CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B - MAINTENANCE DIRECTIONS

CHAPTER B.1	**MAINTENANCE OF SMALL AEROPLANES AND SINGLE ENGINED HELICOPTERS BELOW MCTM OF 3175 KG ENGAGED IN GENERAL AVIATION OPERATION NOT INVOLVING PAYMENT OR PROMISE OF PAYMENT**

1. GENERAL

1.1 This Order prescribes responsibilities of Owners/Operators and maintenance requirements of (i) Small aeroplanes and (ii) Single engine helicopters of MCTM below 3175 kgs that are engaged in General Aviation Operation under the rule 105(3) (a) of the CARs 1984, such as transportation for personal or corporate use where payment or promise of payment (i.e. remuneration or hire) to the operator or owner of the aircraft in respect of that flight is not involved.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the Rules, the under mentioned definitions shall apply:

(a) "**Aeroplane"** means a power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

(b) **"Aircraft"** means any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

(c) **"Appropriate person"** means the person(s) as defined in Rule 196(6) of the CARs, 1984.

(d) **"Concession"** means limited extension granted by the Chairman in respect of any aircraft appliances or systems to remain in service or to continue in operation beyond the approved life as stated in the approved AMP/AMS or approved MEL, keeping the safety of the aircraft in view, but excluding those aircraft appliances which have retirement or scrap life.

(e) **"Dispensation/Exemption"** means any departure from the requirements of these Orders as may be granted by the Chairman to use a limited quantity of material/parts not manufactured exactly in accordance with the manufacturer's approved design specifications or to effect major modification/repair not completely in conformity with that approved by manufacturers, but are acceptable to Chairman , keeping the safety of aircraft in view.

(f) **"General Aviation"** means an aircraft operation other than a commercial air transport operation or an aerial work operation.

(g) **"Helicopter"** means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axis.

(h) **"Maintenance"** means the performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or combination of overhaul, inspection, replacement, defect rectification, and the embodiment of a modification or repair.

(i) **"Small Aeroplane"** means an aeroplane of a maximum certified take-off mass (MCTM) of 5700 kg or less.

(j) "**Servicing"** means preparing the aircraft for flight and includes cleaning, lubrication, provision of fuel and replenishment of other fluids, but does not include any work that is maintenance.

3. MAINTENANCE MANAGEMENT - ORGANISATION

3.1 **Facilities:** To enable proper servicing and maintenance of aircraft, each operator shall ensure the availability of adequate facilities at the maintenance base for proper maintenance of aircraft operated by them and the requirements as stated in the ANO (AW) C.1 and C.2 shall be complied with.

3.2 **Contract Maintenance:** In case maintenance of aircraft is contracted to an organisation, then the Owner/Operator shall ensure that maintenance shall be performed as per procedures described in the approved Maintenance Control Manual (MCM) of the Owner/Operator, and only by an organisation approved under the ANO (AW) C.1 and C.2.

4. MAINTENANCE CONTROL MANUAL (MCM) AND RESPONSIBILITY

4.1 **Responsibility:** Whether maintenance is performed by the licensed AMEs employed by the Owner/Operator as part of his maintenance organisation or by contracted AMO, the Owner/Operator shall be responsible for the followings:

4.1.1 **Maintenance Control Manual (MCM):** To provide for the use and guidance of maintenance and operational personnel concerned, a MCM, acceptable to the Chairman, in accordance with the Section 4 of the ANO (AW) B.2 and where appropriate a Maintenance Procedure Manual (MPM) as well in accordance with the ANO (AW) C.1 and C.2.

4.1.2 **Maintenance of Aircraft and Compliance with ANOs:** To ensure that the aircraft is maintained and operated:

(a) In accordance with the approved maintenance schedule.

(b) As per the applicable Rules and ANOs.

(c) Is not flown unless all required maintenance has been completed.

(d) Is released for flight only after issue of appropriate certification by appropriate person(s) or organisation.

4.1.3 **Accomplishment of "A" Checks in the Operation base:** The Owner/Operator of an aircraft is responsible to ensure that aircraft is maintained in an airworthy condition and must have all facilities to accomplish at least "A" Check (or equivalent check on completion of which, Maintenance Release is required to be issued) in his Operation base, which must be within Bangladesh.

4.1.4 **Planning of maintenance:** When scheduled maintenance is due, or unscheduled maintenance is required, the affected aircraft, aircraft components and all the required facilities are planned and provided to the "appropriate person" responsible for performing that maintenance.

4.1.5 **Continued airworthiness:** Manufacturers' recommendations as are contained in service bulletins and similar documents in respect of aircraft, engine, propeller and components are assessed by competent persons in relation to the maintenance history, type of operation, operating environment of the aircraft, and necessary actions are taken to ensure continued airworthiness of the aircraft.

4.1.6 **Availability of technical manuals and documents:** The required manuals and publications as stated in the ANO (AW) A.1 and B.2 are available and contain the latest amendments.

5. ALTERNATIVE TO A QUALITY ASSURANCE SYSTEM

5.1 When the Chairman agrees that setting up a comprehensive quality assurance system is not appropriate, he may accept a simpler method of quality control system/verification. However, Quality Control personnel shall not certify primary (first part) maintenance tasks, though they may certify for the Duplicate Inspection.

6. MAINTENANCE CERTIFICATION AND SUPERVISION

6.1 All work performed shall be by or under the supervision of appropriately licensed aircraft maintenance engineer(s) and appropriate person(s) in accordance with the applicable approved procedures.

6.2 Each person supervising maintenance shall ensure that the maintenance is performed in accordance with the applicable Civil Aviation Rules and these Orders.

6.3 Each person supervising maintenance shall familiarise himself with the appropriate logbooks, maintenance, data maintenance records and modification status of the aircraft or component.

6.4 Each person supervising maintenance shall personally observe the work being done to the extent necessary, to ensure that it is accomplished properly and he shall be readily available for consultation with those maintenance personnel performing the work.

6.5 When maintenance is performed by persons working in shifts, the supervisor shall ensure that the work status at the end of each shift is properly recorded and communicated to the supervisor of the following shift.

7. TECHNIQUES AND PRACTICES

7.1 The methods, techniques and practices used for the accomplishment of maintenance shall be those recommended by the manufacturer or others approved by the Chairman.

7.2 Methods, techniques and practices specified in FAA AC 43.13-1B titled **Acceptable Methods, Techniques, and Practices – Aircraft Inspection and Repair** and CAA UK publication CAP-562 titled **Civil Aircraft Airworthiness Information and Procedures** are acceptable except where they conflict with the manufacturers' data, in which case manufacturers' data takes precedence.

7.3 Where the manufacturer specifies critical practices and procedures such as torque values, adjustments, tests, checks, pressures, fits, clearances and tolerances, these must be observed unless otherwise approved.

8. TOOLS AND EQUIPMENT

8.1 Tools and Test Equipment shall be those recommended by the manufacturer or an equivalent which is equally satisfactory for the particular task.

8.2 Tools and equipment shall be in such condition that they will perform their designed functions satisfactorily.

8.3 Precision tools, measuring equipment and test apparatus shall be checked and calibrated periodically as recommended by manufacturers unless otherwise approved or prescribed and the unique identification number shall be permanently affixed on the body of such items.

8.4 Records shall be kept to control the calibration of such tools and equipment, and an appropriate calibration sticker shall be affixed to show the calibration data (as a minimum, identification number, date of calibration and next due date).

8.5 A person performing maintenance away from the premises of an approved organisation shall ensure that he has all necessary data, tools and materials on hand.

9. MAINTENANCE SCHEDULE

9.1. The Owner/Operator shall ensure that Maintenance Schedule required under the ANO (AW) B.15 is submitted to the Chairman for approval and all maintenance are accomplished within the approved period.

10. MINIMUM EQUIPMENT LIST (MEL)

10.1 An aircraft may fly with specified components or systems unserviceable in accordance with the provisions of an approved Minimum Equipment List in accordance with the ANO (AW) B.8.

11. AIRCRAFT COMPONENTS

11.1 All components for installation on an aircraft shall comply with the approved type design in accordance with the ANO (AW) A.1 and B.14.

12. MANDATORY DEFECT REPORTING

12.1 The Owner/Operator shall ensure that requirements with the ANO (AW) B.5 are complied with in respect of all applicable defects.

13. MODIFICATION AND REPAIR

13.1 Modifications and repairs shall conform to data approved as prescribed in the ANO (AW) A.7.

14. AIRWORTHINESS DIRECTIVES

14.1 Airworthiness Directives (ADs) issued by the country of origin, which are applicable to the aircraft or its components, shall be complied with in accordance with the requirements of the ANO (AW) B.9.

15. CONCESSION AND DISPENSATION/EXEMPTION

15.1 There shall be no departure from these Air Navigation Orders except in accordance with a concession and dispensation/exemption that may be granted by the Chairman.

15.2 If an Owner/Operator, or a person or organisation performing maintenance, considers that there are exceptional circumstances which warrant the grant of a concession and dispensation/exemption, shall submit an application to the Chairman for consideration.

16. RECORDING AND CERTIFICATION

16.1 Technical log books as required under the ANO (AW) B.4 shall be maintained by the Owner/Operator for each Aircraft.

16.2 Aircraft maintenance log book as required under the ANO (AW) B.16 shall be maintained by the Owner/Operator for each aircraft.

16.3 Aircraft certification as required under the ANO (AW) B.3 shall be ensured by the Owner/Operator for each aircraft.

17. MAINTENANCE RELEASE

17.1 Each aircraft shall be inspected periodically and issued with a Maintenance Release in accordance with the provisions of ANO (AW) B.3.

18. COMPLIANCE WITH AIRWORTHINESS REQUIREMENTS

18.1 The Owner/Operator shall ensure compliance with the requirements of all applicable Air Navigation Orders issued by the Chairman.

19. ANNUAL INSPECTION

19.1 Annual inspection of aircraft at period not exceeding 12 (twelve) months shall be accomplished in accordance with recommendation of the manufacturer and as approved by the Chairman in the form of Aircraft Maintenance Schedule.

19.2 Annual Inspection of the aircraft shall be performed by an approved maintenance organisation (AMO) and shall include a general inspection of the aircraft and its documentation to ensure that:

(a) The aircraft, components and equipment have been maintained in accordance with these Orders.

(b) Routine maintenance has been performed as and when specified in the approved maintenance schedule(s) and these Orders.

(c) All defects and damage have been properly rectified.

(d) No unapproved modifications or repairs have been made.

(e) All applicable Airworthiness Directives have been complied with.

19.3 The CAAB shall be informed by the Owner/Operator at least 15 (fifteen) days prior to commencement of the inspection.

19.4 An aircraft may be exempted from this inspection if the Chairman is satisfied that the maintenance arrangements for the aircraft are such that an equivalent level of airworthiness control is achieved and the aircraft has been maintained under an approved Continuing Airworthiness Maintenance Programme.

20. AIRWORTHINESS SURVEILLANCE

20.1 Aircraft and aircraft components undergoing maintenance, and their maintenance records, shall be made available at all reasonable times when demanded for examination by an authorised representative of the Chairman in accordance with the Rule 190, 209, 210 and 328 of the CARs 1984.

20.2 When required by an authorised representative of the Chairman, the Owner/the Operator of an aircraft or an organisation performing maintenance shall, at no charge to the Chairman, prepare an aircraft or aircraft component for access for inspection by that authorised person.

20.3 Any inspections or tests required by the authorised representative of the Chairman shall be performed by the operator as required.

The ANO is issued in pursuance of the Rules 4, 191, 192, 193, 194, 196, 197, 198, 199, 200, 209, 210 and 328 of the Civil Aviation Rules 1984, is a complete re-issue and supersedes Issue 1 dated 1 August 1990.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority, Bangladesh

PART B - MAINTENANCE DIRECTIONS

CHAPTER B.2	**MAINTENANCE OF AEROPLANES AND HELICOPTERS ENGAGED IN OPERATIONS INVOLVING PAYMENT OR PROMISE OF PAYMENT**

1. GENERAL

1.1 This Order prescribes responsibility of Owners/Operators and maintenance requirements of (i) aeroplanes and (ii) Helicopters, that are engaged in any classes of operation as mentioned under the rule 105 of the CARs 1984, where payment or promise of payment (i.e. remuneration or hire) to the operator or owner of the aircraft in respect of that flight is involved.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the Rules, the under mentioned definitions shall apply:

(a) "**Aeroplane"** means a power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

(b) **"Aircraft"** means any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

(c) **"Appropriate person"** means the person(s) as mentioned in then Rule 196(6) of the CARs, 1984.

(d) **"Concession"** means limited extension granted by the Chairman in respect of any aircraft appliances or systems to remain in service or to continue in operation beyond the approved life as stated in the approved AMP/AMS or approved MEL, keeping the safety of the aircraft in view, but excluding those aircraft appliances which have retirement or scrap life and/or Airworthiness Directive limitations.

(e) **"Dispensation/ Exemption"** means any departure from the requirements of these Orders as may be granted by the Chairman to use a limited quantity of material/parts not manufactured exactly in accordance with the manufacturer's approveddesign specifications or to effect major modification/repair not completely in conformity with that approved by manufacturers, but are acceptable to Chairman , keeping the safety of aircraft in view.

(f) **"Helicopter"** means a heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power-driven rotors on substantially vertical axis.

(g) "**Human factors principles"** means the principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between human and other system components by proper consideration to human performance.

(h) **"Maintenance control manual (MCM)"** means a document which describes the operator's procedures necessary to ensure that all scheduled and unscheduled maintenance are performed within the specified time on the operator's aircraft in a controlled and satisfactory manner.

(i) **"Maintenance procedures manual (MPM)"** means a document, endorsed by the head of the maintenance Organisation, which details the maintenance Organisation's structure and management responsibilities, scope of work, description of facilities, maintenance procedures and quality assurance or inspection systems.

(j) **"Maintenance programme"** means, a document which describes the specific scheduled maintenance tasks and their frequency of completion and related procedures, such as a reliability programme, necessary for the safe operation of those aircraft to which it applies.

(k) **"Maintenance schedule"** means, an approved document containing a list of items to be inspected, calibrated, tested, overhauled, replaced, serviced or otherwise maintained at specified intervals for each aircraft, and details the periods at which maintenance certification shall be issued.

(l) **"Operator"** means a person, Organisation or enterprise engaged in or offering to be engaged in an aircraft operation.

(m) "**Safety management system"** means, a systematic approach to managing safety, including the necessary Organisational structures, accountabilities, policies and procedures.

(n) **"Worksheet"** (or any alternate name i.e. Continuation sheet, Task sheet etc.) means, a document used to record the completion of each item of inspection or scheduled or unscheduled maintenance performed, and which becomes part of the maintenance record for the aircraft, together with a certificate of compliance.

3. MAINTENANCE MANAGEMENT – ORGANISATION

3.1 The Owner or Operator of an aircraft, engaged in carriage of passengers, is responsible to ensure that the aircraft is maintained in an airworthy condition and must have all facilities to accomplish at least "A" Check (or equivalent check) in her Operation Base which must be within Bangladesh.

3.2 In case of an aircraft which is engaged in carriage of cargo or mails and where maintenance facility and/or Hangar facility is not available within Bangladesh, in such exceptional circumstance, the Chairman may authorise once a while accomplishment of "A" Check at abroad (but not as a regular practice) by a CAAB approved Maintenance Organisation. In such cases, all cost of travel for regular surveillance inspection at abroad by CAAB officials shall be borne by the Operator as provided under the rule 213 of the CARs 1984.

3.3 An Operator shall not operate an aircraft unless it is maintained and released to service by an approved maintenance organisation or under an equivalent system.

3.4 An approved maintenance organisation may be a part of the operator's Organisation or it may be another organisation to which the operator has subcontracted aircraft maintenance tasks in accordance with the Section 4 of this Order. In either case, the operator employs a person or persons to ensure that the maintenance work is carried out in accordance with the operator's Maintenance Control Manual.

3.5 The maintenance responsibilities shall be fully satisfied and the quality assurance programme as stated in the ANO (AW) C.2 shall be in place.

3.6 Where the maintenance organisation is part of the operator's own organisation, it should be subjected to the same approval procedure as for independent aircraft maintenance organisation as required under the ANO (AW) C.1 and C.2.

3.7 Where higher maintenance checks ("B" Check and above) are contracted out, a written contract should be agreed between the operator and the maintenance organisation detailing the responsibilities of both parties. The technical aspects of the contract should be accepted by the Authority as mentioned in the Section 4 of this Order.

3.8 No person or organisation other than an aircraft maintenance organisation approved by the Chairman shall perform any maintenance on an aircraft or aeronautical products which are intended for installation on commercially operated aircraft, or any aircraft as mentioned in this order.

4. MAINTENANCE CONTROL MANUAL (MCM)

4.1 **Contract maintenance:** An operator may contract his maintenance requirements to another approved maintenance organisation preferably as part of long term contractual agreement for accomplishing regular maintenance (i.e. scheduled base checks) or one off contractual agreement in case of all higher Checks and/or Un-scheduled maintenance/repair, provided:

(a) The Operator has audited the contracted organisation and has established that the organisation has adequate facilities, equipment and qualified personnel to perform, inspect, and certify the work.

(b) All records, task cards and manuals are in English language.

(c) The contract specifies the maintenance required, clearly defines the conditions under which it must be performed and responsibilities of both the parties.

(d) Necessary procedures must be in place for the control of subcontracted activities, together with terms of reference for the personnel responsible for their management.

(e) The Operator submits a copy of the maintenance agreement and a copy of the Maintenance Control Manual (MCM) for approval of the Chairman prior to commencement of maintenance under the agreement and arranges inspection of the contracted organisation by CAAB in connection with issue of Certificate of Approval.

4.2 **Responsibility of the operator:** An operator who arranges for another person or organisation to perform maintenance ("B" Check and above) shall remain responsible for the completion of that work, for the safe operation and continuing airworthiness of the aircraft, and shall outline in the MCM the policies governing the contract.

