

CIVIL AVIATION AUTHORITY, BANGLADESH
AIR NAVIGATION ORDERS
 (Flight Operations Requirements)

PART – C – ALL WEATHER OPERATIONS PROCEDURES

ANO (OPS) C-1
SUB : REQUIREMENTS FOR APPROVAL FOR
ALL WEATHER OPERATIONS.

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1. Introduction

- 1.1 In exercise of the powers conferred by Rule 4 & 112 of Civil Aviation Rule-1984, Chairman is pleased to issue this order relating to approval for all weather operations.

ICAO Doc 9365 “Manual of All Weather Operations” outlines criteria to be met prior to granting authorization to conduct Category II and III operations to an Air Operator.

- 1.2 This order assumes that the Operator is certified as a Category-I operator prior to being evaluated as a Category II or Category III A/B operator.
- 1.3 For conducting Cat-II, Cat - III A/B and low visibility takeoff operations, the operators are required to take necessary measures to meet the requirements and obtain authorization from Chairman, CAAB.

- 1.4 Authorisation for Cat-II and Cat-III A/B operations is dependent on the following four elements in order to maintain the required level of safety:
- a) The aircraft;
 - b) The flight crew;
 - c) The airport; and
 - d) The operator

All of these elements must comply with the regulations & requirements stipulated by Chairman, CAAB and ICAO. An aircraft type must be approved for Cat-II/Cat-III A/B operations with an Automatic Landing System, which provides automatic control of the aircraft during approach and landing. The flight crew should be trained for such operations and have authorisation for the same from Chairman, CAAB. Similarly, the airport must be equipped and approved for Cat-II/Cat-III A/B operations.

2. SCOPE

The requirements contained in this order are applicable to all Bangladeshi operators intending to carry out low visibility takeoff and Cat-II, Cat-III A/B operations. Before operating flights to foreign airports, the operators shall file their operating minima and other relevant documents required by the Aviation Authority of that country and seek their approval for conducting low visibility takeoff and Cat-II, Cat-III A/B operations after obtaining approval from Chairman, CAAB for the same.

3. DEFINITIONS

- a) Categories of precision approach and landing operations
 - i) **Category-II (Cat-II) Operation:** A precision instrument approach and landing with Decision Height lower than 60m (200 ft) but not lower than 30m (100 ft), and a Runway Visual Range not less than 350m.
 - ii) **Category-III A (Cat-III A) Operation:** A precision instrument approach and landing with :
 - a) a Decision Height lower than 30m (100 ft), but not lower than 15m (50 ft); and
 - b) a Runway Visual Range not less than 200 m.
 - iii) **Category-III B (Cat-III B) Operation:** A precision instrument approach and landing with:
 - a) No Decision Height or a Decision Height lower than 50 ft (15 m).
 - b) Runway Visual Range less than 200 m but not less than 50m.

Note: Where the Decision Height and Runway Visual Range do not fall within the same Category, either the Decision Height or the RVR may determine in which Category the operation is to be considered. The operation will be in the Category with the lower minima.

- b) **Alert Height (AH) :** An Alert Height is a height above the runway based on the characteristics of the aeroplane and its fail operational Automatic Landing System, above which a Category-III approach would be discontinued and a missed approach initiated if a failure occurred in one of the redundant parts of the Automatic Landing System, or in the relevant ground equipment.
- c) **Decision Altitude/Height (DA/H):** A specified altitude or height in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note:

- i) Decision Altitude (DA) is referenced to Mean Sea Level (MSL) and Decision Height (DH) is referenced to the threshold elevation.
- ii) The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path.
- d) **Low Visibility Procedures (LVP):** Procedures applied at an aerodrome for the purpose of ensuring safe operations during Category II and IIIA/B approaches and Low Visibility Take-offs.
- e) **Fail-passive Automatic Landing System:** An Automatic Landing System is fail-passive if, in the event of a failure, there is no significant deviation of aeroplane trim, flight path or attitude but the landing will not be completed automatically.
- f) **Fail-operational Automatic Landing System:** An Automatic Landing System is fail-operational if, in the event of a failure, the approach, flare and landing can be completed by the remaining part of the automatic system.

