6**, and/or any additional information used in the design, in the AIP Bangladesh.

11.5 The ANSP shall adhere to the published SIDs, STARs, and approach procedures and use of ICAO Doc 8168 (PANS-OPS) criteria for obstacle clearance.

11.6 The ANSP shall specify use of required navigation performances in GNSS, ILS, VOR, DME, and RNP AR procedures, ensuring redundancy.

11.7 In case of designing IFPs, the ANSP shall utilize the noise abatement procedures for fuel efficiency and route optimization and for terrain and obstacle awareness (urban growth near Dhaka, Chittagong and Sylhet.

CHAPTER 12

12 PROCEDURE DESIGN DOCUMENTATION

12.1 The documentation provided by the procedure designer is divided into three categories and includes:

12.2 Documentation required for publication in AIP shall be in accordance with ANO 4 and ANO 15;

12.3 Documentation required to maintain transparency concerning the details and assumptions used by the procedure designer, shall include supporting information/data used in the design, such as:

a) Controlling obstacles for each segment of the procedure;
b) Effect of environmental considerations on the design of the procedure;
c) Infrastructure assessment;
d) Airspace constraints;
e) For modifications or amendments to existing procedures, the reasons for any changes;
f) For any deviation from existing standards, the reasons for such a deviation and details of the mitigations applied to assure continued safe operations.
g) Any other additional documentation required to facilitate ground and flight validation of the procedure.

12.4 Hard/soft copies of the following documentation shall be required to be available in the IFPD Office:

a) Aerodrome Data
b) Minimum Sector Altitude
c) Holding pattern
d) Non-precision Approach
e) ILS Approach
f) Instrument departure procedure
g) Instrument Arrival procedure
h) RNAV GNSS Approach procedure

CHAPTER 13

13 REVIEW CRITERIA OF PROCEDURE DESIGN AND RETENTION OF DOCUMENTS

13.1 Published instrument flight procedures shall be subjected to a periodic review to ensure that they continue to comply with changing criteria and meet user requirements.

13.2 The maximum interval for this review will be 05(five) years.

13.3 All documents concerning to the instrument flight procedure design should be retained in the procedure design office to assist in recreating the procedure in the future in the case of incidents and for periodic review and maintenance.

13.4 The period of retention shall not be less than the operational lifetime of the procedure.

CHAPTER 14

14. GROUND AND FLIGHT VALIDATION

14.1 VALIDATION

Introduction: Validation is the final quality assurance step in the procedure design process, prior to publication. The purpose of validation is the verification of all obstacle and navigation data, and assessment of flyability of the procedure. Validation normally consists of ground validation and flight validation but Ground Validation shall always be undertaken.

14.1. The ANSP may dispense with the flight validation requirement, when the accuracy and completeness of all obstacles and navigation data considered in the procedure design, and /or any other factors normally considered in the flight validation can be verified, by ground validation (para 14.2).

14.2 GROUND VALIDATION

14.2.1 The ANSP shall carry out ground and flight validation of instrument flight procedures, including obstacle checks.

14.2.2 The entire Instrument Flight Procedure package shall be reviewed by a person(s) trained in procedure design and with appropriate knowledge of flight validation issues to identify errors in criteria and documentation, and evaluate on the ground, to the extent possible, those elements that will be evaluated in a flight validation.

14.2.3 Issues identified in the ground validation shall be addressed prior to any flight validation.

14.2.4 The ANSP shall determine whether a Flight Validation is required for modifications and amendments to previously published procedures thorough the ground validation.

14.3 FLIGHT VALIDATION

Introduction: Flight validation should not be confused with flight inspection. Flight inspection of instrument flight procedures is required to assure that the appropriate radio navigation aids adequately support to the procedure. This is carried out in periodic intervals as part of a formal flight inspection programme and is performed by a qualified flight inspector using an appropriately equipped aircraft.