4.2.1 Each affected operator and the contracting organisation shall distribute the approved current MCM to all concerned personnel of the operator and contractor for guidance and use by their respective personnel to ensure efficient conduct of the contracted maintenance.

4.2.2 The agreement between the operator and the contractor shall make provision for the CAAB to inspect the contractor's facilities and applicable records, including engineering records, at any location where related maintenance is being performed.

4.2.3 Any costs incurred by CAAB personnel performing initial and re-current surveillance inspection of the operators local or foreign contracted maintenance organisation, or during maintenance of the operator's aircraft at such a facility, shall be borne by the operator as provided under the Rule 213 of CARs, 1984.

4.2.4 The design of the MCM shall observe Human Factors principles. Guidance material on the application of Human Factors principles can be found in the **Human Factors Training Manual (ICAO Doc 9683)**.

4.2.5 The operator shall provide, for the use and guidance of all concerned maintenance and operational personnel, copies of the CAAB approved Maintenance Control Manual (MCM).

4.2.6 The operator shall ensure that the Maintenance Control Manual is amended as necessary to keep the information contained therein up to date.

4.2.7 The operator shall provide the Chairman and in case of operation of aircraft on Wet Lease (Foreign Registered aircraft), to the State of Registry, with a copy of the operator's maintenance control manual, together with all amendments and/or revisions to it and shall incorporate in it such mandatory material as the Chairman or the State of Registry may require.

4.3 **Contents of the MCM:** The MCM shall include as a minimum, descriptions of the following procedures to ensure that:

(a) Each aircraft operated by the Operator is maintained in an airworthy condition.

(b) The operational and emergency equipment necessary for an intended flight is serviceable.

(c) The Certificate of Airworthiness of each aircraft they operate remains valid.

(d) A description of the administrative arrangements between the operator and the approved maintenance Organisation.

(e) A description of the maintenance procedures and the procedures for completing and signing a maintenance release when maintenance is based on a system other than that of an approved maintenance organisation.

(f) Names and duties of the person or group of persons responsible to ensure that all maintenance is carried out in accordance with the maintenance programme.

(g) A reference to the maintenance programme approved by the Chairman as required under the ANO (AW) B.15.

(h) A description of the methods used for the completion and retention of the operator's maintenance records as required under the ANO (AW) B.4.

(i) A description of the procedures for (i) continuing airworthiness information - monitoring, assessment & reporting of maintenance and operational experience with respect to airworthiness, (ii) procedures for transmission of defect information and the type of service information that are to be reported as per the ANO (AW) B.5 to the:

(i) Chairman; and

(ii) Respective Design Organisation.

(j) A description of the procedures for implementing action resulting from mandatory continuing airworthiness information.

(k) A description of establishing and maintaining a system of analysis and continued monitoring of the performance and efficiency of the maintenance programme, in order to correct any deficiency in that programme as required under the ANO (AW) B.15.

(l) A description of aircraft types and models to which the manual applies.

(m) A description of procedures for ensuring that defects affecting airworthiness are recorded and rectified.

(n) Name of the Maintenance base(s), and the specific Checks/Maintenance that will be accomplished at the Maintenance base(s).

4.4 In circumstances where the maintenance organisation is also the operator, in such case, the Maintenance Procedures Manual (MPM) of the organisation and the maintenance control manual (MCM) of the operator may be combined and may be **titled as Maintenance Control and Procedures Manual (MCPM)**.

4.5 Detailed guidelines on contents of MCM/MPM are given in the ANO (AW) C.2.

5.0 PRESENTATION OF MCM

5.1 The MCM shall be submitted in 3 (three) rings binder (height of the binder not exceeding 12.25 inch and of appropriate thickness).

5.2 Title of the document (e.g. MCM) and Name of the Operator (e.g. XYZ Airlines as appropriate) shall be mentioned on the front face and the Spine side of the MCM.

5.3 Pages of the MCM should be printed on thick paper, preferably having thickness of 100 GSM or above to reduce possibility of tearing from the binder during frequent reference and handling.

5.4 Divider pages shall be placed in between each Chapters or Sections as applicable.

6.0 QUALITY ASSURANCE SYSTEM

6.1 **General:** An operator should establish a quality assurance system as part of the management system and designate a quality manager (head of quality), who should be acceptable to the Chairman, to monitor compliance with, and adequacy of procedures required to ensure safe maintenance practices and airworthiness of aircraft. Compliance monitoring should include a feed-back system to the designated manager to ensure corrective action as necessary.

6.1.1 The operator's systems for quality control and assurance must take into account all of the facilities and procedures utilised to ensure continued airworthiness, at each of the Operator's locations where activities take place affecting the airworthiness of the aircraft. The quality system should include a quality assurance programme which contains procedures designed to verify that all tasks are being conducted in accordance with all applicable requirements, standards and procedures.

6.1.2 Quality control must therefore be effective throughout the operation and maintenance of aircraft and quality auditing must ensure that control is being properly applied and achieving satisfactory results.

6.1.3 The operator's quality control policies and systems must be described in the MCM together with the Quality Assurance audit programme.

6.2 **Procedures:** Staff assigned to quality control and assurance duties must be:

(a) Sufficiently experienced in the company systems and procedures and technically knowledgeable of the aircraft being maintained so as to enable them to perform their duties satisfactorily.

(b) Experienced in the techniques of quality control and assurance or receive suitable training before taking up their duties.

(c) Given clearly defined terms of reference and responsibility within the organisation. This is particularly important where QC/QA personnel are also expected to perform other duties in the organisation, e.g. to issue Maintenance Release or other maintenance certification.

6.2.1 The department responsible for Quality Control and Assurance must ensure accomplishment of independent quality audit on a planned basis, with emphasis that the Quality Control and Assurance Systems followed is effective and achieves Safety Performance Target. The scope of quality checks within the organisation (purely as an Owner/Operator, with maintenance contracted to an AMO) should follow the guidelines given at the **Appendix- 1** of this Order. Where the Owner/Operator is also the AMO, the guidelines given in the **Appendix-2 of the ANO (AW) C.2** shall be followed.

6.2.2 All quality checks must be recorded assessed and where necessary shall be forwarded to the person responsible for the particular facility or procedure for necessary corrective action. There must be a feed- back system for confirming to the quality assurance staff that corrective action has been taken and to ensure that persons concerned with any audit deficiency are kept aware of both the adverse report and the outcome.

6.3 **Alternative to a quality assurance system:** In cases where the Operators are engaged in Aerial Work operation and General Aviation operation as per the rule 105 of the CARs 1984 and provided in the opinion of the Chairman, setting up a comprehensive quality assurance system is not appropriate, only in such cases the a simpler method of quality control system/verification may be accepted.

7. FACILITIES AND PERSONNEL

7.1 **Facilities:** To enable proper servicing and maintenance of aircraft, each operator shall ensure the availability of adequate facilities at the maintenance base and at each route station as stated in the ANO (AW) C.2.

7.2 **Personnel:** The Operator shall ensure that adequate numbers of licensed AMEs and/or appropriate persons are available for both line and base maintenance.

7.3 **Training:** The Operator must have a programme of training to ensure that:

(a) All certifying maintenance personnel satisfactorily complete approved training before performing the duties required of them.

(b) Personnel required to issue Maintenance Release receive familiarisation training on the aircraft type and instruction in the correct operation of the Operator's airworthiness control procedures to enable them to perform these tasks on the type of aircraft for which support is being provided.

(c) Personnel engaged in maintenance-related tasks receive refresher training at regular intervals covering any changes to the aircraft and its maintenance, taking into account the results of in-service experience gained by the Operator and that published by the aircraft, engine and equipment manufacturers. Attention should also be paid to changes in company procedures, the ANOs and CAAB requirements.

7.3.1 Records should be maintained of all training undertaken by personnel including any results of assessments or examinations. Training must be obtained from an approved training institute and shall include formal instruction and practical experience.

7.3.2 Management personnel of the Engineering, Maintenance and Aeronautical Stores & Procurement departments and other relevant personnel should be trained in the techniques of maintenance management and the achievement of airworthiness standard appropriate to the posts held.

7.3.3 The number of maintenance personnel, including management, supervisors, quality audit staff and mechanics to be trained before the introduction into service of a new type of aircraft should be agreed with the CAAB. Numbers should take into account the complexity of the aircraft and its systems, the fleet size, the anticipated pattern of aircraft utilisation and the organisation's previous experience of similar aircraft.

7.4 **Records of Appropriate Persons:** Inspection Authorisation may be issued in accordance with the ANO (AW) C.8 and the appropriate persons shall be provided with copies of their authorisations, preferably in card or booklet form, recording the following details:

(a) Name of organisation.

(b) Holder's name, Individual authorisation number and holder’s signature.

(c) The CAAB Approval reference number of the organisation.

(d) Details of the aircraft, engines, systems, equipment and maintenance tasks for which authorisations have been granted, the scope of each authorisation and its date.

(e) A statement of any conditions of issue, including a statement to the effect that such authorisation is valid only so long as the holder is in the organisation's employment.

7.4.1 Personnel records should be kept, clearly indicating the basis upon which authorisations have been granted. The records should also include details of any Aircraft Maintenance Engineers' Licence held, training satisfactorily completed and the result of any written or oral assessment by the person responsible for granting the authorisation.

8. ISSUE OF INSPECTION AUTHORISATION

8.1 The grant of "Inspection Authorisation" will be strictly regulated to meet only the requirements of the Operators having independent Quality Control/Assurance systems meeting the requirements of the ANO (AW) C.2 and in accordance with the procedures laid down in the ANO (AW) C.8.

9. PERSON RESPONSIBLE FOR MAINTENANCE & ENGINEERING

9.1 Each operator and AMO shall appoint required number of persons approved in accordance with the ANO (AW) B.7 to be responsible for the coordination and control of all maintenance and Engineering matters including liaison with contracting maintenance firms and with the Civil Aviation Authority.

9.2 Where the operator is an Approved Maintenance Organisation, the person appointed with the authority to remove aircraft from flight status shall be the Head of Quality Assurance.

10. MAINTENANCE SCHEDULES/ MAINTENANCE PROGRAMMES

10.1 The operator shall provide, for the use and guidance of maintenance and operational personnel concerned, a maintenance programme/schedule as required under the ANO (AW) B.15.

11. WORK SHEETS

11.1 The work sheets used shall be those specified in the operators MCM and the completed work sheets shall form part of the maintenance records for the aircraft.

12. MINIMUM EQUIPMENT LIST (MEL)

12.1 An aircraft may fly with specified components or systems unserviceable in accordance with the provisions of an approved Minimum Equipment List in accordance with the ANO (AW) B.8.

13. MANDATORY DEFECT REPORTING

13.1 The Owner/Operator shall ensure that requirements with the ANO (AW) B.5 are complied with in respect of all applicable defects.

14. MODIFICATION AND REPAIR

14.1 Modifications and repairs shall conform to data approved as prescribed in the ANO (AW) A.7.

15. AIRWORTHINESS DIRECTIVES

15.1 Airworthiness Directives (ADs) issued by the country of origin, which are applicable to the aircraft or its components, shall be complied with in accordance with the requirements of the ANO (AW) B.9.

16. CONCESSION AND DISPENSATION/ EXEMPTION

16.1 There shall be no departure from these Air Navigation Orders except in accordance with a concession and dispensation/exemption granted by the Chairman.

16.2 If an Owner/Operator, or a person or organisation performing maintenance, considers that there are exceptional circumstances which warrant the grant of a concession and dispensation/exemption, shall submit an application to the Chairman.

17. MAINTENANCE RECORDS

17.1 The operator shall ensure that aircraft records as required under the ANO (AW) B.4 are maintained.

18. MAINTENANCE RELEASE

18.1 Each aircraft shall be inspected periodically and issued with a Maintenance Release in accordance with the provisions of Chapter B.3 of these Orders.

19. COMPLIANCE WITH AIRWORTHINESS REQUIREMENTS

19.1 The operator shall ensure compliance with the applicable Air Navigation Orders (Airworthiness Requirements) issued by the Chairman.

20. AIRWORTHINESS SURVEILLANCE

20.1 Aircraft and aircraft components undergoing maintenance, and their maintenance records, shall be made available at all reasonable times when demanded for examination by an authorised representative of the Chairman in accordance with the Rule 190, 209, 210 and 328 of the CARs 1984.

20.2 When required by an authorised representative of the Chairman, the Owner/the Operator of an aircraft or an organisation performing maintenance shall, at no charge to the Chairman, prepare an aircraft or aircraft component for access for inspection by that authorised person.

20.3 Any inspections or tests required by the authorised representative of the Chairman shall be performed by the operator as required.

The ANO is issued in pursuance of the Rules 4, 191, 192, 193, 194, 196, 197, 198, 199, 200, 209, 210 and 328 of the Civil Aviation Rules, 1984, is a complete re-issue and supersedes the issue 2, dated 20 March 2001.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority, Bangladesh

GUIDELINES - SCOPE OF QUALITY CONTROL AND ASSURANCE FUNCTIONS

1. Checks on aircraft in service for:

(a) Compliance with company approved practices for cargo restraint, load distribution and spreading such that the approved modifications for cargo configurations are observed.

(b) Procedures to ensure that the weight and balance data in use reflects the aircraft configuration and the weight and balance schedule.

(c) Satisfactory condition of cargo/baggage compartments and their linings, cargo handling and restraint equipment and special provisions for the carriage of livestock and attendants.

(d) Continuing compliance in respect of cabin and other safety provisions.

2. Checks on Aircraft Maintenance Logs for:

(a) Correct completion of sector record pages and their transmission to technical records.

(b) Satisfactory rectification of defects or their deferral in accordance with the MEL and company procedures. The recording of component details and stores control numbers, cross-referencing to deferred defect records and use of additional worksheets where appropriate and the inclusion of rectification details in the Sector Record Page.

(c) Compliance with required reporting procedures in the event of flights taking place after rectification of defects without issue of a Certificate of Compliance.

(d) Certificate of modifications including the installation of role equipment such as stretchers and conversion of the aircraft from passenger to cargo roles, and return to passenger.

(e) Correct use of maintenance and inspection control systems included in the technical log for the completion of scheduled and pre-planned tasks between Scheduled Maintenance Inspections.

(f) Procedures for recording external damage to the aircraft which has been inspected and is considered safe for further operation.

3. Checks on Technical Service Information for:

(a) Adequacy of aircraft manuals and other technical information appropriate to each aircraft type, including engines, propellers and other equipment, and the continuing receipt of revisions and amendments.

(b) Assessment of manufacturers' service information, determining its applicability to the Operator's aircraft and the recording of compliance or embodiment in each aircraft.

(c) Maintaining a register of manuals and technical literature held within the company, their locations and current amendment status.

(d) Ensuring that all company manuals and documents, both technical and procedural, are kept up to date.

4. Checks on the Company's General Airworthiness Control Procedures for:

(a) Responding to the requirements of Airworthiness Directives, mandatory modifications and inspections, CAA Airworthiness Notices and special fleet checks instituted in response to occurrences etc.

(b) Monitoring company practices in respect of scheduled or pre-planned maintenance tasks to be carried out in the open and adequacy of the facilities provided.

(c) Effective completion of maintenance reviews at intervals required by the approved maintenance schedule and the availability of information to the certificate signatory.

(d) Operation of the defects analysis system for the Operator's airframes, engines and systems and its integration with the system for mandatory occurrence reporting; the highlighting of repetitive defects and the control of deferred defects.

(e) Authorisation of personnel to perform inspections and maintenance tasks on the Operator's aircraft and for the issue of Maintenance Release.

(f) The effectiveness and adequacy of training and the recording of experience, training and qualifications of the personnel for grant of authorisation.

(g) The effectiveness of technical instructions issued to maintenance staff.

(h) The adequacy of staff in terms of qualifications, numbers and ability in all areas of support for the Operator which affects airworthiness.

(i) The efficacy and completeness of the quality audit programme.

(j) Compliance with the requirements of the approved Maintenance Schedule, including maintenance/inspection periods, component overhaul/test/calibration control, records of cycles/landings etc and for granting concessions at the request of the Operator.

(k) Maintaining logbooks and other required records on behalf of the Operator.

(1) Ensuring that major and minor repairs are only carried out in accordance with approved repair schemes and practices.

5. Checks on Stores and Storage Procedures for:

(a) The adequacy of stores and storage conditions for rotable components, small parts, perishable items, flammable fluids, engines and bulky assemblies.

(b) The procedure for examining incoming components, materials and items for conformity with Purchase Order, release documentation and approved source.

(c) The 'batching' of goods and identification of raw materials, the acceptance of “Part Life” items into stores and requisition procedures for demanding items from the store.

(d) Labeling procedures, including the use of serviceable/unserviceable/repairable labels, and their certification and final disposal after installation. Also labeling procedures for components which are serviceable but having `Part Life' only.

(e) The internal release procedure to be used when components are to be forwarded to other locations within the organisation.

(f) The procedure to be adopted for the release of goods or overhauled items to other organisations. (This procedure should also cover items being sent away for rectification or calibration).

(g) The procedure for the requisitioning of tools together with the system for ensuring that the location of tools is known at all times.

(h) Control of shelf life and storage conditions in the stores including identification and segregation of items.

6. Checks on Maintenance Facilities for:

(a) Cleanliness, state of repair and correct functioning of hangars, hangar facilities and special equipment, and the maintenance of mobile equipment.

(b) Adequacy and functioning of special services and techniques including welding, NDT, weighing, painting etc.

(c) Viewer/printer equipment provided for use with micro-film, CD and DVD for various documents and manuals of aircraft and ensure regular maintenance takes place and an acceptable standard of screen reproduction and printed copy are achieved.

(d) The adequacy of special tools and equipment appropriate to each type of aircraft, including engines, propellers and other equipment.

7. Checks at Line and Route Stations, in addition to the foregoing as applicable for:

(a) The adequacy of facilities and staff, the provision of covered accommodation for aircraft when maintenance is undertaken which requires a controlled environment and for the accomplishment of work in the open where this is unavailable.