4. REQUIREMENTS:

4.1 Operations

- 4.1.1 Operators shall develop procedures and operational instructions to be used by their flight crew for Cat II/ IIIA/B operations and Low Visibility Take-off to ensure safe conduct of the operations. These procedures and instructions shall be included in the Operations Manual. All the instructions shall be compatible with limitations and mandatory procedures contained in the approved Flight Manual and CAAB requirements.
- 4.1.2 The procedures and the operational instructions shall cover normal and abnormal situations which can be encountered in actual operations which shall include at least the following items:
 - i) Checks for satisfactory functioning of the aircraft equipment, both before departure and in flight;

- ii) Effect on minima caused by changes in the status of the ground installations and airborne equipment;
- iii) Procedure for take off, approach, flare, landing, roll out and missed approach;
- iv) Procedure to be followed in the event of failures, warnings and other abnormal situations;
- v) The minimum visual reference required;
- vi) The importance of correct seating and eye position; and
- vii) Action which may be necessary arising from deterioration of the visual reference.

4.1.3 **Crew Coordination :**

Appropriate procedures for crew co-ordination shall be established so that each flight crew member can carry out their assigned responsibilities. Briefings prior to the applicable takeoff or approach shall be specified to assure appropriate and necessary crew communications. Responsibilities and assignment of tasks shall be clearly understood by crew members.

4.1.4 **Monitoring :**

The operator shall establish procedures and instructions for Low Visibility Take Off and Cat-II/IIIA/B operations. These procedures shall be included in the Operations Manual and contain the duties of flight crew members during taxiing, take off, approach, flare, landing, roll out and missed approach as appropriate. Procedures shall assure that adequate crew attention can be devoted to control of aircraft flight path, displacements from intended path, mode annunciations, failure annunciations and warnings, and adherence to minima requirements associated with DH and AH. Procedures for calling out failure conditions shall be pre-established, and responsibility for alerting other crew members to a failure condition shall be clearly identified.

4.1.5 **Use of the Decision Height or Alert Height :**

Procedure for setting various reference bugs in the cockpit shall be laid down, responsibilities for Decision Height call-outs shall be clearly defined, and visual reference requirements necessary at Decision Height shall be specified so that flight crew are aware of the necessary visual references that shall be established by, and maintained after passing Decision Height.

- 4.1.6 The operator shall assure that at each runway intended for Category II/IIIA/B operations, the Radio Altimeter systems used to define Alert Height or Decision Height provides consistent, reliable, and appropriate readings for determination of Decision Height or Alert Height over the terrain underlying the approach path. Any adjustments to approach minima or procedures made on final approach shall be completed prior to Alert Height and applicable annunciation (e.g. LAND2) for fail passive operations.