14.3.1 Flight validation of instrument flight procedures shall be carried out as part of the initial certification and shall also be included as part of the periodic quality assurance programme.

14.3.2 The flight validation shall be accomplished by a qualified and experienced flight inspector, certified or approved by the DANSI.

15.4 OBJECTIVES OF FLIGHT VALIDATION

To meet the objectives of the Flight Validation, the ANSP shall:

a) Provide assurance that adequate obstacle clearance has been provided;

b) Verify that the navigation data to be published, as well as that used in the design of the procedure, is correct;

c) Verify that all required infrastructure, such as runway markings, lighting, and communications and navigation sources, are in place and operative;

d) Conduct an assessment of flyability to determine that the procedure can be safely flown; and

e) Evaluate the charting, required infrastructure, visibility and other operational factors.

14.5 The procedure designer shall be the originator of all data applicable to conducting a flight validation provided to the flight inspection operations activity. The procedure designer should be prepared to provide briefings to the flight inspection crews in those cases where flight procedures have unique application or special features.

14.6 The procedure designer may participate in the initial validation flight to assist in its evaluation and obtain direct knowledge of issues related to the procedure's design from the flight inspection pilot and/or inspector.

14.7 ICAO Manual on Testing of Radio Navigation Aids, Volumes I, II, and III (Doc 8071) shall be followed for guidance concerning flight inspection and validation of instrument flight procedures as well as qualifications and certification of flight inspectors.

14.8 FLIGHT VALIDATION/INSPECTION PILOT'S QUALIFICATION

14.8.1 The Director (ATM) on behalf of the Chairman CAAB shall establish the requirement of minimum qualifications, training and competency level standards for flight validation pilots.

14.8.2 In order to achieve the safety and quality assurance objectives of the flight validation, the Director (ATM) on behalf of the Chairman CAAB, shall ensure that flight validation pilots have acquired and maintain the required competency level through training and supervised on-the-job training.

14.8.3 The Director (ATM) shall send the details of licence and experiences of the IFP Flight Validation Pilot indicating the category/class ratings, current training (including PANS-OPS/flight validation), and currency, before allowing a Flight Validation Flight.

14.8.4 On receipt of such information, the DANSI shall verify that each IFP flight validation pilot holds a valid ATPL, appropriate category/class ratings, current training (including PANS-OPS/flight validation), and currency.

14.8.5 If the verification is found to be satisfactory, the DANSI, shall sent an acceptance notification to the Director (ATM).

14.8.6 If the verification is found to be not satisfactory, the DANSI shall inform the Director (ATM) of the outcome and the Director (ATM) shall look for alternate means of compliance and shall not undertake the Flight Validation Flight without an acceptance notification from the DANSI.

CHAPTER 15

15 PROCEDURE DESIGN AUTOMATION

General: Use and validation of procedure design software tools

Introduction: Software-based tools provide automated functions for calculations and/or designs and layouts and include products such as spreadsheets, commercial computer-aided design (CAD) packages and custom-made software packages. They can facilitate the design work through a certain level of automation in calculation and procedure layout generation.

Procedure design automation tools have the potential to greatly reduce errors in the procedure design process. The advantages are many, including maintaining the integrity of the source data throughout the design phase, reducing human errors, gaining the capability to develop "what-if" scenarios, and standardized application of the PANS-OPS criteria.

15.1.1 The ANSP shall ensure a close relationship between the user and the software provider to address specific issues that might appear later during the operational use of the software.

15.1.2 The ANSP shall always consider the risks that software errors or non-compliance with criteria can result in poor quality, or even dangerous flight procedures.

15.2 When using automation, the IFPD Office shall use the following criterion in the design of Instrument Flight Procedures, to ensure safety, compliance, and traceability while leveraging efficiency gains from the automation. The criterion to be considered are:

a) **Hazard Identification:** Automated tools are capable of flagging terrain, obstacle, and airspace conflicts.

b) **Safety Assessment:** Automation are able to generate risk assessment reports (OCH/OCS calculations, missed approach safety).

c) **Validation:** Ground validation may be automated while flight validation remains human-led but may be supported by automation outputs.

d) **Change Management:** Automation must detect and flag when new data (obstacles, terrain, navaids) affect existing procedures.