(b) The cleanliness, state of repair, correct functioning and maintenance of ground support equipment including ground de-icing/anti-icing equipment.

(c) The effectiveness of any sub-contracted arrangements for ground handling, servicing and maintenance support and compliance with the operator's contracted arrangements, quality monitoring of fuel supplies including supplier checks and uplift contamination checks; the effectiveness and completion of fuel tank water drain checks.

(d) The care and maintenance of cargo containers, freight nets, pallets and the cargo equipment.

(e) The currency, scope and effectiveness of locally raised technical instructions and the procedure for bringing them to the notice of maintenance personnel, adequacy of the technical publications held at the station for the operator's aircraft, their currency and procedures for amendment,.

(f) The accuracy and control of worksheets or cards, to ensure that only up-to-date issues are used.

PART B – MAINTENANCE DIRECTIONS

CHAPTER B.3A	MAINTENANCE CERTIFICATION SYSTEM

1. INTRODUCTION

1.1 The Rule 192 of the CARs, 1984 requires that on completion of approved inspection schedule or any maintenance, repair, overhaul, modification, replacement etc, a certificate is required to be issued by appropriately licensed AMEs, approved or authorised person.

1.2 The ANO requires issue of Maintenance Release in respect of an aircraft after each scheduled maintenance and introduces requirement of issue of Maintenance Release after each un-scheduled maintenance including rectification of defects.

1.3 Similarly, the ANO requires issue of Authorised Release Certificate (previously known as Release Note) in respect of each component, parts and materials on release from approved shops.

1.4 The ANO also states certification procedure for pre-departure inspection of aircraft by appropriate person(s).

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rule 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the rules, the under mentioned definitions shall apply:

(a) **"Approved pilot/flight engineer"** means a pilot/flight engineer approved by an Operator to carry out and certify "Transit" or "Pre-departure or Pre flight check/inspection" at out station(s) only excluding the privilege of defect rectification.

(b) **"Appropriate person(s)"** means the person(s) as defined in Rule 196(6) of the CARs, 1984, who may be authorised by the Owner, Operator or Pilot-in-command to carry out maintenance on a Bangladesh aircraft.

Note: This means issue of a Certificate of Compliance for the maintenance work performed by him or under his direct supervision.

(c) **"Delegated Appropriate Person(s)"** means the Appropriate Person(s) who has been delegated with authority by the Owner/Operator/AMO to issue specified airworthiness certification (i.e. Maintenance Release, Authorised Release Certificate) through the respective MCM/MPM approved by the Chairman.

Note: Such person(s) may not be directly responsible for performance of the maintenance works (i.e. issue of Certificate of Compliance).

(d) **"Authorised Release Certificate"** (previously known as release note) means a document issued by the delegated "Appropriate Person(s)" of an approved organization following manufacture, overhaul, repair, modification or procurement of aircraft materials, parts or components, which attests that the particular product/maintenance work on the item has been completed in the satisfactory manner in accordance with the approved data, the procedures described in the organization procedures manual, the item is considered airworthy for release to service and is in condition for safe operation.

(e) **"Authorised Signatory"** means the person(s) who, based on their experience, knowledge, performance and good service records, are selected and nominated by the Operator/ AMO to certify and issue specified documents/applications/statement (i.e. Application for issue/renewal of C of R / C of A / Engineering Concession / Exemption, Serviceable / Un-Serviceable / Hold Tag, Aircraft weighing report, Entry in various log books / Aircraft Records & Documents etc.) in accordance with the procedures mentioned in the respective MCM/MPM approved by the Chairman.

(f) "**Certificate of Compliance**" means a certification made by the "Appropriate Person(s)" directly involved in performing maintenance on an aircraft or an engine, propeller, component or part, including overhaul, modification, repair and aircraft inspections not requiring a Maintenance Release and which attests that the work has been performed in accordance with all applicable airworthiness standards and requirements.

(g) "**Certificate of Fitness for Flight**" means a document issued in respect of an aircraft which does not have a valid Certificate of Airworthiness and which is required to be flown to qualify for the issue or renewal of a Certificate of Airworthiness.

(h) **"Component"** means a major assembly of a complete aircraft, engine or propeller and includes for example wings, flight control surfaces, landing gears, generators, fuel pumps, actuators, avionic components etc.

(i) **"Maintenance"** means the performance of tasks required to ensure the continuing airworthiness of an aircraft, including any one or combination of overhaul, inspection, replacement, defect rectification and the embodiment of a modification or repair.

(j) **"Maintenance Release"** means a document issued by the "Delegated Appropriate Person" in respect of each aircraft at prescribed intervals as stated in the AMS, after each scheduled Check and un-scheduled maintenance including defect rectification, which contains a certification confirming that the maintenance work on the aircraft has been completed in a satisfactory manner in accordance with the applicable approved data, the procedures described in the organisation's Maintenance Procedures Manual, the aircraft is considered airworthy for release to service and is in a condition for safe operation.

(k) **"Parts"** means, a sub-assembly of an aircraft component and standard items including fasteners, rivets, nuts, bolts, rigging cable and electrical wire.

(l) **"Inspection"** means examination of an item against a specific standard.

Note: For ease of understanding, the terms (i) **"Appropriate person",** (ii) **"Delegated Appropriate Person" and (iii) "Authorised Signatory"** are explained further below:

Appropriate person	Persons authorised to certify maintenance work on aircraft/component i.e. issue of Certificate of Compliance
Delegated Appropriate Person	Appropriate Persons, nominated by the Operator/AMO and have been authorised to issue specified airworthiness certifications (as mentioned in the definitions) as per the procedures mentioned in the MCM/MPM approved by the Chairman.
Authorised Signatory	Persons nominated by the Operator/AMO and have been authorised to certify and issue specified documents/applications/statement (as mentioned in the definitions) as per the procedures mentioned in the MCM/MPM approved by the Chairman.

3. CERTIFICATE OF COMPLIANCE

3.1 A Certificate of Compliance shall be issued by an appropriate person on satisfactory completion of the under mentioned tasks in accordance with applicable approved maintenance data or manufacturer's instructions and the person(s) shall be directly responsible for proper accomplishment of the task(s) certified:

(a) Inspection, Modification and Repair of aircraft, but excluding issue of Maintenance Release.

(b) Inspection, Modification, Repair and Overhaul of appliances/components whilst off the aircraft (in an approved shop) but excluding issue of Authorised Release Certificate.

3.2 No person shall sign a Certificate of Compliance unless the maintenance in respect of which that certificate is prepared has been performed in accordance with applicable approved data, manuals, procedures, applicable airworthiness standards and requirements of the Chairman, CAAB.

3.3 Where the person signing a Certificate of Compliance determines that a flight test of an aircraft is necessary to verify that the maintenance performed on the aircraft is satisfactory, he shall complete the Certificate of Compliance, by adding the condition **"subject to a satisfactory Flight Test**" on the aircraft maintenance log.

3.4 A Certificate of Compliance may only be issued by:

(a) The holder of a type rated Bangladesh Aircraft Maintenance Engineer Licence.

(b) The holder of a type rated Aircraft Maintenance Engineer Licence or equivalent, issued by the airworthiness authority of a contracting state, which has been validated by the Chairman and subject to any conditions prescribed by him.

(c) A person authorised to certify on behalf of an approved Maintenance Organisation in accordance with the procedures approved by the Chairman.

3.5 All Certificate of Compliance shall be preserved for specified period as stated in the ANO (AW) B.4.

3.6 Each Certificate of Compliance shall state the location (place) at which the work was performed.

3.7 An acceptable format for a Certificate of Compliance is provided at the **Appendix-1** to this Order.

4. ISSUANCE OF MAINTENANCE RELEASE

4.1 Maintenance Release in respect of an aircraft shall be issued after satisfactory completion of:

(a) Each scheduled maintenance checks (e.g. “A” check or 500 Flight Hours (FH) or other specified FH checks and all higher letter checks or applicable checks) as specified in the approved AMS/AMP of the aircraft type of each operator.

(b) Each scheduled lower maintenance check (e.g. weekly check, 50/100 FH checks normally accomplished in Line maintenance) other than the scheduled checks mentioned in 4.1(a) above.

(c) Each un-scheduled maintenance including defect rectification.

4.2 A Maintenance Release is not required to be issued after Pre-Departure Inspection (PDI) or equivalent inspections i.e. Transit/Turn around and Daily Inspection/Overnight/Layover/ equivalent inspection.

4.3 No person shall sign a Maintenance Release unless the maintenance in respect of which the release is prepared has been performed in accordance with all applicable airworthiness standards and requirements and there is no known non- compliance, which could seriously hazard flight safety.

4.4 Where the person signing a Maintenance Release determines that a flight test of an aircraft is necessary to verify that the maintenance performed on the aircraft is satisfactory, he shall complete the Maintenance Release, by adding the condition **"subject to a satisfactory Flight Test**" on the aircraft maintenance log.

4.5 A Maintenance Release shall be issued by a “Delegated Appropriate Person” only when:

(a) All applicable maintenance has been satisfactorily completed.

(b) All applicable mandatory modifications and inspections have been completed.

(c) All defects in the maintenance log books or other approved documents have been rectified or deferred (if applicable) in accordance with approved procedures.

(d) No out-of-phase inspections or components replacements are due prior to the expiry date/time of the Maintenance Release, or if due, the replacement date/time is controlled in accordance with procedures approved by the Chairman.

4.6 Each Maintenance Release shall be raised/issued at least in 2 (two) copies; the Original copy shall be carried in the aircraft and the Second copy shall be maintained by the issuing organisation for the period as stated in the ANO (AW) B.4.

4.7 **Issue of Maintenance Release after specified scheduled checks:** The Delegated Appropriate Persons approved by the Chairman in the MCM/MPM shall issue Maintenance Release after satisfactory completion of each specified scheduled checks:

(a) Jointly by appropriately type rated Aircraft Maintenance Engineers (AMEs) holding licence on the specific type of aircraft in:

(i) Category "A" (Airframe) and Category "C"; and

(ii) Category "E" (Electrical), "I" (Instrument) and "R" (Radio); or

(b) Person(s) authorised by a CAAB approved maintenance organisation in accordance with the procedures approved by the Chairman.

4.8 **Format of Maintenance Release - after specified scheduled checks:** An acceptable format of the Maintenance Release required to be issued after each specified scheduled check is shown at **the Appendix-2** of this Order.

4.9 **Issue of Maintenance Release after lower scheduled checks and unscheduled maintenance including defect rectification:** The following categories AMEs shall issue Maintenance Release after satisfactory completion of each lower scheduled checks and unscheduled maintenance including defect rectification checks:

(a) **For the lower scheduled checks** (Checks lower than "A" check i.e. weekly check, 50/100 FH checks):

(i) Type rated AMEs in category "A" (Airframe) or Category "C";

(b) **For defect rectification:**

(i) Holder of type rated AME licence in related category; or

(ii) Person(s) authorised by a CAAB approved maintenance organisation in accordance with the procedures approved by the Chairman.

4.10 **Format of Maintenance Release - after lower scheduled checks and unscheduled maintenance including defect rectification checks:** In such cases, an entry shall be made in the Aircraft Maintenance Log (AML) stating brief title of the check along with the Work Order/Package number and certifying satisfactory accomplishment of the check. Similarly, following any unscheduled maintenance work on an aircraft including the defect(s) recorded by the flight crew or entered by the maintenance crew, the defect(s) is to be rectified by the "Appropriate Person". An acceptable format of the Maintenance Release required to be issued after each lower scheduled checks and unscheduled maintenance including defect rectification is shown at the **Appendix-3** of this Order.

5. AUTHORISED RELEASE CERTIFICATE - COMPONENTS

5.1 Each Bangladesh organisation approved by the Chairman for the manufacture, overhaul, repair, modification or distribution of aircraft components, aeronautical products and materials shall provide, with each product processed, an "Authorised Release Certificate" which attests that the product conforms to all applicable airworthiness standards and requirements.

5.2 An Authorised Release Certificate shall be completed in respect of each aeronautical product intended for installation in an aircraft.

5.3 No approved Bangladesh organisation, including parts or material distributors or Aircraft Maintenance Engineers, shall provide any aeronautical product to any other organisation or individual unless it is accompanied by a valid and approved Authorised Release Certificate.

5.4 No person shall hold in an approved aircraft store, or allowed to be installed or used in a Bangladesh registered aircraft, an aeronautical product that was not accompanied, upon receipt, by a valid Authorised Release Certificate or a document otherwise approved by the Chairman.

5.5 A person(s) referred to in this Order shall not issue an Authorised Release Certificate in respect of an aeronautical product or material unless:

(a) The Authorised Release Certificate contains a description of the product and its specifications.

(b) All applicable airworthiness requirements and standards have been satisfied.

(c) In the case of a product or material which has been procured, it is accompanied by the document specified in the ANO (AW) B.14 or is otherwise approved by the Chairman.

(d) For an aeronautical product previously fitted to another aircraft, it has been maintained and/ or inspected in accordance with an approval granted by the Chairman, and a Certificate of Compliance has been completed as required.

(e) For an aeronautical product previously fitted to another aircraft which was procured from outside Bangladesh, it was maintained and/ or inspected in accordance with the airworthiness requirements of the Civil Aviation Authority of the country of export, and accompanied by a document specified in the ANO (AW) B.14 containing at least the followings:

(i) Particulars of the product;
(ii) Basic details of the maintenance carried out including detailed reference of the approved data or design data;
(iii) The date such maintenance was carried out;
(iv) The identity of the person or persons signing the certificate;
(v) Details and approval number of the approved maintenance organisation;
(vi) The identity all modifications and repairs performed and the design data or documentation used; and
(vii) Certification that the maintenance was performed in accordance with the requirements of the Chairman or the Civil Aviation Authority of the State of export.

5.6 A copy of each Authorised Release Certificate issued shall be maintained by the issuing organisation for at least 2 (two) years from the date of issue.

5.7 The end user of the aeronautical product for which the Authorised Release Certificate was issued shall maintain a copy of that certificate for at least 2 (two) years following completion of service life installation of the product.

5.8 On satisfactory accomplishment of the complete maintenance of the component (i.e. signing of Certificate of Compliance in the Work Card of a component in an approved shop) by the appropriate persons(s), an Authorised Release Certificate shall be issued as mentioned in the paragraph 5.9.of this Order.

5.9 **Issue of authorised release certificate:** An Authorised Release Certificate in respect of an aircraft component, part and materials may only be issued by the Delegated Appropriate Person(s) authorised by a CAAB approved maintenance organisation in accordance with the procedures approved in the MCM/MPM by the Chairman.

5.10 **Format of Authorised Release Certificate:** An acceptable format of Authorised Release Certificate is shown at the **Appendix-4** of this Order.

Note: On installation of a component on an aircraft, a Maintenance Release shall be required certifying its proper installation on the aircraft.

6. CERTIFICATE OF FITNESS FOR FLIGHT (CFF)

6.1 Certificate of Fitness for flight of an aircraft is to be issued under the following circumstances where:

(a) An aircraft is without a valid Certificate of Airworthiness, i.e. C of A the aircraft has expired; or

(b) A major repair has been accomplished and the person signing a Maintenance Release or Certificate of Compliance determines that a flight test of the aircraft is necessary to verify that the maintenance performed on the aircraft is satisfactory, he shall complete the Certificate of Compliance or Maintenance Release, by adding the condition "subject to a satisfactory Flight Test" on the aircraft maintenance log and issuing a CFF.

6.2 No person shall sign a Certificate of Fitness for Flight unless all applicable ground tests and inspections have been satisfactorily completed.

6.3 A Certificate of Fitness for flight may only be issued by:

(a) The holder of an appropriately endorsed and type rated Aircraft Maintenance Engineer licence by the Chairman.

(b) Any other person authorised by the Chairman to do so.

6.4 Following a flight test made in accordance with this section, the entry in the appropriate log book of a satisfactory statement of operation made by one of the following persons, as applicable, will return the aircraft to service:

(a) The Pilot-in-command.

(b) A qualified Aircraft Maintenance Engineer who participated in the test flight to make related observations.

(c) An authorised representative of the approved maintenance organisation which performed the work, and who participated in the test flight to make related observations.

(d) Any other person authorised by the Chairman.

6.5 Each Certificate of Fitness for Flight shall be issued in 2 (two) copies, the original shall be carried in the aircraft and the second copy shall be retained at the operators' facility.

6.6 The period of validity for a Certificate of Fitness for Flight shall not exceed 7 (seven) days from the date of inspection, and shall be stated on the certificate.

6.7 For each flight test, a separate Certificate of Fitness for flight shall be required and be issued accordingly.

6.8 Any aircraft operating under the provision of a Certificate of Fitness for flight shall not fly over any densely populated area except as required by crew members or person(s) carried for the purpose of making observations.

6.9 An acceptable format for a Certificate for Fitness for Flight is provided at the **Appendix-5** to this order.

7. CERTIFICATION OF MAINTENANCE WORK

7.1 All aircraft maintenance work shall be carried out and certified by type rated licensed engineer(s) / holder(s) of Inspection Authorisation issued in accordance with the ANO (AW) C.8.

7.2 An Operator/ AMO may approve following personnel to carryout and certify limited aircraft maintenance work subject to meeting specified requirements in accordance with the respective Maintenance Procedures Manual (MPM) or Maintenance Control Manual (MCM) approved by the Chairman:

(a) Holder of a Licence Without Type Rating (LWTR) in the appropriate category issued by the Chairman; or

(b) Holder of a valid CPL/ ATPL/Flight Engineer licence on the type aircraft issued by the Chairman; or

(c) Holder of a valid AME Type Rated licence issued by the Chairman on a **similar type of aircraft (**i.e. aircraft having almost similar systems).