- 4.1.7 **Call-outs** : Altitude/Height call-outs shall be used for Category II/IIIA/B. Callouts shall be accomplished by the flight crew or shall be automatic (e.g., using synthetic voice call-outs). Call-outs shall be specified to address any nonnormal configurations, mode switches, failed modes, or other failures that could affect safe flight, continuation of the landing, or the accomplishment of a safe missed approach.
- 4.1.8 **Aircraft Configurations** : Operational procedures shall include any authorised aircraft configurations that might be required for low visibility takeoff or Category-II/IIIA/B approaches or missed approaches. Examples of configurations that operational procedures which need to be included are:
- (i) Alternate Flap Settings approved for Category-II/IIIA/B;
 - (ii) Use of alternate Auto Flight Control System (AFCS) modes or configurations (e.g., Single Land, LAND2);
 - (iii) Inoperative equipment provisions related to the Minimum Equipment List, such as a non-availability of certain electrical system components, inoperative Radio Altimeter, air data computers, hydraulic systems or instrument switching system components; and
 - (iv) Availability and use of Alternate Electrical Power sources (e.g., APU) if required as a standby source. Procedures required to accommodate various aircraft configurations shall be readily available to the flight crew and the aircraft dispatcher to preclude the inadvertent use of an incorrect procedure or configuration. Acceptable configurations and aircraft type shall be clearly identified so that the crew can easily determine whether the aircraft is or is not in a configuration to initiate a low visibility takeoff or Category-II/IIIA/B Approach.
- 4.1.9 **Airport Surface Depiction for Category II/IIIA/B Operations** :
- A suitable airport surface depiction (e.g., airport diagrams) shall be available to flight crews to assure appropriate identification of visual landmarks or lighting to safely accomplish taxing in Cat-II/IIIA/B conditions from the gate to the runway and from the runway to the gate. The Airport depiction shall use an appropriate scale with suitable detailed information on gate locations, parking locations, holding locations, critical areas, obstacle free zones, taxi way identifications, runway identifications, and any applicable taxi way markings for designated holding spots or holding areas.
- 4.1.10 The operator shall lay down procedure in their operations manual to ensure that the Commander satisfies himself that :
- i) the status of the visual and non-visual facilities is sufficient prior to commencing a Low Visibility Take Off or a Cat-II or Cat-III A/B approach;

- ii) appropriate LVPs are in force according to information received from Air Traffic Services before commencing a low visibility take off or a Cat-II or Cat-III A/B approach.
- 4.1.11 The operator shall include in the Operations Manual the minimum equipment that has to be serviceable prior to departure for the commencement of Low Visibility Take Off or a Cat-II or Cat-III A/B approach in accordance with the Aeroplane Flight Manual or approved document and the Commander shall satisfy himself that the status of aeroplane and the relevant airborne system is appropriate for the specific operation to be conducted.
- 4.1.12 The operator shall lay down dispatch procedures which shall include appropriate consideration of reported and forecast weather, field conditions, facilities status, NOTAM information, alternate airport designation, missed approach performance, crew qualifications, airborne system status (provisions of MEL and CDL) and fuel planning.
- 4.1.13 All the flight crew members of a flight shall hold appropriate authorisation for the particular type of operations to be conducted.
- 4.1.14 Clearance to carry out Cat-II and Cat-III A/B approach shall be requested from ATC, who shall activate the low visibility procedures i.e. prepare the airfield and assure appropriate aircraft separation. Such an approach shall not be undertaken until the clearance has been received. ATC shall be informed when an automatic landing is intended to be performed, so that the ATC may initiate action to provide the same protection even in Cat-I or better conditions.

4.2 Maintenance

- i) For Cat-II and Cat-III A/B operations, only multi-engine aircraft duly certified for such operations shall be used. The aircraft type shall be equipped with an automatic landing system, which provides automatic control of the aircraft during approach and landing. In order to perform the Cat-II, Cat-III A/B approach and automatic landing, the equipment listed in aeroplane flight manual shall be required to be operative. If one of these equipments or systems is listed in the MEL with associated dispatch conditions, the MEL must clearly indicate that Cat-II or Cat-III A/B operations are not authorised.
- ii) Every operator shall establish a specific maintenance programme in order to be able to check and demonstrate the full capability of the aircraft to perform Cat-II & Cat-III A/B operations. A reliability programme shall be developed to monitor, track and control the operational status of the aircraft to achieve successful Cat-II & Cat-III A/B landings.