15.3 The procedure design office shall use a well-known and proven software packages to design their instrument flight procedures and check their validity regularly.

15.4 While software developers test their software extensively, there is no absolute guarantee as to the accuracy of any individual application of the criteria. So, the ANSP shall check carefully that the software packages used in the design of procedures have been thoroughly updated.

CHAPTER 16

16 ENVIRONMENTAL ISSUES

16.1 All instrument flight procedures designed and implemented under the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) shall incorporate environmental considerations consistent with ICAO Annex 16 (Environmental Protection) and the Civil Aviation Authority of Bangladesh (CAAB) regulatory framework, ANO 16.

16.2 When planning departure routes, the ANSP shall define the aircraft containment area and its distribution and shall consider aircraft noise issues. This will allow either concentrating or spreading aircraft noise.

16.3 Continuous Descent Operations (CDO) and Continuous Climb Operations (CCO) shall be prioritized where practicable to reduce noise and fuel burn to minimize exposure of densely populated urban areas to aircraft noise.

16.4 The decision to use spread or concentrate aircraft noise method— or to combine both methods should always be made for each individual airport, thereby taking into account the density of population.

16.5 Flight procedures shall be designed to reduce unnecessary track miles, holding, and low-altitude operations, thereby minimizing emissions of CO_2, NOx, and particulate matter.

CHAPTER 17

17. DEPARTURE PROCEDURES

General: The departure procedures are the core elements of Instrument Flight Procedures Designs as they ensure safe, efficient, and environmentally responsible aircraft operations from take-off to en-route transition.

17.1 For each runway at aerodromes where instrument departures are expected to be used, a departure procedure shall be established and promulgated.

17.2 The departure procedure shall guarantee obstacle clearance, integrate modern navigation standards, enforce performance minima, protect the environment, and align with ICAO frameworks (as mandated in ICAO Doc 8168 Vol II Standards) and the standards mentioned in this ANO IFP, V2.0.

17.3 A departure procedure should be designed to accommodate all aircraft categories where possible. Where departures are limited to specific categories, the departure chart shall clearly identify the applicable categories.

17.4 A departure procedure shall provide obstacle clearance immediately after take-off until the aircraft intercepts an en-route segment. Departure procedures include, but are not limited to, standard departure routes and associated procedures.

17.5 Departure procedures shall be developed in consultation with the operators, ATC and other parties concerned.

17.6 In the interest of efficiency and economy, the ANSP shall ensure that departure procedures are designed, consistent with safety, to minimize both the time taken in executing a departure and the airspace required.

17.7 Departure procedures may be designed & published as specific routes or as omnidirectional departures.

17.8 A PBN departure is a departure procedure containing area navigation (RNAV) or required navigation performance (RNP) segments.

17.9 To ensure improved flyability, procedure designers should:

a) keep the design of all procedures as simple as possible;

b) develop area navigation procedures instead of conventional procedures wherever possible;

CHAPTER 18

18 REPEAL AND SAVINGS

18.1 ANO-IFP on Instrument Flight Procedures issued on 31st March, 2024 shall stand repealed, as soon as may be or after the commencement of this ANO-IFP V2.0.

18.2 Despite such repeal under sub-section (18.1),

a) any act done, measures taken, any order, ANO, circular, or notice issued, certificate, license or permit given or any agreement entered into or document signed under the said ANO shall be deemed to have done, taken, entered, issued, given, made or signed under this ANO;

b) any proceeding, going on or pending, shall, in so far as possible, be disposed of under this ANO; and

c) any suit and other legal proceedings instituted before any court shall, if pending, be disposed of in such way as if the said ANO had not been repealed.

-END-