8. ACCOMPLISHMENT OF PDI AND DAILY INSPECTION

8.1 Aircraft having - MCTM above 5700 KG.

8.1.1 Pre-Departure Inspection (PDI) or equivalent inspections i.e. Transit/Turn around inspection without defect rectification, in respect of aircraft with passenger seating configuration up to 200 (two hundred) seats or with a maximum payload capacity of 15 (fifteen) tons in case of cargo aircraft, may be carried out by appropriate persons having qualification as stated in the Section 7 of this Order and:

(a) Have successfully completed 10 (ten) days of practical training on relevant inspections.

(b) Have carried out 7 (seven) transit inspection schedules under the supervision of an appropriately qualified AME/certification authorisation holder employed by the approved organisation.

(c) Have successfully passed a skill test conducted by the Board consisting of the following members:

(i) Head of Quality of the Organisation; and

(ii) A representative from AELD.

8.1.2 Pre-Departure Inspection (PDI) or equivalent inspections i.e. Transit/Turn around inspection of an aircraft with passenger seating configuration exceeding 200 (two hundred) seats or exceeding payload capacity of 15 (fifteen) tons in case of cargo aircraft shall require certification by type rated AME(s) / holder(s) of Inspection Authorisation issued in accordance with the ANO (AW) C.8.

8.2 **Aircraft having - MCTM 5700 KG and less.**

8.2.1 Pre-Departure Inspection (PDI) or equivalent inspections i.e. Transit/Turn around and Daily Inspection/Overnight/Layover/ equivalent inspection without defect rectification may be carried out by the qualified persons as mentioned in the Section 7 of this Order and:

(a) Have successfully completed 10 (ten) days of class room and practical training on relevant inspections.

(b) Have carried out 7 (seven) transit inspection and Lay over inspection schedules under the supervision of a type rated AME employed by the approved organisation.

(c) Have successfully passed a skill test conducted by the Board consisting of the following members:

(i) Head of Quality/Maintenance of the Organisation; and

(ii) A representative from AELD.

8.3 The contents of classroom and practical training mentioned in this Section shall be approved by the AELD.

9. DOCUMENTATION PROCEDURES FOR MAINTENANCE - AIRCRAFT AND COMPONENTS

9.1 All Scheduled or Un-Scheduled maintenance of aircraft shall be accomplished through Work Order, which must be issued at the appropriate time, to ensure accomplishment of the maintenance within the time limit approved by the Chairman through AMS, AMP, MEL or other applicable documents.

9.2 An entry mentioning the title of due maintenance (check) and the Work Order number shall be made in the Aircraft Maintenance Log (AML) book and on satisfactory accomplishment of the maintenance, an appropriate certification shall be made by the Delegated Appropriate Person as per procedures stated in the MCM/MPM of an Operator or an AMO.

9.3 Similarly, maintenance of component shall be accomplished through issue of Work Order and appropriate records shall be maintained in the related shop(s).

9.4 While carrying out inspection as per the applicable Routine Task Cards, each task should be signed off simultaneously by appropriately licensed AMEs or “Delegated Appropriate Person” as the job progresses at each stage of inspection during maintenance, repair or overhaul and on satisfactory completion of all maintenance, a Certificate of Compliance shall be issued. An example of Routine Task Card is provided in the **Appendix-6.**

9.5 Any additional maintenance work required to be accomplished in relation to Routine Task Card or any incomplete task(s) for which fore warning of unsafe situation demands attention, shall be recorded on the Non-Routine Card (NRC), serially numbered with cross reference to the routine task card to provide traceability. Entries for all maintenance work shall be made in indelible ink and shall be attached to the appropriate log book for preservation in accordance with the ANO (AW) B.4. An example is provided in the **Appendix-7.**

9.6 The inspection work/task cards should highlight the applicability of items of inspection, which may vary in different aircraft of the same type. Organisation using work order system to carryout and certify maintenance task may do so but shall maintain records of test values, physical parameters measured during maintenance with cross reference to the work order and vice versa.

9.7 Where required, the specific test values and physical measurements made while carrying out maintenance shall be recorded on the Work Cards and retained in the accomplished work package.

9.8 For recording entry in the Aircraft/Engine/Propeller log books or other appropriate documents, trained and qualified person(s) may be approved by the Chairman as Authorised Signatory, who after satisfying that the maintenance work has been completed in accordance with the prescribed procedures outlined in the Operator's or the Maintenance Organisation's MCM/MPM, shall record accomplishment in the applicable document(s)

10. CERTIFICATION OF PDI AND DAILY INSPECTION ON AML

10.1 An acceptable format of the certification of Pre Departure Inspection (PDI) and Daily Inspection (DI) or equivalent inspections on the Aircraft Maintenance Log (AML) is shown at the **Appendix-3** of this Order.

11. VALIDITY OF APPROVAL - PDI AND DAILY INSPECTION AUTHORISATION

11.1 Approvals granted for certification of PDI and Daily Inspection in accordance with this ANO shall be valid for a period of 1 (one) year and may be renewed further provided the holder has exercised the privileges for at least 10 (ten) occasions during the preceding 1(one) year in a satisfactory manner.

12. EFFECTIVITY

12.1 This ANO shall be effective immediately for the Organisations seeking approval of the Chairman as an Aircraft Maintenance Organisation.

12.2 The AMOs currently holding Certificate of Approval as an AMO may continue to follow until 1st January 2012 the Maintenance Certification Systems as stated in the ANO (AW) B.3, Issue-1. However such AMOs are encouraged to implement the requirements of the ANO (AW) B.3A before 1st January 2012 through revision of their respective MPM/MCM.

The ANO is issued in pursuance of the Rules 4 and 192 of the Civil Aviation Rules 1984.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority of Bangladesh

CERTIFICATE OF COMPLIANCE

I/ We hereby certify that the work recorded above has been carried out in accordance with the approved manuals and procedures, and with the requirement of the Chairman, CAAB.

Signature_____

AME/ Authorisation No._____

Place _____

Date_____

MAINTENANCE RELEASE

AFTER SPECIFIED SCHEDULED MAINTENANCE

(Name of the Approved Maintenance Organisation)

(AMO Approval No._____)

Aircraft Type & Model:_____Nationality & Registration Marks:_____

has been maintained in accordance with the approved Maintenance Schedule/Programme. As per the Work Order No._____dated_____,Check_____has been satisfactorily accomplished on_____at Total Aircraft Time (TAT)_____at the maintenance base located in_____.

It is certified that the work specified above has been carried out in accordance with applicable approved maintenance data and that the aircraft is considered airworthy for release to service and is in a condition for safe operation. The Maintenance Release is issued as per the rule 201 of the Civil Aviation Rules, 1984 and the ANO (AW) B.3A.

This Maintenance Release is valid for_____days up to_____(date) or_____flight hours, whichever is earlier from the date/time of issue of the Maintenance Release except as provided under appropriate rules of the CARs 1984.

Next issue of Maintenance Release is due on (date)_____or TAT_____whichever comes first.

_____ Signature of the AME/Certifying Staff: (Airframe and Engine Category) Name of the AME/Certifying Staff: AME Licence/Authorisation No.: Location (place) where the work has been performed:	_____ Signature of the AME/Certifying Staff: (Avionics Category) Name of the AME/Certifying Staff: AME Licence/Authorisation No.: Location (place) where the work has been performed:

EXAMPLE OF MAINTENANCE RELEASE
AIRCRAFT AFTER LOWER SCHEDULED MAINTENANCE AND DEFECT RECTIFICATION

XYZ AIRLINES	**AIRCRAFT MAINTENANCE LOG**	**REGN. MARKS:**	**AML PAGE NO.**
		A/C TYPE:	

Flight No.	**Date:**	**From:**	**To:**	**Captain:**	**First Officer:**

ECTM:	**OAT (ºC):**	**IAS (Kts):**	**ALT (Ft):**	**Bleed Air: ON/OFF**	**Anti Ice: ON/OFF**

	Torque (%)	**N_P (RPM)**	**ITT (ºC)**	**N_H (%)**	**N_L (%)**	**W_F (Lbs/Hrs)**	**Oil Temperature (ºC)**	**Oil Pressure (PSI)**
Engine # 1								
Engine # 2								

Entry No.	**Flight Defects or Maintenance Entry (NIL to be mentioned incase of no defect)**	**Corrective Actions (Applicable Part No., Sl. No., GRN & NRC No. to be mentioned)**		
1	"100 FH" Check is to be accomplished as per the Work Order # 31/2009 Dated 17 December 2009	"100 FH" Check satisfactorily accomplished as per the Work Order.	**P/N OFF**	
			S/N OFF	
			P/N ON	
			S/N ON	
			GRN	
			NRC No.	
	MAINTENANCE RELEASE: It is certified that the work specified above has been carried out in accordance with applicable approved maintenance data, the aircraft is considered airworthy for release to service and is in a condition for safe operation. The Maintenance Release is issued as per the ANO (AW) B.3A and the rule 201 of the Civil Aviation Rules, 1984.			
	Signature : Captain / AME	**Signature**	**AME# 431**	**18 Dec 2009**
	AME-321 AUTH. NO. / **17/12/09 Date**		**AUTH. No.**	**Date**
2 (if needed use next page)			**P/N OFF**	
			S/N OFF	
			P/N ON	
			S/N ON	
			GRN	
			NRC No.	
	MAINTENANCE RELEASE: MAINTENANCE RELEASE: It is certified that the work specified above has been carried out in accordance with applicable approved maintenance data, the aircraft is considered airworthy for release to service and is in a condition for safe operation. The Maintenance Release is issued as per the ANO (AW) B.3A and the rule 201 of the Civil Aviation Rules, 1984.			
	Signature: Captain / AME)	**Signature**	**AUTH. No.**	**Date**
	AUTH. NO. / **Date**			

FLIGHT DATA	**Airport**	**Time (LT) Hrs.**	**Min**
Arrival:			
Departure:			
Sector Air Borne Time (Take off to Landing)			
Aircraft Time (Brought Forward)			
Grand Total AC Time			
No. of Landing (This Sector)			
Total Landings (Brought Forward)			
Grand Total Landings			

CAPTAIN'S ACCEPTANCE OF THE AIRCRAFT FOR THE FLIGHT

Signature	**ATPL No.**	**Time**

Engine Oil (Qtrs.)	**Engine # 1**	**Engine # 2**
Uplift		
Total		

APU Oil (Qtrs.)	
Uplift	
Total	

Posn	**Arrival**	**Uplift**	**Total**
No. 1 Tank			
No. 2 Tank			
Total			

Fuel up lift from bowser (Ltrs)	
Qty. Delivered	
Voucher No.	

CERTIFICATE OF COMPLIANCE
FOR
PRE-DEPARTURE INSPECTION / DAILY INSPECTION
(cross out the non-applicable)

I hereby certify that PDI / DAILY INSPECTION has been carried out in accordance with the current inspection card, approved procedures and the requirements of the Chairman, CAAB.

Signature (AME):	**AUTH. No.:**	**Date:**	**Time:**

CA FORM -1

1. **CIVIL AVIATION AUTHORITY OF BANGLADESH**
Airworthiness & Engineering Licensing Division

2. **AUTHORISED RELEASE CERTIFICATE**

3. Form Tracking Number

4. Approved Organization Name and Address:	5. Work Order/Contract/ Invoice

6. Item	7. Description	8. Part No	9. Eligibility*	10. Qty	11. Serial/Batch No	12. Status/Work

13. Remarks

14. Certifies that the items identified above were manufactured in conformity with: ⑥ approved design data and are in condition for safe operation ⑥ non approved design data specified in block 13		19 ⑥ ANO 145.A.50 Release to Service ⑥ Other regulation specified in block 13 Certifies that unless otherwise specified in block 13, the work identified in block 12 and described in block 13, was accomplished in accordance with the ANO B. 3A/Part 145 of the rule 201 of the CARs 1984 and in respect to that work the items are considered airworthy for release to service	
15. Authorised Signature	16.Approval/Authorisation Number	20.Authorised Signature	21 .Certificate/ Approval Ref No.
17. Name	18. Date (d/m/y)	22. Name	23.Date (d/m/y)

CA FORM 1- ISSUE 1

* Installer must cross-check eligibility with applicable technical data.

AUTHORISED RELEASE CERTIFICATE

CA Form 1

USER /INSTALLER RESPONSIBILITIES

Note:

1. It is important to understand that the existence of the Document alone does not automatically constitute authority to install the part/component/assembly.

2. Where the user/installer works in accordance with the national regulations of an Airworthiness Authority different from the Airworthiness Authority specified in block 1, it is essential that the user/installer ensures that his/her Airworthiness Authority accepts parts/ components/ assemblies from the Airworthiness Authority specified in block 1.

3. Statements 14 and 19 do not constitute installation certification. In all cases the aircraft maintenance record must contain an installation certification issued in accordance with the regulations by user/installer before the aircraft may be flown.

CERTIFICATE OF FITNESS FOR FLIGHT

Aircraft Type & Model .....

Manufacturer .....

Serial Number .....

Nationality & Registration Marks .....

I/ We hereby certify that the above mentioned aircraft has been inspected and having regard to minimum standards of airworthiness prescribed in CAR, 1984, is fit for flight for the purpose of test flight, provided it is properly loaded. This Certificate is valid until_____ (date) or till the airworthiness condition of the aircraft is altered, whichever is earlier.

Category	AME Licence No.	Signature	Date
"A" (Airframes)			
"C" (Engines)			
"E" (Electrical)			
"I" (Instrument)			
"R" (Radio)			

EXAMPLE OF ROUTINE TASK CARD

GO FAST AIRWAYS		
Aircraft Type: B737 **AMP Ref : GFA/AMP/B737/668**	**Task Card No.** 27-XX-XX-XX **Issue No.** 1 **Date :** 26 April 2009	
Aircraft Registration :	**S2-XYZ**	
ATA System : 27	**27 Flight controls**	
Information on Non-Routine Card (NRC) raised :	**† Yes** **† No** **NRC No.**: XX/XXXXX	
Information on Supplementary Work Sheet (SWS) raised :	**† Yes** **† No** **SWS No.**: XX/XXXXX	
ATA Sub-System: Flap synchronizing system	**Mechanic**	**Appropriate Person (I.A)**
(a) Check that the cable tensions are correct (mm-27-50-02)	Golam Rahman	Signature and stamp
(b) With the flaps selected up, disconnect the operating link from one transmitter gearbox only	Golam Rahman	Signature and stamp
(c) Pressurize the hydraulic system and select flaps down	Golam Rahman	Signature and stamp
(d) Make sure that the flaps start to move and then the system cuts out	Golam Rahman	Signature and stamp
(e) Depressurize the hydraulic system and connect the flap position transmitter operating link		
(f) Pressurize the hydraulic system and make sure that the flaps operate correctly		

CERTIFICATE OF COMPLIANCE:

I/ We hereby certify that the work recorded above has been carried out in accordance with the approved manuals and procedures, and with the requirement of the Chairman, CAAB.

Signature_____
AME/ Authorisation No._____
Place _____
Date_____

NON-ROUTINE WORK CARD

(Example -1, NRC raised due to the defect found during inspection task)

GO FAST AIRWAYS			
NRC No. :XX/XXXX **Date:** 26 April 2009	**NRC raised by:** Signature and Stamp	**Cross reference to the Routine Card No.:**	
Aircraft Registration	**Aircraft Type**	**Scheduled Check No.** **Un-Scheduled Check:**	
INFORMATION ON INSTALLED SERIALISED PARTS (if applicable, must be filled up by the certifying Appropriate Person			
Part name:		**Part number:**	
Serial number OFF:		**Serial number ON:**	
Goods Receipt Number (GRN) of the installed (ON) part:			
Description of the defect	**Action Taken**	**Mechanic**	**Appropriate Person (I.A)**
Hydraulic leaks from UP line connection of the Synchronizing valve to be investigated and rectified.			
Information on Supplementary Work Sheet (SWS) raised (if any) :		**† Yes** **SWS No**.: XX/XXXXX	**† No**

CERTIFICATE OF COMPLIANCE:

I/ We hereby certify that the work recorded above has been carried out in accordance with the approved manuals and procedures, and with the requirement of the Chairman, CAAB.

Signature_____
AME/ Authorisation No. _____
Place _____
Date _____

INFORMATION ON ALL INSTALLED/REQUIRED PARTS AND MATERIALS			
Part's Name	**Part Number**	**Qty.**	**Remarks/GRN (as applicable)**

NON-ROUTINE WORK CARD

(Example -2, NRC raised due to unaccomplished task and fore warning of unsafe situation)

GO FAST AIRWAYS			
NRC No. :XX/XXXX **Date:** 26 April 2009	**NRC raised by:** Signature and Stamp	**Cross reference to the Routine Card No.:**	
Aircraft Registration	**Aircraft Type**	**Scheduled Check No.** **Un-Scheduled Check:**	
INFORMATION ON INSTALLED SERIALISED PARTS (if required, must be filled up by the certifying Appropriate Person			
Parts name:	**Parts number:**		
Serial number OFF:	**Serial number ON:**		
Goods Receipt Number (GRN) of the installed (ON) part:			
Description of the defect	**Action taken**	**Mechanic**	**Appropriate Person (I.A)**
Work steps mentioned in the card completed fully up to the stage (d). Hydraulic system depressurized but the transmitter operating link is not reconnected. Operation link to be reconnected prior to performing the stage (f).			
Information on Supplementary Work Sheet (SWS) raised (if any) :		**† Yes** **† No** **SWS No**.: XX/XXXXX	

CERTIFICATE OF COMPLIANCE:

I/ We hereby certify that the work recorded above has been carried out in accordance with the approved manuals and procedures, and with the requirement of the Chairman, CAAB.

Signature_____
AME/ Authorisation No. _____
Place _____
Date _____

INFORMATION ON ALL INSTALLED/REQUIRED PARTS AND MATERIALS			
Part's Name	**Part Number**	**Qty.**	**Remarks/GRN (as applicable)**

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B - MAINTENANCE DIRECTIONS

CHAPTER B.4	**MAINTENANCE LOG BOOKS AND RELATED RECORDS**

1. GENERAL

1.1 This Order details the requirements and procedures for maintaining log books, the types of log books and records that shall or may be maintained and the approved methods for recording times.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the Rules, the under mentioned definitions shall apply:

(a) **"Aeroplane"** means a power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

(b) **"Aircraft"** means any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

(c) **"Authorsied Person"** means the Authorised Signatory as mentioned in the MCM/MPM of a Maintenance Organisation approved by the Chairman.