- iii) Every operator shall establish a specific procedure to govern the capability of the aircraft to conduct Cat-II & Cat-III A/B operations in the following conditions:
 - a) Confirmed defect with corrective action carried out;
 - b) Unconfirmed defect but with corrective action;
 - c) Aircraft dispatch under MEL conditions;
 - d) Unable to correct defect and not under MEL conditions; and
 - e) Unable to perform the required test;
- iv) Upgrading/down-grading capability procedure shall be defined so as to assist the dispatch of aircraft. The dispatch policy shall be based on the Minimum Equipment List as it governs the basic criteria for operation. The dispatch criteria and status of aircraft shall be recorded in the aircraft log book with reference to the MEL. A prominent placard shall be displayed in the aircraft and in the flight operations office to inform the crew of the current status of each aircraft.
- v) If an aircraft has not performed Cat-II & Cat-III A/B operations including practice approaches for a period of one month, a specific check shall be carried out for which a proper schedule shall be prepared by the operator.

4.3. **Flight Crew Training**

- 4.3.1 Flight crew shall be trained and equipped in all aspects of all weather operations. Detailed requirements for the ground and flight training are contained ICAO Manual of All Weather Operations Doc No.9365.
- 4.3.2 The operators shall lay down detailed training programme for initial authorisation, recurrent training and for obtaining authorisation for an additional aircraft type. The operators are encouraged to have their training programmes higher than the minimum stipulated by Chairman, CAAB keeping in view the general level of experience of the flight crew employed by the operator.

4.4. **Airport**

Requirements contained in ICAO Annex 14, Manual of All Weather Operations Doc 9365 (Cat-II and Cat-III A/B) and those stipulated by Chairman, CAAB shall be complied with, some of the salient requirements concerning airports are given below:

- a) An operator shall not use an airport for Cat-II or Cat-III A/B operations unless it is approved for such operations.
- b) Due to very low visibility in Cat-II and Cat-III A/B operations, each airfield shall meet stringent criteria concerning obstacle clearance to avoid any aircraft on approach, landing or go-around touching obstacles on the ground. The basis of these criteria are included in ICAO Annex 14 and PANS-OPS Doc-8168.

- c) The ILS installation shall conform to the appropriate specifications contained in ICAO Annex 10, Volume 1, Part (i), Chapters 2 & 3 and be designed and operated in accordance with the guidance material contained in attachment 'C' to Part (i) of Annex 10.
- d) During Cat-II and Cat-III A/B approaches, the ILS beams shall be protected from unacceptable disturbances in the critical area and sensitive area.
- e) The RVR reports shall be given in increments of not more than 50m when the RVR is less than 800m and not more than 25m when the RVR is less than 150m.
- f) A system of maintenance of visual aids shall be established to ensure both lighting and marking system reliability. A system of maintenance for ILS installations shall also be established with regular ground and flight checks as stipulated in the ICAO Annex 10. Users shall be advised as soon as possible of any degradations in ILS performance.
- g) A secondary power supply for visual aids shall be required with maximum switch-over time as indicated in ICAO Annex 14.
- h) Cat-II and Cat-III A/B operations shall require special procedures for the ATC and all services in the aerodrome i.e. Low Visibility Procedures. The aerodrome authority shall develop the procedure in accordance with the ICAO Manual of All Weather Operations. Mainly, the procedures to be established are:
 - i) procedures for ATC to be quickly inform of all degradations in ILS performance and to inform the pilot, if necessary;
 - ii) procedures for ATC to be quickly inform of all degradations in visual aids and to inform the pilot, if necessary;
 - iii) procedures for the protection of the Obstacle Free Zone by the control of ground movements;
 - iv) procedures for the protection of the ILS critical area and the ILS sensitive area by control of ground movements and adequate separation between two aircraft on approach or one aircraft on approach and another taking-off;
 - v) procedures for meteorological services particularly for ATC to quickly inform the crew changes in RVR;
 - vi) procedures for maintenance; and
 - vii) procedures for security.

4.5. General

- (i) No operator shall carry out Cat-II or Cat-III A/B operations without specific approval of Chairman, CAAB and unless each aircraft concerned is equipped and certified for operations with decision height below 60m (200 ft).
- (ii) Every operator shall file with the Chairman, CAAB, minima for every airport for Cat-II and Cat-III A/B operations keeping in view the requirements contained in ICAO Manual of All Weather Operations and the operator's experience & policy.
- (iii) An operator shall verify that Low Visibility Procedure (LVP) have been established and are enforced at those aerodromes where low visibility operations are to be conducted.
- (iv) Every operator shall establish and maintain a suitable system for recording success and failure of approach and automatic landing to monitor the overall safety of the operation.
- (v) Each operator must have sufficient qualified personnel to continuously monitor and ensure the highest degree of safety in Cat-II and Cat-III A/B operations. The operator should provide necessary training to the ground staff directly involved with flight operations.
- (vi) The authorisation granted to an operator for conducting Cat-II/III A/B operations shall be valid only if the requirements contained in this ANO are complied with and the capability of the operator, its flight crew and aircraft does not degrade below the required level.
- (vii) The authorisation is liable to be cancelled/suspended/withdrawn/modified at any time in the event of any of the above conditions not being complied with and/or violated by the operator and for reasons affecting safety of aircraft operations.

5. PROCEDURE FOR GRANTING AUTHORIZATION:

- 5.1 An operator applying for Cat-II or Cat-III A/B operations shall adhere to the rigid structure of the regulations to get the operational authorisation. An operator, who applies for Cat-II or Cat-III A/B authorisation, shall submit a detailed proposal to the Chairman, CAAB defining clearly the plans and policies on all aspects of the operations. The proposal shall include information on, amongst other aspects, the following items:

a) **Aircraft Type**

Details of the aircraft intended to be used, its certification status with respect to Cat-II or Cat-III A/B operations, list of required equipment for the intended mode of operations, the operating limitations, the procedures to be followed following various failures, etc.

- b) **Maintenance Programme**
A description of the maintenance programme, which is mandatory to ensure that the airborne equipment will remain at the required level of airworthiness standard, reliability and performance. It shall include training of Aircraft Maintenance Engineers, maintenance of test equipment and standards, maintenance procedures, engineering modifications and periodic checks of auto-land system.
 - c) **Flight Crew Procedure**
A description of the operational procedures covering in particular crew task sharing, approach monitoring, decision-making, handling of failures and go-around.
 - d) **Flight Crew Training**
Syllabi for ground training, simulator training, flight training, recurrent training and upgrade training shall be furnished in order to get the Cat- II or Cat-III A/B authorisation for the flight crew.
 - e) **Airfield Equipment**
A description of the airfield equipment in accordance with ICAO standards for Cat-II and Cat-III A/B, including visual and non-visual aids, runway characteristics, obstacle clearance area, RVR measurements, ATC procedures, low visibility procedures, etc.
 - f) **Airfield Operating Minima**
A proposal for airfield operating minima for each airfield intended to be used by the operator for such operations.
- 5.2 After receiving the proposal, concerned CAAB officers shall examine the information and hold discussions with the operator to ensure that the operator establishes a well laid down system and procedures for conducting and monitoring Cat-II/Cat-III A/B operations.
- 5.3 On completion of the necessary actions, the operator shall submit a consolidated statement showing item-wise compliance to the requirements. On satisfactory meeting the requirements Chairman, CAAB will grant necessary authorisation by issuing relevant initial Operations Specifications for Cat-II operations and specifying :
- i) Minima (RVR, AH and DH) to be used;
 - ii) Aeroplanes (indicated by registration numbers) which can be used;
 - iii) Aerodromes to be used; and
 - iv) Any limitation that may be imposed by Chairman, CAAB.
- 5.4 The operator shall be required to demonstrate his ability to perform Cat-II operations with an appropriate approach success rate and level of safety. On satisfactory completion of this, the operator shall be granted standard Operations Specifications for Cat-II operations.