(d) **"Flight time"** means, the total time (chock-off to chock-on) from the moment an aeroplane first moves for the purpose of taking off until the moment it finally comes to rest at the end of the flight.

Note : Flight time as defined here is synonymous with the term "block to block" time or "chock to chock" time in general usage which is measured from the time an aeroplane first moves for the purpose of taking off until it finally stops at the end of the flight.

(e) **"Operating time"** means hours of operation to determine overhaul or maintenance periods for the airframe, engines, propellers and finite life components of an Aeroplane, which shall include the total operating time between take - off and landing.

3. REQUIREMENTS

3.1 Each Owner/Operator of a Bangladesh registered aircraft shall be responsible for maintaining and preserving, or causing to be maintained and preserved, the following records required under this Order in respect of that aircraft:

(a) The total operating time in service (hours, calendar time and cycles, as appropriate) of the aeroplane and all life limited components.

(b) The current status of compliance with all mandatory continuing airworthiness information.

(c) Appropriate details of modifications and repairs.

(d) The time in service (hours, calendar time and cycles, as appropriate) since the last overhaul of the aeroplane or its components subject to a mandatory overhaul life.

(e) The aircraft's current status of compliance with the maintenance programme.

(f) The detailed maintenance records to show that all requirements for the signing of a maintenance release have been met.

3.2 The records mentioned above in the paragraph 3.1 of this Order shall be kept for a minimum period of 2 (two) years from the date of permanent withdrawal of the unit from service.

3.3 An aircraft, engine or propeller log book shall be preserved during the life of the aircraft, engine or propeller to which it relates, and for a period of 2 (two) years thereafter.

3.4 Where the Certificate of Compliance is issued in respect of a minor inspection such as a daily, pre-flight, transit or overnight inspection, it shall be retained by the operator for at least 6 (six) months.

3.5 The following technical log books shall be maintained in respect of all Bangladesh registered aircrafts and aircraft components intended for installation on such aircraft:

(a) For every aircraft: an aircraft log book.

(b) For every engine and APU: an engine/ APU log book.

(c) For every variable pitch propeller: a propeller log book.

3.6 Unless otherwise approved or prescribed, log books shall be maintained in accordance with the instructions contained in CAAB approved log books, and in such a manner as to provide an accurate and complete history of the aircraft, engine, or propeller to which they relate.

3.7 Entries shall be made as soon as practicable after the occurrence to which they relate, but in no case more than 7 (seven) days after the expiration of the maintenance release in force in respect of the aircraft at the time of the occurrence.

3.8 Each entry shall be legible, signed and dated by the person making it. Signature shall be hand written in ink, but the entry data in the Log book may be typed.

3.9 Where an aircraft or aircraft component log book is carried on board the aircraft, a duplicate log book shall be maintained in a safe location on the ground.

3.10 The last entry shall state the reason for closing the log book and shall not be made until the aircraft, engine or propeller to which it relates had either been destroyed and reduced to spares and will not be rebuilt or has been permanently withdrawn from service.

3.11 All log books and records relating to a particular aircraft, engine or propeller shall be handed over to the new owner on change of ownership.

3.12 In the event of a temporary change of operator, the records shall be made available to the new operator.

3.13 In the event of any permanent change of operator, the records shall be transferred to the new operator.

3.14 The following approved log books are available for purchase from the CAAB:

(a) Aircraft log book.

(b) Modification record log book.

(c) Propeller log book.

(d) Engine log book.

4. RELATED RECORDS

4.1 Where the details of maintenance performed are so voluminous as to render it inconvenient to enter them in the log book, those details may be entered in a separate maintenance record, which shall be numbered for identification purposes and certified in the manner required for the relevant entry in the log book.

4.2 Each such maintenance record shall be retained in safe custody, and shall be readily accessible on occasions when it is required.

4.3 The identification number of any such record, along with brief details of the maintenance to which it relates and its storage location, may be in the form of a computer printout, in which case the identification and location of the printout shall be inserted in the log book.

4.4 Maintenance performed on removed equipment shall be recorded in a suitable document associated with the equipment as mentioned in the approved MPM/MCM of the Owner/Operator.

4.5 Where a document provided for in paragraph 4.3 or 4.4 of this Order is used, it shall be identified in the appropriate log book and retained as part of the maintenance record.

4.6 Where a zero time or part time lifed component is fitted to an aircraft, engine or propeller, a recording system shall be maintained to indicate the hour, date or cycle at which the component is required to be removed, and the recording system used shall be capable of providing advance notice of that hour, date or cycle.

5. ALTERNATIVE LOG BOOKS

5.1 The Chairman may approve any other log books other than the approved log books specified in paragraph 3.13 of this Order, such as manufacturers log books, provided the method of recording and certification is equivalent or better.

5.2 Aircraft owners who wish to use alternative pattern of log books shall apply in writing to the Chairman, and if approved, those log books shall be used until a further change is approved.

6. FOREIGN LOG BOOKS

6.1 Except as required in paragraph 6.2 of this Order, or unless otherwise approved, foreign log books shall not be used for recording flight times and maintenance data of aircraft components, and entries shall not be made in a foreign log book after the aircraft has become a Bangladesh registered aircraft.

6.2 A foreign log book which is replaced by a Bangladesh log book shall be closed by an entry stating that it is so replaced, and shall be signed and dated by an appropriate person or an authorised person.

6.3 The total times entered in a foreign log book shall be transcribed to the replacement Bangladesh log book, and any embodied modifications recorded in the foreign log book shall be transcribed to the modification record of the Bangladesh log book.

6.4 The initial entry in the Bangladesh log book shall certify that the transfers prescribed in 6.3 of this Order have been made.

6.5 Foreign log books which have been closed are deemed to be Bangladesh log books in that they shall be preserved in accordance with paragraphs 3.3 of this Order.

7. RECORDING TIMES

7.1 Times used in calculating the hours of operation to determine overhaul or maintenance periods for the airframe, engines, propellers and finite life components shall include the total “operating time” between take-off and landing. However, an Owner/Operator may use the “flight time” to determine overhaul or maintenance periods for the airframe, engines, propellers and finite life components. But the Owner/Operator shall have to mention in the MCM the “Times” that he proposes to use.

7.2 Times recorded in accordance with paragraph 7.1 of this Order shall be computed by totaling the time in hours and minutes, or hours and decimal increments of an hour, to the nearest whole increment of a minute.

7.3 Where times are recorded in hours and decimal increments of an hour, the appropriate columns on each log book page shall be clearly annotated to indicate that this is the case.

7.4 Where times are recorded in hours and minutes, the minutes shall be reduced to not more than five minute increments, and where they are recorded in hours and decimal increments of an hour, each decimal unit shall be six minutes.

7.5 A separate engine log book shall be maintained for each airborne auxiliary power unit (APU), and except as provided in paragraph 7.6 of this Order, the actual operating times and cycles of APU shall be recorded in that log book.

7.6 The Chairman may, in lieu of recording the actual APU operating times, approve a system of calculating APU hours based on a percentage of the aircraft operational hours.

7.7 Time since overhaul (TSO) shall not be reverted to zero unless the aircraft, engine or propeller has been overhauled to manufacturers new specifications.

7.8 Time since new (TSN) shall continue to be recorded and summed even after TSO is reverted to zero time.

8. LOG BOOK ENTRIES

8.1 Unless otherwise prescribed or approved, particulars of all maintenance performed shall be entered in the aircraft, engine or propeller log book, as appropriate, and certified in accordance with the requirements of the Civil Aviation Rules, 1984, and the following shall apply:

(a) Brief particulars of the Scheduled Maintenance Check or Un-Scheduled Maintenance performed along with the Work Order reference number shall be mentioned in the respective (i) Aircraft, (ii) Engine, (iii) Propeller and (iv) APU log books and the detailed Task Cards along with the Certificate of Compliance shall be maintained separately.

(b) Each entry shall identify the location (place) at where the maintenance was performed, and where detailed records of the work may be inspected.

(c) Identification of the maintenance schedule or maintenance manual used for any inspection shall be stated in the log book entry.

(d) When a component is removed from or installed in an aircraft, engine, propeller or aircraft radio station, the entry in the relevant log book shall state the reason for the action and detail necessary data including nomenclature of the item, type, model and serial numbers, and identification of Authorsied Release Certificate/Release Note.

(e) For embodiment of modifications and compliance with Airworthiness Directives (ADs), appropriate entry shall be entered and certified in the Modification Record log book of the aircraft, engine and propeller as appropriate.

8.2 Unless otherwise prescribed or approved, entries shall be made and certified by the concerned AMEs or appropriate persons in the Aircraft log book in respect of the followings:

(a) All scheduled and unscheduled inspection and maintenance performed on the aircraft quoting the Work Order number.

(b) Each major Component, Part and Radio and Radar equipment removed, changed or installed.

(c) Issue of Certificate of Airworthiness and each renewal.

(d) Each compass swing including record of deviation.

(e) On each occasion the aircraft is weighed, by insertion of the weight and balance report.

(f) Defects or damage of a kind affecting airworthiness.

(g) Compliance with Airworthiness Directives.

(h) Any other applicable technical data.

8.3 Unless otherwise prescribed or approved, entries shall be made and certified in the Engine log book in respect of the followings:

(a) All scheduled and unscheduled inspection and maintenance performed on the engine quoting the Work Order number.

(b) Each engine and engine accessory and auxiliary when initially installed and when subsequently removed or changed.

(c) Each propeller when initially installed on and when subsequently removed from the engine.

(d) At each engine change, the aircraft from which the engine is removed or into which it is installed shall be identified, and in the case of multi-engine aircraft, the engine position shall also be stated.

(e) Each Engine performance ground run i.e. power assurance check or equivalent.

(f) Defects or damage of a kind affecting airworthiness of the engine(s).

(g) Any other applicable technical data.

8.4 Unless otherwise prescribed or approved, entries shall be made and certified in the Propeller log book in respect of the followings:

(a) All scheduled and unscheduled inspection and maintenance performed on the propeller quoting the Work Order number.

(b) Each propeller and propeller accessory and auxiliary when initially installed and when subsequently removed or changed from the engine.

(c) At each propeller change the aircraft from which the propeller is removed or into which it is installed shall be identified, and in the case of multi-engine aircraft, the propeller position shall also be stated.

(d) Defects or damage of a kind affecting airworthiness of the propeller(s).

(e) Any other applicable technical data.

9. AIRCRAFT MAINTENANCE LOGS

9.1 Each Operator shall maintain an Aircraft Maintenance Log in respect of each aircraft as required under the ANO (AW) B.16.

9.2 Procedure for entering required information and completion of Aircraft Maintenance Log shall be described in the Operator's MPM/MCM.

The ANO is issued in pursuance of the Rules 4, 166 and 210 of the Civil Aviation Rules, 1984, is a complete re-issue and supersedes the issue 1, dated 1 August 1990.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority, Bangladesh

PART B - MAINTENANCE DIRECTIONS

CHAPTER B.5	MANDATORY REPORTING AND INVESTIGATION OF DEFECTS AND FAILURES

1. GENERAL

1.1 This Order details the requirements and procedures to be followed by Aircraft Operator(s), Aircraft Owner(s) and Aircraft Maintenance Organization(s) for reporting and investigating certain defects or failure which may occur on aircraft operated under Air Operator Certificate issued by the Chairman, and which may endanger the safe operation of an aircraft.

1.2 This order also mandates that Aircraft Operator(s), Owner(s) and Maintenance Organization(s) must establish a system for transmitting information on all defects and other significant maintenance and operational occurrences or failures which cause or might cause adverse effects on continuing airworthiness of aircraft to the

organization responsible for the type design of that aircraft or holder of the type certificate of that aircraft.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rule 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the Rule, the under mentioned definition shall apply:

(a) "**Reportable defect**" means any defect, faults, malfunctions or other occurrences on an aircraft whether on the ground or in flight, which may:

(i) endanger the safety of the aircraft or its occupants;

(ii) cause the aircraft to become a danger to persons or property; and

(iii) be classified by the Chairman as a reportable defect.

3. RESPONSIBILITY AND REQUIREMENTS

3.1 As mentioned in this Order, the operator, owner and maintenance organisation of an aircraft over 5700 kg and helicopters over 3175 kg maximum certificated take-off mass shall ensure compliance with the requirements of this order regarding any reportable defect, which is notified to him or of which he otherwise becomes aware. The procedures and the official responsible for complying with this order must be mentioned in the Maintenance Procedures Manual and/or Maintenance Control Manual of that organization as applicable.

3.2 Organization(s) performing maintenance on aircraft or aircraft components shall report to the aircraft owner and operator of any defect that is determined to be reportable defect in accordance with this order.

3.3 Aircraft Operator(s), Owner(s) and Maintenance Organization(s) shall maintain reports and statistical summaries of defects in accordance with procedures specified in the company's approved Maintenance Procedures Manual and/or Maintenance Control Manual as applicable. The procedures must mention the official responsible for complying with this order.

4. TIMELY REPORTING OF DEFECTS

4.1 Each reportable defect as mentioned in the section 4 and 5 of this order shall be notified to the Chairman, in writing by submitting Form CA-31, within 72 (seventy two) hours of the event.

4.2 Where the defect or failure is of a nature mentioned below, the Chairman (Attention: Airworthiness and Engineering Licensing Division) and the holder of the Type Certificate of the aircraft shall be notified by the fastest means (through telephone or any other expedient method):

(a) Primary structure failure;

(b) Flight control system failure;

(c) Engine/propeller control system failure;

(d) Fire in aircraft;

(e) Engine structure failure; or

(f) Any other condition considered an imminent hazard to safety.

4.3 In all cases including the above, formal notification shall be submitted in writing within 72 (seventy two) hours of the event.

4.4 Where a defect has resulted in an accident or serious incident, or incident, an appropriate formal report shall also be submitted to the Chairman in addition to the defect report.

4.5 Where the investigation of a reportable defect, as required by Section 8 of this Order, has not been completed at the time the defect is reported, the Aircraft Operator(s), Owner(s) and Maintenance Organization(s) shall provide the Chairman with current progress reports, and shall submit a final report on completion of the investigation.

5. REPORTABLE DEFECTS

5.1 It is important to recognize that judgment must be exercised by Aircraft Operator(s), Owner(s) and Maintenance Organization(s) to distinguish those faults, malfunctions, defects and other occurrences that might adversely affect continuing airworthiness from those, which would not affect continuing airworthiness. The following is not an exhaustive list of reportable defects, but is intended to provide guidance to Aircraft Operator(s), Owner(s) and Maintenance Organization(s) of some examples of reportable defects:

(a) Fire (actual or false warning) or smoke in aircraft;

(b) Leakage of gases from an engine or auxiliary power plant, exhaust system or duct which results in damage to the engine, power plant, adjacent structure, components or equipments;

(c) Smoke, toxic or noxious fumes in crew, passenger or freight compartments;

(d) Any type of engine shut down during flight;

(e) Inability to feather or un-feather a propeller, to shut down an engine, to control thrust or reverse thrust;

(f) Significant leakage or flow interruption of fuel, engine oil or hydraulic fluid;

(g) Failure or malfunction of a landing gear system or inability to achieve the intended aircraft configuration for any flight phase;

(h) Any failure of a wheel, tire or brake system, which could result in a compromise of ground operations;

(i) Defects of aircraft primary or auxiliary flight controls that result in control problems of an aircraft in flight;

(j) Damage, cracks, multiple loss of or missing fasteners, permanent deformation or corrosion (which is in excess of the specified limits) to an aircraft structure in flight or on the ground discovered during detailed check, routine maintenance, or unscheduled observation/inspection;

(k) Warnings of insecure doors or hatches during flights;

(l) Occurrences which result in the application of emergency or abnormal procedures by the flight crew during flight; e.g. pressurization failure, pneumatic or hydraulic failure etc;

(m) Complete or partial loss of electrical power, or failure of essential components of electrical systems or ECAM system;

(n) Hazardous information from, or failure of radio communications or navigation systems;

(o) Failure of any required emergency equipment to operate, or inadvertent operation that causes a hazardous situation;

(p) Premature or unscheduled removal of engines and propellers;

(q) Premature or unscheduled removal of components or parts having a hard time (HT) life limit;

(r) Build-up of ice beyond the capability of the ice-protection system on aircraft during flight;

(s) Each interruption to a flight, unscheduled change of aircraft en-route, or unscheduled stop or diversion from route, caused by known or suspected mechanical difficulties or malfunctions; and

(t) Any other occurrence that has endangered or may endanger the safe operation of an aircraft, or which may cause danger to persons or property.

6. CONTINUING AIRWORTHINESS INFORMATION-MONITORING, ASSESSMENT AND REPORTING OF MAINTENANCE AND OPERATIONAL EXPERIENCE WITH RESPECT TO AIRWORTHINESS

6.1 The operator of an aircraft over 5 700 kg and helicopters over 3175 kg maximum certificated take-off mass shall:

(a) Monitor and assess maintenance and operational experience with respect to continuing airworthiness; and

(b) Forward report/information to the manufacturer and the Chairman on faults, malfunctions, defects and other occurrences that cause or might cause adverse effects on continuing airworthiness of the aircraft.

6.2 In cases where performance of maintenance is either partially or wholly assigned by the operator to a maintenance organization, the assigned maintenance organization should report all maintenance action taken and all discrepancies found to the operator of the aircraft. The operator shall be responsible to monitor and assess both maintenance and operational experience and any mutual relationship. The operator must have the expertise to fulfill this task or make contractual arrangements to obtain this expertise.