- 5.5 For grant of Cat-III A/B authorisation, same procedure shall be followed i.e. grant of initial Operations Specifications, successful operational demonstration and grant of standard Operations Specifications through gradual reduction in meteorological minima.
- 5.6 The Operations Specifications shall form part of the operator's AOC.

6. OPERATIONAL DEMONSTRATION AND ISSUANCE OF OPERATIONS SPECIFICATIONS

The implementation of all weather operations shall be achieved in stages through gradual reduction in meteorological criteria commensurate with the confidence and experience gained by the operator as stipulated hereunder:

6.1 Issuance of Initial Cat-II Operations Specifications

- (i) The operator shall have gained experience of at least one year in Cat-I operations for issuance of initial Operations Specifications for Cat-II operations.
- (ii) Operator shall be issued initial Operations Specifications authorising to carry out Cat-II operations with Decision Height of 150 feet and RVR of 500 metres after ensuring that an operator has prepared all the required documents, procedures, maintenance and training programmes and the flight crew have been trained and obtained necessary authorisation for conducting Cat-II operations.

6.2 Operational Demonstration for Cat-II Operations

- 6.2.1 The operator shall carry out operational demonstration, in order to establish that an appropriate level of safety can be met in such operations. The operator shall prove that the operator can perform Cat-II operations with the appropriate success rate and level of safety. For this purpose, operator shall carry out in-service proving for a period of at least six months. Particular attention shall be given to the flight and maintenance procedures as established by the operator. During this period, the operator shall successfully complete the following operations demonstrations and data collection programme in line service as part of the approval process to ensure continued performance and reliability of the system before operations down to the next succeeding lower minima are authorised:
- (i) For operational demonstration of airborne system, one hundred successful landings are to be accomplished in line operations, including training flights, using Cat-II system. The system should demonstrate reliability and performance in line operations consistent with the operational concepts.

- (ii) For collection of data during airborne system demonstration, the applicant shall provide crew flight reports and automatic flight recording data giving approach and landing performance whenever an approach and landing is attempted utilising the Cat-II system, regardless of whether the approach is abandoned or concluded successfully. The completed forms and a summary of the demonstration results will be made available to Chairman, CAAB. Entry must also be made in the Techlog/Journey log Book or Debrief after the flight.
- (iii) Approaches where the pilot was assured that the critical area protection was provided which do not result in a successful landing, are to be fully documented giving factors which result in unsuccessful approaches e.g. due to ATC factors, faulty ground station signals or other factors.

6.2.2 The operator shall provide crew flight reports and automatic flight recording data during all the operational demonstrations. The flight crew reports should provide at least the following data:

- i) Airfield and runway used;
- ii) Weather conditions;
- iii) Time;
- iv) Adequacy of speed control;
- v) Any out-of-trim condition at time of Automatic Flight Control System disengagement;
- vi) Compatibility of Automatic Flight Control Systems, Flight Director and raw data;
- vii) Indication of the position of the aircraft relative to the ILS centreline when descending through 100 ft (30m);
- viii) Touchdown position;
- ix) Reason for failure leading to aborted approach, give height above runway at which approach, was discontinued; and
- x) Quality of overall system performance. The automatic flight recordings shall provide at least the following:
 - i) Deviation from localizer at touchdown;
 - ii) Flare time;
 - iii) Rate of descent at touchdown;
 - iv) Pitch and bank angles at touchdown;
 - v) Speed loss in flare; and
 - vi) Maximum deviation during ground roll-out (for aircraft with automatic ground roll control or guidance intended for operations with no DH).

- 6.2.3 The operator shall develop a form for use by the flight crew to record the data listed above. A sample proforma for crew reports is given at Annexure-I.

This form shall be completed whenever an approach is attempted utilising the airborne low visibility approach system regardless of whether it is initiated, abandoned or concluded successfully. A successful approach is one in which at 100 feet point :

- i) The airplane is in trim so as to allow for continuation of normal approach and landing.
 - ii) The indicated airspeed and heading are satisfactory for a normal flare and landing. With auto throttle control system, the speed must be + 5 knots of programmed airspeed but may not be less than computed threshold speed.
 - iii) The airplane is positioned so that the cockpit is within, and tracking so as to remain within, the lateral confines of the extended runway.
 - iv) Deviation from glideslope does not exceed + 75 microamps as displayed on the ILS indicator. The Operator may specify the equivalent scale deviation for their type of aircraft in consultation with the aircraft manufacturer.
 - v) No unusual roughness or excessive attitude changes occur after leaving middle marker.
 - vi) No unusual deviation in the touchdown or touchdown and roll out performance.
- 6.2.4 During the six months period following the issuance of initial Operations Specifications to conduct Cat-II operations (as mentioned in para 6.1), the operator, when practicable, shall use the Cat-II airborne system using the operator's operating and maintenance procedures. During this period, pilot reports shall be obtained for each approach with the data described above. These reports shall be analysed and a summary report prepared and submitted to the Chairman, CAAB. This report shall show that, at least 95% of approaches made during this period were successful.

6.3 Issuance of Standard Cat-II Operations Specifications

After successful completion of six months of operations under initial Operations Specifications and at least one hundred approaches as indicated in para 6.2.1 above, the operator shall be issued revised Standard Operations Specifications authorising the operator to carry out Cat-II operations with a Decision Height of 100 feet and RVR of 350 m.

6.4 Issuance of Initial Cat-III A/B Operations Specifications

Operator shall be issued an initial Operations Specifications to carry out Cat-III A/B operations with Decision Height of 100 feet and RVR of 300 meters after ensuring that operator has prepared all the required documents, procedures, maintenance and training programmes and the flight crew have been trained and the operator has also successfully acquired six months experience of Cat-II operations and issued standard Operations Specifications for such operations.

6.5 Operational Demonstration for Cat-III A/B Operations

6.5.1 The operator shall then carry out operational demonstration, in order to establish that an appropriate level of safety can be met in such operations. The operator shall prove that the operator can perform Cat-III A/B operations with the appropriate success rate and level of safety. For this purpose, he must carry out in-service proving for a period of six months. Particular attention shall be given to the flight and maintenance procedures as established by the operator. During this period, the operator shall successfully complete the following operations demonstrations and data collection programme in line service as part of the approval process to ensure continued performance and reliability of the system before operations down to the next succeeding lower minima are authorised:

- (i) For operational demonstration of airborne system, one hundred successful landings are to be accomplished in line operations, including training flights, using Cat-III A/B system. The system should demonstrate reliability and performance in line operations consistent with the operational concepts.
- (ii) For collection of data during airborne system demonstration, the applicant shall provide crew flight reports and automatic flight recording data in accordance with the proforma given at Annexure-I giving approach and landing performance whenever an approach and landing is attempted utilising the Cat-III A/B system, regardless of whether the approach is abandoned or concluded successfully. The completed forms and a summary of the demonstration results will be made available to Chairman, CAAB.
- (iii) Approaches where the pilot was assured that the critical area protection was provided which do not result in a successful landing, are to be fully documented giving factors which result in unsuccessful approaches e.g. due to ATC factors, faulty ground station signals or other factors.

6.5.2 During operational demonstrations of Cat-III A/B operations, the operator shall provide crew flight reports and automatic flight data recording in accordance with para 6.2.2 and 6.2.3.

6.5.3 During the six month period following the issuance of initial Operations Specifications to conduct Cat-III A/B operations, the operator, when practicable, shall use the Cat-III A/B airborne system using the operator's operating and maintenance procedures. During this period, pilot reports shall be obtained for each approach with the data described above. These reports shall be analysed and a summary report prepared and submitted to Chairman, CAAB. This report shall show that, 95% of approaches made during this period were successful.