6.3 The operator should report to the maintenance organization all known discrepancies and adverse operational experience relevant to the work contracted, thus enabling the contracted maintenance organization to correct any possible technical cause of an operational problem.

7. PROCEDURES FOR TRANSMISSION OF DEFECT INFORMATION

7.1 The Aircraft Operator(s), Owner(s) and Maintenance Organization(s) shall establish a system by including appropriate procedures in the Maintenance Procedures Manual (MPM) and /or Maintenance Control Manual (MCM), whereby report/information on faults, malfunctions, defects and other occurrences which cause or might cause adverse effects on the continuing airworthiness are submitted/transmitted to:

(a) The Chairman;

(b) Type Certificate holder of each aircraft operated and/or maintained by the operator; and

(c) Any other organisation as may be applicable.

7.2 The Chairman will also inform the airworthiness regulatory authority of the State of Design/Manufacturer regarding faults, malfunctions or defects that might cause adverse effects on the continuing airworthiness of the aircraft.

7.3 The report/information shall include adequate definitions of the defect and as much data as is available at the time of forwarding the report relating to the defect. Information and data not available at the time of forwarding the initial report should be forwarded later on. Examples of information and data that should be forwarded are shown as guidelines below:-

(a) A clear description of the defect, fault, malfunctions or other occurrences using visual aids where practical (photograph or sketch to be enclosed);

(b) Location;

(c) Nomenclature of the applicable part, part number and serial number;

(d) Aircraft and/or engine or propeller or component time in landings and flight hours (as applicable);

(e) Type of aircraft and serial number of the aircraft;

(f) How the defect was discovered e.g. routine check, special check, unscheduled observation, service bulletin, and in-flight experience;

(g) Analysis of cause including tests that have been performed;

(h) Action planned (if any);

(i) Assistance required (if any), from the type certificate holder responsible for the type design such as:

(i) Repair drawings;
(ii) Spare parts required;
(iii) Special tools etc.

(j) Whether the difficulty resulted in any adverse effects on other parts of the aircraft;

(k) Previous specific inspection or modifications of the part, if any, and when those actions were accomplished;

(l) Unique circumstances that occurred during flight or landing either before or after the damage was found; and

(m) Availability of defective parts for examination.

8. DEFECT INVESTIGATION

8.1 Aircraft Operator(s), Owner(s) and Maintenance Organization(s) shall ensure that each reportable defect is promptly and fully investigated to determine its cause, and that all necessary action is taken to prevent a recurrence.

8.2 Aircraft Operator(s), Owner(s) and Maintenance Organization(s) shall conduct, or cause to be conducted, any work relating to more detailed investigation of the cause and rectification of a reportable defect as the Chairman may require.

8.3 Except as provided in paragraph 8.4 of the Order, each defective part associated with a reportable defect shall be retained by the Aircraft Operator(s), Owner(s) and Maintenance Organization(s) for at least 30 (thirty) days following submission of the defect report.

8.4 Where a defective part is urgently required by the Aircraft Operator(s) or Owner(s) or Maintenance Organization(s), an application for its earliest release may be made to the Chairman.

9. PERIODICAL DEFECT SUMMARY

9.1 Except the defects mentioned under the sections 4 and 5 of this Order, other defects which do not warrant immediate notification to the Type Certificate holder, should be published as quarterly defect summary and in reliability report. The procedures must be mentioned in the Maintenance Procedures Manual and/or Maintenance Control Manual as appropriate.

This Order is issued in pursuance of the Rules 4, 208 and 209 of the Civil Aviation Rules 1984, is a complete re-issue and supersedes the Issue 3, dated 21 November 2004.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority, Bangladesh

CIVIL AVIATION AUTHORITY OF BANGLADESH
Airworthiness & Engineering Licensing Division

MANDATORY DEFECT / OCCURRENCE REPORT

<table>
<tr><td colspan="2">Name of the Owner/ Operator/Maint. Org.</td><td colspan="2">Aircraft Nationality & Registration Marks</td><td>Occurrence Date

Date Submitted</td><td>Type Certificate holder informed (Ref. ANO B.5)

Yes ☐ No ☐</td></tr>
<tr><td rowspan="2">Aircraft</td><td>Make</td><td>Model</td><td>Serial No.</td><td colspan="2">Location:</td></tr>
<tr><td></td><td></td><td></td><td colspan="2">Description of the Defect:</td></tr>
<tr><td>Powerplant</td><td></td><td></td><td></td><td colspan="2" rowspan="4"></td></tr>
<tr><td>Propeller</td><td></td><td></td><td></td></tr>
<tr><td colspan="4">System / Components / Parts</td></tr>
<tr><td>Nomenclature</td><td>Make</td><td>Model</td><td>Serial No</td></tr>
<tr><td></td><td></td><td></td><td></td><td colspan="2" rowspan="6">Rectification:</td></tr>
<tr><td colspan="4">Specific parts of the component causing trouble / defect</td></tr>
<tr><td>Nomenclature</td><td>Part No.</td><td colspan="2">Part/Defect Location</td></tr>
<tr><td></td><td></td><td colspan="2"></td></tr>
<tr><td>ATA Code</td><td>TSN (Hrs./Ldg)</td><td>TSO (Hrs./Ldg.</td><td>Condition</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="6">Phase of occurrence: Ramp ☐ Taxi ☐ Take-off ☐ Climb ☐ Cruise ☐ Descent ☐ Landing ☐

Or defect Pilot Reported ☐ Maintenance Discovered ☐ Ground Incident ☐</td></tr>
<tr><td colspan="6">Recommendation(s) for preventing recurrence:</td></tr>
<tr><td colspan="6">Additional comments (if any):</td></tr>
<tr><td colspan="6">Signature:

Name and Designation of the submitter:</td></tr>
</table>

FOR USE OF CIVIL AVIATION AUTHORITY

A. **Reviewed by:**_____ **Date of review:**_____

B. **ATA Code**

System / Chapter	Sub-System/Chapter	Subject / Unit

C. **Defect in brief (not more then 10 words):**_____

_____

_____

D. **Signature of defects data bank official:**

Signature: _____ Date:_____

E. **Further information required: Yes ☐ No ☐**
If yes, brief details to be mentioned:

F. **Action if any: AMS amendment ☐ COSL amendment ☐ No further action ☐**

The item is still open ☐ Closed ☐

G. **Remarks by Deputy Director, AELD:** _____

_____

_____

_____

H. **Signature and Date:**_____

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B - MAINTENANCE DIRECTIONS

CHAPTER B.6	**AIRCRAFT WEIGHT AND BALANCE CONTROL**

SECTIONS

1. GENERAL

1.1 This Order prescribes airworthiness standards for the control of aircraft weight and balance, empty weight, centre of gravity and aircraft loading.

1.2 The Chairman may approve procedures and weighing periods other than those prescribed in this Order through approval of an operators' General Engineering Manual.

2. DEFINITION

For the purpose of this Order the following definitions shall apply:

(a) **"Empty weight"** means the weight of the empty aircraft including items of equipment specified in the flight manual weight and balance report, fixed ballast, unusable fuel and full operating fluids including oil, hydraulic fluid and other fluids required for normal operation of aircraft systems, but not including potable water, lavatory precharge water and water intended for injection in the engines.

(b) **"Equipment list"** means a list of items of fixed installed equipment additional to those required by the basis of the aircraft type specification, and which shall form a part of the weight and balance report.

(c) **"Empty weight centre of gravity"** means the centre of gravity of an aircraft in its empty weight condition.

(d) **"Re-weight"** means the complete weighing of the aircraft and the preparation of a new weight and balance report and equipment list.

3. WELGHING STANDARDS

3.1 The weighing procedure shall be as prescribed by the aircraft manufacturer, or if no specific procedure is prescribed for the aircraft type, the procedure specified in Federal Aviation Administration (FAA) Advisory Circular AC 43.13-1A Chapter 13A or British Civil Aircraft Inspection Procedures Leaflet BL/1-11, or any other procedure acceptable to the Chairman shall be used.

3.2 Weighing equipment shall be of a type suitable for the purpose and shall have been calibrated and certified within the previous twelve months by a test facility acceptable to the Chairman.

4. WEIGHING PERIODS

4.1. All aircraft shall be weighed to determine the empty weight and empty weight centre of gravity prior to initial issue of a Certificate of Airworthiness, except that the Chairman may exempt the requirement when satisfied that the empty weight and empty weight centre of gravity provided by the manufacturer, or a weight and balance report issued by the airworthiness authority of the state from where the aircraft was exported, are given accurately.

4.2 Each aircraft shall be re-weighed at the interval specified in its CAAB approved maintenance schedule but in no case that the interval exceeds five years.

4.3 Each aircraft shall be re-weighed if the calculated weight change is greater than 2% of the empty weight, if the certifying engineer has reason to believe that the aircraft should be re-weighted, or at the request of an official of the CAAB.

5. CHANGE IN EMPTY WEIGHT CONDITIONS

5.1 If components or items of equipment with a fixed location are added, removed or repositioned in an aircraft, an amendment to the empty weight and center of gravity shall be calculated or the aircraft shall be re-weighted.

5.2 When a new empty weight centre of gravity has been determined by calculation without re-weight, an amendment to the flight manual weight and balance report shall be prepared by the certifying engineer, and the change recorded in the aircraft log book.

5.3 Each amendment to the effective weight and balance report shall be sequentially serial numbered, and shall include:

(a) An explanation of the change.

(b) The effective date of the change.

(c) A statement of the new empty weight and centre of gravity.

(d) A revised or replacement equipment list showing the items affected and the new or revised weights and/or moment arms, as applicable.

(e) A certificate of compliance for the revised weight and balance report.

6. CERTIFICATION

6.1 Weighing shall be supervised by, and the certificate of compliance on the aircraft Weight and Balance report certified by, the holder of an Aircraft Maintenance Engineer Licence in Category "A", Airframes, with a rating for the applicable group or type of aircraft, provided the maximum takeoff weight does not exceed 5700kg.

6.2 Weighing of aircraft having a maximum take-off weight above 5700 kg shall be supervised by, and a certificate of compliance on the aircraft weight and balance report certified by, an approved person who is so authorised in the operators CAAB approved General Engineering Manual.

6.3 Notwithstanding the requirements of paragraphs 6.1 and 6.2 of this Order, every person supervising the weighing of an aircraft and certifying the weight and balance report shall have had previous experience of aircraft weighing and weight and balance calculation under the supervision of an appropriately qualified and experienced engineer or approved person.

All data relating to the weighing of an aircraft shall be recorded in the presence of a representative of the CAAB.

6.4 On completion of weighing and recording, the aircraft weight and balance report shall be certified and submitted to the Chairman for approval and the approved report shall be inserted in the aircraft log book.

7. WEIGHING AND LOADING OF PASSENGERS AND CARGO

7.1 Unless otherwise approved by the Chairman, the weight of the crew, passengers and freight shall be determined by actual weighing.

7.2 Except where free seating for a particular aircraft type is permitted, passengers shall, following weighing, be allotted specific seats based on the computed centre of gravity position.

7.3 All freight shall be securely fastened at specific points provided in the aircraft and shall conform to the approved:

(a) Centre of gravity limits for the aircraft.

(b) Distribution of floor spacing for the compartment.

(c) Distribution of compartment load.

Issued in pursuance of the Civil Aviation Rules 1984, Rules 4, 143 and 191.

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B –– MAINTENANCE DIRECTIONS

CHAPTER B.7	QUALIFICATION OF POST HOLDERS

Sections	Title
1	GENERAL
2	DEFINITIONS
3	REQUIREMENTS
4	APPOINTMENT OF POST HOLDERS
5	POST HOLDER OF AN OPERATOR, AMO/PART 145, PART-M, CAMO AND TRAININIG ORGANIZATION
6	QUALIFICATIONS OF POST HOLDERS AND OTHER EXECUTIVE
7	NOTIFICATION ON JOINING ANOTHER ORGANISATION
APPENDIX -19	BIO-DATA OF ENGINEERING EXECUTIVES (FORM AWS-19)

1. GENERAL

1.1 The Order establishes the requirements of appointing post holders and their minimum qualifications who shall be responsible for maintenance, air operator management, quality functions and training activities as applicable, on behalf of a holder of Air Operator Certificate (AOC), Approved Maintenance Organization (AMO), Continuing Airworthiness Management Organization (CAMO) and Approved Maintenance Training Organization (AMTO).

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply.

3. REQUIREMENTS

3.1 The rules of the CAR 1984 requires that all organization engaged in aircraft operation shall provide adequate facilities including training to staffs for proper maintenance of aircraft, particularly in connection with introduction of new equipment into service.

3.2 Additionally, the Rule 295 of the CAR 1984 requires all commercial operators shall ensure that no appointment to any executive engineering post requiring high degree of technical experience shall be made within a commercial air operator and/or approved maintenance organization approval of the Chairman.

3.3 Approval of the Chairman must be obtained through submitting application with Form-4 or Form AWS-19 and enclosing a BIO-DATA of the concerned persons(s) along with attested copies of the pertinent certificates and documents, at the very initial stage during application for grant of an AOC/AMO/ATO/CAMO.

4. APPOINTMENT OF POST HOLDERS

4.1 Formal appointments to post holders appropriate to the organizations' requirements shall be made only after approval of the Chairman and in accordance with the procedures mentioned in this Order. A foreign national requires necessary permission from Bangladesh Investment Development Authority (BIDA).

4.2 Similarly, any change in any position(s) of previously approved executive(s) shall only be made after obtaining approval of the Chairman.

5. POST HOLDERS OF AN OPERATOR, AMO/PART 145, PART-M, CAMO AND TRAINING ORGANIZATION

5.1 An AOC/CAMO Organization engaged under rule 190 of the CAR'84 shall appoint appropriately qualified and experienced persons for each of the following or equivalent posts as minimum, for which approval of the Chairman must be obtained:

(a) Head of Engineering/Continuing Airworthiness Management Organization (CAMO) Manager;
(b) Quality Assurance Manager

5.2 An Approved Maintenance Organization engaged in maintenance of aircraft and components under rule 190 of the CAR'84 shall appoint appropriately qualified and experienced persons for each of the following or equivalent posts as minimum, for which approval of the Chairman must be obtained:

(a) Maintenance Manager;
(b) Quality Assurance Manager

5.3 A Maintenance Training Organization engaged under rule 190 of the CARs, 1984 shall appoint appropriately qualified and experienced persons for each of the following or equivalent posts as minimum, for which approval of the Chairman must be obtained:

(a) Training Manager;
(b) Quality Assurance Manager;
(c) Examination Manager;

5.4 In addition to above mentioned posts mentioned in the paragraph 5.1, 5.2 & 5.3 depending on the size and the extent of operational activities under taken by the organization; there may be a requirement for hiring additional posts.

5.5 The actual titles of the persons appointed in accordance with this ANO may differ from that stated in this Order, provided that the duties and responsibilities of the persons appointed comply with the requirements of relevant ANO(AW) against which the organizational certification to be made.

6. QUALIFICATIONS OF POST HOLDER AND OTHER EXECUTIVES

6.1 Maintenance Manager shall:

(a) Hold/ have held type rated AME License or be a Bachelor of Engineering in Aeronautical / Aerospace / Avionics / Mechanical / Electrical / Electronic engineering from a recognized Institute or University;

(b) Have at least 5 (five) years of working experience in an approved maintenance organization in a supervisory position or as an auditor in an airworthiness inspection organization ; or

Personnel from military aviation must have 5 (five) years of working experience in maintenance in addition 2 (two) years in approved civil aircraft maintenance organization/operator as supervisor/manager; and

(c) Have successfully completed ANO (AW) Part-66, Module-10 course; and

(d) Comprehensive knowledge on the Human Factor principal and Safety Management System.

6.2 Quality Assurance Manager shall:

(a) Hold/ have held basic AME License/instructor or be a Bachelor of Engineering in Aeronautical / Aerospace / Avionics / Mechanical / Electrical / Electronic engineering from a recognized Institute or University; or

Hold / have held Diploma in Aeronautical Engineering or Aircraft Maintenance Engineering for organization having registered Group 3 aircraft;

(b) Have at least 2 (Two) years working experience in supervisory position in a maintenance organization and 3 (three) years working experience as an authorized quality assurance auditor; or 06 (six) years working experience as an authorized quality assurance auditor or 05 (five) years working experience as an auditor in an airworthiness inspection organization; and

(c) Have successfully completed ANO (AW) Part-66, Module-10 course; and

(d) Have successfully completed Quality course; and

(e) Comprehensive knowledge on the Human Factor principal and Safety Management System.

6.3 CAMO Manager shall:

(a) Hold a degree in Bachelor of Engineering in Aeronautical / Aerospace / Avionics / Mechanical / Electrical / Electronic Engineering from a recognized Institute or University; or

Bachelor in Science background with 3 (three) years of additional experience in continuing airworthiness management function of AOC holder; and

(b) Have at least 5 (five) years of experience in the continuing airworthiness management function of AOC holder or in an airworthiness inspection organization; and

(c) Comprehensive knowledge on the Human Factor principal, ANO (AW) Part-M and Civil Aviation Rules, 1984.

(d) Completion of familiarization course on at least 1 (one) type of aircraft available in the AOC Operation Specification; and

6.4 Training Manager shall:

(a) Be a Bachelor of Engineering in Aeronautical / Aerospace / Avionics / Mechanical / Electrical / Electronic engineering from a recognized Institute or University;

(b) Have at least 5 (Five) years of experience as instructor in an approved Training organization or in an airworthiness inspection organization;

(c) Comprehensive knowledge on the Human Factor principal, Quality System and relevant regulations.

6.5 Examination Manager:

(a) Hold/ have held instructor approval or be a Bachelor of Engineering in Aeronautical / Aerospace / Avionics / Mechanical / Electrical / Electronic engineering from a recognized Institute or University;

(b) Have at least 5 (five) years of experience in an approved Training organization or in an airworthiness inspection organization;

(c) Comprehensive knowledge on Human Factor principal, relevant regulations and question bank methodology.

7. NOTIFICATION ON JOINING ANOTHER ORGANISATION

7.1 Approval of executive(s) as mentioned in this Order is valid during employment of the concerned person(s) with the Organization, unless revoked or suspended by the Chairman.

7.2 It is the responsibility of both the organization and the concerned executive(s) to inform the Chairman at the earliest in case of the executive(s) leaves an Organization and joins in another organization. In such case(s) both organization shall revise their exposition manual to reflect the current situation after obtaining formal approval of the Chairman.

ENTRY INTO FORCE:

Issued in pursuance of the Rules 4, 212, 190 and 295 of the Civil Aviation Rules, 1984 is a complete re-issue and supersedes the ANO (AW) B.7, issue-5, dated 9 February 2010, which stands cancelled.

Air Vice Marshal Ehsanul Gani Choudhury
GUP, ndu, psc
Chairman
Civil Aviation Authority, Bangladesh

CIVIL AVIATION AUTHORITY OF BANGLADESH
Airworthiness & Engineering Licensing Division

Please attach a copy of recent passport size photograph

Bio-data of Engineering Executives

S/N	Description	Information
01	Name of the Engineering Executive	
02	Name and Address of the Operator	
03	Designation as per ANO (AW) B.7 and Contact telephone No.	
04	Present and Permanent Address	
05	Date of Birth	
06	Nationality (Passport No. and copy of BOI Work Permit in case of Foreign National)	
07	Academic Qualifications (Post Graduation, Graduation, Diploma, Others in Aeronautical Engineering or Aircraft Maintenance Engineering)	
08	Professional Qualifications (AME License No. or Membership of a professional institute i.e. IEB or Foreign Aeronautical Society/Institute)	
09	Period of Maintenance Experience as per ANO (AW) B.7	
10	Special Courses Completed (if any) (Aircraft Type Course, Quality Audit, Maintenance Management & Planning, Aircraft Accident Investigation, Safety Management System etc.)	
11	Any other Information	

Declaration: I do hereby declare that the information stated above is true and I am aware of all the requirements mentioned in the ANO (AW) B.7.

_____
Signature & Date

Certified by:

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B - MAINTENANCE DIRECTIONS

CHAPTER B.8	**AIRCRAFT MINIMUM EQUIPMENT LIST**

1. GENERAL

1.1 This Order specifies the applicability and limitations, and the procedures for development and approval of Minimum Equipment Lists (MEL) for certain aircraft operated in Bangladesh.

1.2 An aircraft is designed to achieve a certain level of safety. When any one system, instrument or equipment becomes inoperative, the design level of safety is reduced. With modern aircraft, it is usual to provide extra redundancy in some systems to enable the aircraft to take off and complete a flight with acceptable margins of safety even if, for example, one channel of a system has failed during a previous flight. Minor deficiencies, even without the provision of extra redundancy which do not too seriously affect safety, may be acceptable for an occasional flight.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rule 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the rules, the under mentioned definitions shall apply:

(a) **"Essential aircraft equipment"** means an item, component or system installed in an aircraft that;

(i) has a primary role of providing information or performing a function required by regulation, or

(ii) is directly related to airworthiness of aircraft.

(b) **"Inoperative"** means, in relation to an item, component or system that the item, component or system malfunctions to the extent that it does not accomplish its intended purpose or is not consistently functioning within its designed operating limits or tolerances.

(c) **"Master Minimum Equipment List"** means a list established for a particular aircraft type by the organisation responsible for the type design with the approval of the State of Design containing items, one or more of which is permitted to be unserviceable at the commencement of a flight. The MMEL may be associated with special operating conditions, limitations or procedures.

(d) **"Minimum Equipment List"** means a list which provides for the operation of aircraft, subject to specified conditions, with the particular equipment inoperative, prepared by an operator in conformity with, or more restrictive than, the MMEL established for the aircraft type registered in Bangladesh and with the approval of the Chairman, Civil Aviation Authority of Bangladesh.

3. APPLICABILITY

3.1 This Order applies to all Bangladesh registered aircraft type for which there is a Master Minimum Equipment List (MMEL) established by the organisation responsible for the type design in conjunction with the State of Design.

4. FORMAT AND CONTENTS

4.1 A MEL shall be submitted in 3 (three) rings binder (height of the binder not exceeding 12.25 inch and of appropriate thickness).

4.2 Title of the document and name of the operator (e.g. XYZ Airlines as appropriate) shall be mentioned on the front face and the spine side of the MEL.

4.3 Pages of the MEL shall be printed on thick paper, preferably having thickness of 100 GSM or above to reduce possibility of tearing from the binder during frequent reference and handling.

4.4 Each operator shall be required to produce an MEL appropriate to his own routes and procedures within the limitations defined by the MMEL and shall ensure the following:

(a) The MMEL has all the latest revisions approved by the regulatory authority of the country of design/ manufacture.

(b) Each MEL shall have a list of effective pages and a system of cross reference to MMEL revision number.

(c) The operator shall specify his philosophy for invoking MEL in the preamble to the MEL.

(d) Where included in the MMEL, the Preamble to the MEL shall define the rectification interval of the defects. In general, the MEL items may be categorized as follows:

(i) **Category 'A'**: Items in this category shall be repaired within the time interval specified in the remarks column of the MEL.

(ii) **Category 'B':** Items in this category shall be repaired within 3 (three) consecutive calendar days, excluding the day the malfunction was recorded in the aircraft maintenance record/logbook. For example, if it were recorded at 10 a.m. on January the 26th, the 3 day interval would begin at midnight of the 26th and end at midnight of the 29th.

(iii) **Category 'C':** Items in this category shall be repaired within 10 (ten) consecutive calendar days, excluding the day the malfunction was recorded in the aircraft maintenance record/logbook. For example, if it were recorded at 10 a.m. on January the 26th, the 10 day interval would begin at midnight of the 26th and end at midnight of February 5th.

(iv) **Category 'D'**: Items in this category shall be repaired within 120 (one hundred and twenty) consecutive calendar days, excluding the day the malfunction was recorded in the aircraft maintenance log and/or record.

(e) For the purpose of categorization, the 'Flight Day' as used in the MEL shall mean a 24 hour period (from midnight to midnight) either in UTC (for international and domestic operator) or in Bangladesh Local Time (for domestic operators only).

(f) The preamble of the MEL shall also stipulate that whenever the MEL is invoked, the flight dispatch shall be informed.

(g) The preamble shall include the procedures of acceptance of defects and the requirement of making technical entries in Aircraft Technical log. Procedure for invoking MEL after commencement of flight (chocks off) shall also be included.

(h) Explanation of the following shall be included in the preamble;

(i) 'O' (Operational) & 'M' (Maintenance) items;

(ii) ETOPS items, RVSM items and other comments on MEL items.

4.5 The regulatory requirements referred to in the MMEL such as TCAS, GPWS, CVR, DFDR, Emergency Escape Path Mark lighting etc. should be included based on the relevant requirements in the ANOs.

4.6 While seeking approval, the operator shall submit a certificate that the MEL has been prepared in consultation with the operations department or shall be submitted under joint signature of the maintenance and operation departments.

4.7 The MEL shall include all the maintenance and operational procedures given by the manufacturer in Dispatch and Deviation Procedures Guide (DDPG)/operations procedures.

4.8 For items not included in the MMEL, but forming part of the MEL, due justification for the same shall be provided by the operator.

4.9 The operators MEL shall also include the relevant definitions and abbreviations.

4.10 Each minimum equipment list shall contain a list of essential aircraft equipment which may be inoperative, but without which the aircraft can be operated at an acceptable level of safety for limited periods.

4.11 Each minimum equipment list shall include operating limitations and maintenance procedures, as required, for any essential aircraft equipment included in the minimum equipment list.

4.12 A minimum equipment list need not to include any item, component or system that is not essential for flight and does not directly affect the airworthiness of the aircraft.

4.13 All items which may affect the airworthiness of the aircraft and which are not included in the minimum equipment list are required to be operative.

4.14 The manual must contain en-route flight navigation and communications procedures for the continuance of flight if any item or equipment required for the operation becomes unserviceable en-route. The manual must also cover requirements and procedures for dispatch with unserviceable equipment.

5. LIMITATIONS

5.1 Where a master minimum equipment list has been established for a particular type of aircraft, a minimum equipment list shall not be approved for that type of aircraft unless it complies with the minimum standards set out in that master minimum equipment list.

5.2 No operator shall operate an aircraft if any essential aircraft equipment is inoperative unless in compliance with a minimum equipment list.

5.3 Notwithstanding the requirement of paragraph 5.2 of this Order, aircraft maintenance engineer shall not release an aircraft for flight, nor a pilot accept an aircraft if it is considered to be unsafe.

5.4 An operator shall establish, obtain the Chairman's approval and publish internal procedures for compliance with the conditions specified in the minimum equipment list.

5.5 An operator shall establish, obtain the Chairman's approval and publish procedures for making repairs or replacements to equipment specified in the minimum equipment list to ensure that the aircraft does not operate for an unacceptable period of time with essential aircraft equipment inoperative.

5.6 Where a minimum equipment list has been established for a type of aircraft, a copy of the list shall form a part of the Operations Manual for that type and a copy shall be carried in each aircraft of that type during flight.

6. OPERATOR’S RESPONSIBILITIES

6.1 The operator is responsible for exercising the necessary operational control to ensure that aircraft are not dispatched with multiple MEL items inoperative without first determining that any interface or interrelationship between the inoperative systems or components will not result in degradation in the level of safety or an undue increase in crew workload.

6.2 The MEL is not intended to provide for continued operation of the aircraft for extended periods with MEL items unserviceable. In the case of unserviceable MEL items, the operator should generally make repairs at the first station where repairs or replacement may be made, but in any case repair should be accomplished at the flight termination station, since additional unserviceabilities may require the aircraft to be removed from service.

7. USE OF MEL

7.1 Operator shall mention in the Maintenance Procedures Manual as to when or where an inoperative item shall be required to be replaced.

7.2 Operator (Quality Control Manager) shall be responsible for exercising necessary control to ensure that no aircraft is dispatched with multiple items inoperative, which will increase the flight crew workload. In such cases, the Pilot-in-command shall be consulted.

7.3 Notwithstanding the MEL, an AME need not to certify the aircraft for 'Flight' or Pilot-in-command need not to accept the aircraft for flight if it is considered that it is unsafe to do so.

7.4 The AME responsible for releasing the aircraft, after invoking the provisions of MEL, shall inform the Pilot-in-command of the aircraft and also make a mention of it in the Aircraft Maintenance Log and placard the inoperative system suitably. He should take maintenance action as prescribed in Dispatch Deviation Guide / Procedure Manual and flight crew should take operation action as mentioned in the above guide. Dispatch Deviation Guide should be on board.

7.5 As a normal practice, the defects carried forward under MEL shall be rectified and deficiencies shall be made good at the first available opportunity where facilities exist.

8. APPROVAL PROCEDURES

8.1 An operator shall submit for the Chairman's approval a minimum equipment list for each type of aircraft that he operates.

8.2 While submitting the MEL and its revisions for approval, the operator shall ensure that these conform to the latest revision of MMEL. The MMEL revision number shall be indicated on the MEL.

8.3 The MEL shall be approved by AELD after ensuring that it conforms to the MMEL, the regulatory provisions covering maintenance aspects and based on the operational clearance from Flight Inspection.

8.4 Approval of any revision/amendment to the MEL shall be done following the same procedure as given above.

Issued in pursuance of Civil Aviation Rules, 1984, Rules 4, 195 and 204, is a complete re-issue and supersedes issue 1, dated 1st August 1990.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority, Bangladesh

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B – MAINTENANCE DIRECTIONS

CHAPTER B - 9	**AIRWORTHINESS DIRECTIVES**

SECTIONS

1. GENERAL

1.1 This order prescribes the procedure for notification of mandatory modifications, inspections or servicing by means of airworthiness directives for civil aircraft registered in Bangladesh.

1.2 Aircraft and aircraft equipment manufacturers issue requirements in the form of service bulletins to be complied with by aircraft owners/operators. The regulatory authority of the country of origin of the aircraft, as defined in ANO A. 1, may reissue such bulletins of additional mandatory requirements in the form of airworthiness directives or equivalent.

2. DEFINITIONS

2.1 For the purpose of this order the following definitions shall apply.

(a) **"Airworthiness directive"** means any modification, inspection or servicing task considered essential to the airworthiness of an aircraft and declared mandatory by the regulatory authority of the country of origin of the aircraft or by the Civil Aviation Authority, Bangladesh.

(b) **"Aircraft"** means the airframe, engines, propellers and all other items of installed equipment.

3. REQUIREMENT

3.1 All airworthiness directives when declared to be mandatory by the airworthiness authority of the country of origin are deemed to be mandatory for the same type of aircraft which are on the Bangladesh Register of Civil Aircraft unless varied or otherwise approved by the Chairman.

3.2 Additional airworthiness directives that may be issued by the Chairman shall be notified to operators by the CAAB.

3.3 Where changes to airworthiness directives, including their implementation procedures, are considered necessary by an aircraft owner/operator, prior approval by the Chairman shall be required.

3.4 The Chairman shall provide details to owners/operators relating to any changes to airworthiness directives, including their implementation procedures, as he considers necessary.

4. REVISION OF DOCUMENTS

4.1 Amendments to maintenance schedules, maintenance manuals, flight manuals, operations manuals and any other required documents affected by the incorporation of airworthiness directives shall be accomplished and provided to the Chairman no later than thirty days after the effective date of the directive.

5. RECORDING AND CERTIFYING

5.1 Accomplished airworthiness directives relating to each affected aircraft shall be certified and recorded in accordance with the requirements of Chapters B.3 and B.4 of these Orders.

5.2 Where an airworthiness directive is not applicable to a specific aircraft, a brief explanation as to why it does not apply to the specific aircraft shall be recorded in the appropriate record prescribed in Chapter B.4 of these Orders.

6. MANUFACTURER'S BULLETINS

6.1 Guidelines for compliance with aircraft and aircraft equipment manufacturer's alert bulletins, service bulletins, maintenance schedule revisions, cables or equivalent notification are contained in Airworthiness Notice No. 22.

Issued in Pursuance of Civil Aviation Rules, 1984, Rule 4 and Rule 191.

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B – MAINTENANCE DIRECTIONS

CHAPTER B.10	**DUPLICATE INSPECTION AIRCRAFT CONTROLS**

SECTIONS

1. GENERAL

1.1 This Order prescribes the procedures for performing duplicate inspections of aircraft control systems.

1.2 The purpose of separate inspections and certification thereof by two authorized persons is to ensure that all parts and components of aircraft control systems are correctly assembled, adjusted and secured and that they respond in the correct direction over the specified operating range when operated from the aircraft cockpit.

2. DEFINITIONS

2.1 For the purpose of this Order the following definitions shall apply:

(a) **"Control system"** means a system by which the flight path, attitude, or propulsive force of an aircraft is changed, including the flight, engine and propeller controls, the related system controls and the related operating mechanisms.

(b) **"Duplicate inspection"** means an inspection first made and certified by one qualified person and subsequently made and certified by a second qualified person.

(c) **"Independent inspection"** means a certified inspection made by a qualified person and which is the second part of a duplicate inspection.

3. APPLICABILITY

3.1 Duplicate inspection and certification of aircraft flight and powerplant controls shall apply to:

(a) All control systems following initial assembly and following overhaul of any aircraft prior to first flight.

(b) The affected control system(s) following repair, replacement, modification or adjustment.

4. PROCEDURES

4.1 Where any maintenance disturbs a system by which the flight attitude or propulsive force of an aircraft is controlled, the person signing the maintenance release in respect of that maintenance shall ensure that an independent check is made for correct assembly, locking, range of travel and sense of operation of the system disturbed.

4.2 No person shall perform an independent check required by paragraph 4.1 of this Order who has been directly involved in the assembly of the control system being checked.

4.3 The duplicate inspection shall be the final operation to establish the integrity of the control system when all the work has been completed.

4.4 Where it is not possible to inspect the complete control system because of routing through conduits, boxed in sections and pre-sealed units, the persons performing the inspections shall verify that a duplicate inspection has previously been made on the inaccessible areas, and that the pre-sealed or its are acceptable for the particular use.

4.5 Control systems subject to duplicate inspections shall not be disturbed or readjusted after the first certified inspection.

4.6 The second part of a duplicate inspection shall follow immediately after the first part.

4.7 If a control system is disturbed after completion of the duplicate inspection, that part which has been disturbed shall again be inspected in duplicate before the aircraft flies.

5. AUTHORISED PERSONS

5.1 Persons authorised to make the first and/or second part of a duplicate inspection are:

(a) An appropriately type rated aircraft maintenance engineer.

(b) An authorised representative of an organisation appropriately approved by the Civil Aviation Authority, Bangladesh.

(c) Any other person authorised by the Chairman

6. CERTIFICATION

6.1 Separate certifications relating to each inspection shall be made in the appropriate sections of the aircraft log books pursuant to Chapters B.3 and B.4 of these Orders.

Issued in pursuance of Civil Aviation Rules, 1984, Rule 4 and Rule 191.

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B- MAINTENANCE DIRECTIONS

CHAPTER B.11	DIRECT READING MAGNETIC COMPASSES AND AIRCRAFT INSTRUMENTS OVERHAUL & PERIODICAL INSPECTIONS

1. GENERAL

1.1 All aircraft registered in Bangladesh, are required to have installed a serviceable and compensated Direct Reading Magnetic Compass. Similarly, aircraft instruments shall be overhauled and inspected in accordance with the requirements of this part of the ANO (AW) except where different requirements have been specified by manufacturer of an aircraft and entered into an operator's approved Aircraft Maintenance Schedule or in other similar documents approved or issued by the Chairman.