6.6 **Issuance of Standard Cat-III A/B Operations Specifications**

After successful completion of six months of operations under initial Cat-III A/B Operations Specifications and at least one hundred approaches as indicated in para 6.5.1, the operator shall be issued a final Operations Specifications authorising him Cat-III A/B operations with a Decision Height less than 50 ft or No Decision Height and RVR of 50 m.

6.7 **Introduction of New Type of Aircraft for Experienced Operators**

Whenever an operator introduces a new type of aircraft into service for Cat-II or Cat-III A/B operations, a complete operational demonstration as stipulated in above paras shall be carried out. This demonstration process will follow the same basic sequence. It consists of a progressive introduction of lower minima with periodic reports of the approaches made during actual in-line service leading to amendment of Operations Specifications.

7. **CONTINUOUS MONITORING**

After obtaining the authorisation, the operator must continue to provide quarterly reports of on line service. These reports must include the following information:

- i) The total number of approaches, by aircraft type, where the airborne Cat-II or Cat-III A/B equipment was utilised to make satisfactory, actual or practice, approaches to the applicable Cat-II or Cat-III A/B minima.
- ii) The total number of unsatisfactory approaches by aerodrome and aircraft registration-wise in the following categories.
 - a) Airborne equipment faults;
 - b) Ground facility difficulties;
 - c) Missed approaches because of ATC instructions; and
 - d) Other reasons.

- iii) The operator shall establish a procedure to monitor the performance of the Automatic Landing System of each aircraft. The continuous monitoring shall permit the detection of any decrease in the level of safety before it becomes hazardous. The operator shall continue to check these results and take adequate actions by modifying the operating or maintenance procedures, if necessary. The monitoring shall also permit problems to be detected on a specified airfield (ILS, ATC procedures, etc.). The monitoring shall be continuous and data shall be retained for a period of at least 1 year.

This order will come into effect upon approval of the Chairman, CAAB.

Chairman
Civil Aviation Authority, Bangladesh

ANNEXURE - I

SAMPLE FORM FOR FLIGHT CREW REPORT ON AUTO-APPROACH AND AUTO-LAND PERFORMANCE

OPERATOR _____

1. SECTION I – Complete all items						
Aircraft Type	Aircraft Registration No.	Captain		Flight No.	Date	
Airport	Runway	Conditions Cat I+ <input type="checkbox"/> Cat II <input type="checkbox"/> Cat IIIA/B <input type="checkbox"/>	Wind Direction & Speed		ATC runway Protection provided <input type="checkbox"/> Unknown or None <input type="checkbox"/> Cat II	
The Auto-Approach Auto-Land was: <input type="checkbox"/> Satisfactory <input type="checkbox"/> Unsatisfactory						
If unsatisfactory you must complete Section II						
Auto-Land Touchdown Zone is 900 feet to 2400 feet down the runway and within 27 feet of centerline.						
Record area of touch down with an ‘X’ on Runway Depiction						
2. SECTION II – Complete ONLY if Auto-Approach or Auto-Land was UN-SATISFACTORY.						
If the Approach was discontinued, it was due to: <input type="checkbox"/> Airborne Equipment Failure <input type="checkbox"/> Ground Facilities Difficulties <input type="checkbox"/> ATC Instructions <input type="checkbox"/> Other (Specify)						
LOCALIZER (Left/Right) GLIDESLOPE (High/Low)						
OUTER		MIDDLE		INNER		
L <input type="checkbox"/>	H <input type="checkbox"/>	L <input type="checkbox"/>	H <input type="checkbox"/>	L <input type="checkbox"/>	H <input type="checkbox"/>	
R <input type="checkbox"/>	L <input type="checkbox"/>	R <input type="checkbox"/>	L <input type="checkbox"/>	R <input type="checkbox"/>	L <input type="checkbox"/>	
If the autopilot was disconnected the altitude was _____ ft MSL.						
Other Comments:						

(Commander's Signatures)