1.2 The periodical inspection checks for ascertaining the accuracy of instruments may be made "in-situ" if possible.

1.3 Instruments which on test are found defective and do not conform with the manufacturer/ Civil Aviation Authority of Bangladesh requirements, shall be required to be maintained/ inspected as per manufacturer's/ Civil Aviation Authority of Bangladesh requirements, by persons approved for the purpose or shall be replaced with serviceable instruments.

1.4 Instruments shall be inspected prior to installation to ensure that:

(a) The instruments are approved for the type aircraft;

(b) The range of the dial marking is adequate to reflect correct operation of the aircraft, power plant or equipment and to precisely indicate the appropriate operating limitations;

(c) The range of any colored sectors marked on instrument dials corresponds with the ranges specified in the aircraft flight manual or aircraft/ engine manufacturer's manuals as applicable.

1.5 At times aircraft manufacturers recommend "on-condition" maintenance programme for some of the aircraft components, including aircraft instruments. This type of maintenance means specifying intervals or inspecting/ testing the concerned units of aircraft to determine reduction in failure resistance before the failure occurs of becomes critical.

1.6 These inspections/ testing may be on the aircraft or at a maintenance facility. Before operators adopt this type of maintenance in preference to "Hard time limits", as far as periodical servicing of aircraft components is concerned, they shall submit to CAAB details of programme of repetitive inspections/ tests for approval and include in Quality Control cum Maintenance System Manual.

1.6 However the inspection/ test intervals achieved by an operator may be followed with prior concurrence of CAAB, by other operators, operating similar equipment, provided operating and environmental conditions are similar.

1.7 All maintenance (including overhaul) shall be performed and certified in accordance with the manufacturer's and/ or CAAB's requirements.

2. MAGNETIC COMPASSES:

2.1 Magnetic compasses shall be inspected at the time of installation to ensure that:

(a) There are no signs of leakage of the liquid;

(b) Bubbles, excessive sediment and discoloration are not present in the liquid;

(c) The pivot friction does not exceed the manufacturer's tolerances. Where such tolerances are unknown, the pivot friction shall be determined by deflection the compass needle 10 (ten) degrees and allowing it to return to the magnetic meridian. The change in indication from the original heading shall not exceed 2 (two) degrees;

(d) The compass is swung and correction card is in place in the aircraft; and

(e) The compass mounting is satisfactory.

2.2 Calibration and compensation:

2.2.1 Following are the circumstances under which direct reading aircraft magnetic compasses, as installed in aircraft, shall be calibrated and compensated:

(a) At the time of initial installation of a compass;

(b) At periods as specified by the manufacturer;

(c) After major repair of the aircraft, replacement of an engine mounted in the forward fuselage, or on installation/ removal/ replacement of any magnetic material in the vicinity of the compasses;

(d) After installation of a new electrical system or major modification of the existing electrical system in the vicinity of compass, in which case the calibration shall be made with the electrical and radio service operating in straight and level flights;

(e) After installation of geophysical survey equipment or other equipment likely to have a strong external magnetic field;

(f) Whenever a direct reading compass or a magnetic sensing element is changed or relocated;

(g) Whenever the correct functioning of a compass is in doubt, or excessive deviations have been found in flight observations;

(h) After an aircraft has passed through an electrical storm;

(i) Whenever a physical damage, discoloration of fluid or presence of bubbles in the fluid is observed; and

(j) After an aircraft is subjected to a serve shock as in the case of a heavy landing.

Note:- *compass compensation shall be conducted in accordance with the General Rules of compensation in vogue and whenever compasses are calibrated and /or compensated appropriate entry shall be made in the aircraft log book.*

3. AIRCRAFT INSTRUMENTS OVERHAUL AND PERIODICAL INSPECTION PERIODS:

3.1 The overhaul and periodical inspection periods specified in this part of the ANO (AW) shall be calculated:

(a)From the date of the last overhaul; or

(b) From the date of installation in the aircraft if, prior to installation and following overhaul the instrument had been stored in accordance with accepted practices for the storage of instruments; or

(c) In the case of imported aircraft when neither of the dates specified in sub-paragraph (a) and (b) above is known, from the date of issue or last renewal of the aircraft Certificate of Airworthiness.

3.2 Where the manufacturer/ vendor's recommendations are not available with regard to the overhaul and inspection periods of instruments, the periods as specified in the following table shall be followed.

Instrument	**Maximum Overhaul Period**	**Periodical Inspection Period**
Gyro horizon indicators, Directional gyro indicators, Automatic pilots (gyro units only)	2 years/ 1000 hours (whichever is earlier)	—
Automatic pilot (except gyro units) Airspeed indicators and pilot static system. Turn & bank indicators.	3 Years/ 2000 hours (whichever is earlier).	—
Vertical speed indicators (Rate of Climb indicators). Tachometers (RPM indicators). Fuel flow contents gauge and fuel flow gauge. Manifold pressure gauges in piston engine and such pressure gauges of jet engines utilized for engine power output indication, Engine Oil pressure gauges, Magnetic compasses, Watches.	3 Years/ 2000 hours (whichever is earlier).	—
Altimeters	2 years.	---
Thermometers, pressure and vacuum gauges (except the pressure gauges mentioned in the preceding column), Ammeter and voltmeters and position indicators.	To be decided by Organisation	Bench Check every (3) three years.

Note: *Overhaul/ periodical inspection periods in respect of instruments other than those indicated above, will be notified by the CAAB on specific request.*

3.3 Inspection Procedure:

3.3.1 At the periodical inspection period of the instruments specified in paragraph no. 3.2 of this series:

(a) The accuracy of instruments shall be checked against an appropriate test instrument to ensure that the instrument operators correctly in accordance with the manufacturer's requirements.

Note: Test instruments shall conform to the requirements of the manufacturer and / or CAAB.

(b) Magnetic compasses shall be inspected to ensure compliance with the requirements of Paragraph no. 2 of this ANO (AW).

(c) The instruments shall be overhauled/ bench checked by an approved agency and certified by an appropriately licensed Aircraft Maintenance Engineer or persons approved for the purpose. However, time pieces (clocks, watches) installed on aircraft having all up weight below 3000 Kgs. can be overhauled/ repaired by any of the reputed commercial watch makers/ watch repairing agencies.

4. COLLECTION OF OPERATIONAL DATA.

4.1 In their own interest operators are advised to ask instruments overhauling agencies to furnish them with serious defects (not routine wear and tear) with come to their notice during overhauling/ servicing of time expired/ prematurely removed instruments. This data may be called for by CAAB for future life development of instruments.

5. STORAGE/ SHELF LIFE:

5.1 The instruments must be stored in accordance with the accepted practices under controlled temperature in a dry, even temperature, and the storage limiting period recommended by the manufacturer is not exceeded and the humidity not exceeding 70% conditions.

5.2 The storage place must be dust free. As far as possible original manufactures/ overhauling agencies packing should be retained. In the absence any specific recommendation by the manufacturer the storage limiting period should not exceed 3 (three) years and on completion of this the item should be recertified in accordance with the relevant overhaul manual. Additionally, any equipment containing gyro assemblies should be exercised and gyro wheels run for a period of 24 (twenty four) hours at the completion of periods not exceeding each 12 (twelve) months of storage.

5.3 Normally the storage/ shelf life of instruments should be as per manufacturers/ overhauling agencies recommendations. However in the absence of any specific guidance from the manufacturers/ overhauling agency, the shelf life of instruments (other than gyro instruments) should not exceed 2 (two) years. On completion of this period such instruments shall be subjected to overhaul in accordance with the approval Overhaul Schedules.

5.4 Instruments which require periodic lubrication must be removed from storage and lubricated by appropriately licensed/ approved personnel at periods as recommended by manufacturers and records maintained in this regard.

5.5 Instruments whose storage conditions are not in accordance with accepted practices, must be considered as unserviceable requiring complete overhaul.

5.6 The shelf life of gyro instruments must not exceed 2 (two) years but at the end of first year in shelf, such instruments should be exercised as per approved test schedules and bearing lubricated as per manufacturer's recommendations.

5.7 The shelf life for each type of instruments must be reflected in the operators approved Quality Control Manual/ Maintenance System Manual.

5.8 The shelf life must be also be indicated on the serviceable tag, issued by the Overhauling Agency, accompanying the instrument/ equipment.

5.9 Instruments installed on aircraft which has not been operated for a continuous period of 6 (six) months, shall be subjected to bench check before use.

Issued in pursuance of the rules 4, 107 and 191 of the Civil Aviation Rules, 1984, is a complete re-issue and supersedes the ANO (AW) B.11, Issue–1, dated 1st August 1990, which stands cancelled.

Air Vice Marshal Mahmud Hussain, ndc, psc
Chairman
Civil Aviation Authority of Bangladesh

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B - MAINTENANCE DIRECTIONS

CHAPTER B.12 - ALTIMETERS AND PITOT AND STATIC PRESSURE SYSTEMS TESTING AND INSPECTION

SECTIONS

1. GENERAL

1.1 This Order prescribes the standards and procedures for periodically inspecting and testing altimeters and static pressure systems, and establishes the requirement for inspecting and testing the pitot and static pressure systems following certain maintenance.

2. DEFINITIONS

2.1 For the purpose of this order, **"altimeter"** is defined as any air data computer or other barometric device providing a flight crew station or an automatic pilot or automatic pressure altitude reporting system with altitude data derived from static pressure.

3. PERIODIC INSPECTION AND TEST

3.1 Unless authorised by the Chairman, no aircraft shall be operated in Bangladesh under visual flight rules in controlled airspace or under instrument flight rules unless, within the preceding 24 months, each installed altimeter has been calibrated and each static pressure system installed in the aircraft has been tested and inspected in accordance with the procedures prescribed in Sections 5 and 6 of this Order.

4. INSPECTION AND TEST FOLLOWING MAINTENANCE

4.1 Any work involving the opening or closing of the pilot or static pressure systems, other than the use of system drain and alternate static pressure valves, shall, prior to the next flight, be tested and inspected and found to be properly connected and free of leaks.

NOTE: The standards and procedures established in Sections 5 and 6 of this Order minimum requirements, and are not intended to supersede aircraft or equipment manufacturers' procedures. Manufacturers' manuals shall be referred to and followed at all times during the performance of these tests.

5. PROCEDURE - STATIC PRESSURE SYSTEM TEST

5.1 Each person performing the altimeter system test and inspection required by this order shall comply with the following:

(a) Ensure freedom from trapped moisture and restrictions.

(b) Determine that the static port heater, if installed, is operative.

(c) Ensure that no alterations or deformities of the airframe surface have been made that would affect the relationship between air pressure in the static pressure system and true ambient static air pressure under any flight condition.

(d) When all other work has been completed on each static pressure system, determine that the leakage rate of the system is within the following tolerances:

(i) Unpressurized aircraft - evacuate the static pressure system to a pressure differential of approximately 1 inch of mercury or to a reading on the altimeter 1000 feet above the aircraft elevation at the time of test, without additional pumping for a period of one minute, the loss of indicated altitude shall not exceed 100 feet on the altimeter.

(ii) Pressurized aircraft - evacuate the static system until a pressure differential equivalent to the maximum cabin pressure differential for which the aircraft is type approved is achieved, Without additional pumping for a period of one minute, the loss of indicated altitude shall not exceed two percent of the altitude equivalent to the maximum permitted cabin differential pressure or 100 feet, whichever is greater.

6. PROCEDURE - ALTIMETER TEST AND INSPECTION

6.1 Altimeter tests shall be performed in accordance with the following paragraphs, by an organisation which has been approved by the Chairman for that purpose, Unless otherwise specified, each test for performance may be conducted with the instrument subjected to vibration. When tests are conducted with the ambient temperature substantially different from an ambient temperature of approximately 25 degrees C., allowance shall be made for the variation.

(a) Scale error - with the barometric pressure scale at 29.92 inches of mercury, the altimeter shall be subjected successively to pressures corresponding to the altitude specified in Table I, up to the maximum normally expected operating altitude of the aircraft in which the altimeter is to be installed. The reduction in pressure shall be made at a rate not greater than 20,000 feet per minute to within approximately 2,000 feet of the test point. The test point shall be approached at a rate compatible with the test equipment. The altimeter shall be kept at the pressure corresponding to each test point for at least one minute, but not more than ten minutes, before a reading is taken. The error at all test points must not exceed the tolerances specified in Table I.

(b) Hysteresis - the hysteresis test shall begin not more than 15 minutes following initial exposure of the altimeter to the pressure corresponding to the upper limit of the scale error test, and while the altimeter is at this pressure. Pressure shall be increased at a rate simulating a rate of decent of 5,000 to 20,000 feet per minute until within 3,000 feet of the first test point (GO percent of maximum altitude). The test point shall then be approached at a rate of approximately 3,000 feet per minute. The altimeter shall be kept at this pressure for at least 5 minutes, but not more than 15 minutes, before the test reading is taken. After the reading has been taken,

The pressure shall be increased further, in the same manner as before, until the pressure corresponding to the second test point (40 percent of maximum altitude) is reached. The altimeter shall be kept at this pressure for at least one minute, but not more than 10 minutes, before the test reading is taken. After the reading has been taken, the pressure shall be increased further, in the same manner as before, until atmospheric pressure is reached. The reading of the altimeter at either of the two test points shall not differ by more than the tolerance specified in Table II, from the reading of the altimeter for the corresponding altitude recorded during the scale error test prescribed in sub-paragraph 6.1 (a).

(c) After effect - not more than 5 minutes following completion of the hysteresis test prescribed in sub-paragraph 6.1 (b), the reading of the altimeter (corrected for any change in atmospheric pressure) shall not differ from the original atmospheric pressure reading by more than tolerance specified in Table II.

(d) Friction - the altimeter shall be subjected to a steady rate of decrease of pressure approximating 750 feet per minute. At each altitude listed in Table III, the change in reading of the points after vibration shall not exceed the corresponding tolerance listed in Table III.

(e) Case leak - the leakage of the altimeter case, when the pressure within it corresponds to an altitude of 18,000 feet, shall not change the altimeter reading by more than the tolerance shown in Table II, during an interval of one minute.

(f) Barometric scale error - at constant atmospheric pressure, the barometric pressure scale shall be set at each of the pressures (falling within its range of adjustment) that are listed in Table IV, and shall cause the pointer to indicate the equivalent altitude difference shown in Table IV with a tolerance of 25 feet.

6.2 Altimeters which are of the data type with associated computer systems, or which incorporate air data correction internally, may be inspected and tested in parts, by major component, to specifications developed by the manufacturer which are acceptable to the Chairman.

7. RECORDING AND CERTIFYING

7.1 Recording and certifying shall be done in accordance with the requirements of part A of the Air Navigation Orders. The person performing the altimeter tests shall record on the altimeter the date and maximum altitude to which the altimeter was tested and the person certifying the work shall enter that data in the aircraft record.

Issued in pursuance of Civil Aviation Rules 1984, Rule 4, Rule 107 and Rule 191.

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B- MAINTENANCE DIRECTIONS

CHAPTER B.13	MAINTENANCE OF AIRCRAFT UNDER LEASE AND CHARTER ARRANGEMENTS.

Sections	**Title**
1.	GENERAL
2.	DEFINITIONS
3.	FOREIGN REGISTERED AIRCRAFT OPERATING IN BANGLADESH
4.	BANGLADESH REGISTERED AIRCRAFT LEASED TO FOREIGN OPERATORS
5.	INTRA STATE LEASE/DOMESTIC LEASING

1. GENERAL

1.1 This order details the maintenance requirements and procedures for:

a) Leasing of an aircraft registered in another country by a Bangladesh operator for schedule, non-schedule or chartered flights.
b) Leasing of a Bangladesh registered aircraft to an operator in another country.
c) Lease amongst Bangladeshi operators

1.2 This order shall be applicable for all types of lease agreements and flights involving air transportation for compensation or hire.

2. DEFINITIONS

3.2 For the purpose of this order the following definitions shall apply:

a) **"Lease"** means any agreement by a person to furnish an aircraft to another person for compensation or hire. When the aircraft is leased with a full or partial flight crew, it is called wet lease. The lease of aircraft without crew is defined as Dry Lease.

b) **"Maintenance control"** in respect to a flight, means, the exercise of authority to ensure timely accomplishment of all maintenance as per the approved procedure.

c) **"Operational controls"** in respect to a flight, means the exercise of authority over initiation, conducting or termination a flight as per approved procedure.

3. FOREIGN REGISTERED AIRCRAFT OPERATING IN BANGLADESH

3.1 Where a Bangladesh operator intends to lease a foreign aircraft for use in commercial operations in Bangladesh, the following criteria shall apply:

a) Two copies of the draft lease agreement relating to operation and maintenance of the leased aircraft along with the completed application From No. CA-182C shall be submitted to the Charmin, CAAB for approval at least 30(thirty) days before the planned commencement date of operation including the following details:

i. The type of aircraft and configuration.
ii. Country of registration.
iii. Airworthiness status of the aircraft is to be submitted by the Operator i.e. Lessor.
iv. Proposed maintenance programme and maintenance control,
v. Proposed operational use and operational control.
vi. Clear identification of the responsibilities of the airworthiness of the aircraft shall be mentioned in the Lease Agreement.
vii. Responsibilities of the issuance of Maintenance Release / CRS shall be clearly identified in the Lease Agreement.

b) The aircraft shall meet the applicable Airworthiness Design Standards requirements prescribed in the Civil Aviation Rules1984 and the ANO Chapter A.I of these orders. The aircraft shall continue to be maintained to conform to these standards in accordance with the maintenance requirements and procedures which shall be prescribed in the lease agreement.

c) The aircraft shall have a valid Certificate of Registration and Certificate of Airworthiness issued by the state of Registry.

d) The aircraft shall have a valid Radio Station License issued by the state of Registry. The use of Radio apparatus must be in accordance with the regulations of the state flown over.

e) The aircraft shall have a valid Noise Certificate issued by the state of Registry.

f) Where the period of operation under lease agreement by the foreign registered aircraft is for 1(one) year or less, the aircraft may remain on the register of the foreign country.

g) If the period of operation under lease agreement is more than 1(one) year, then the aircraft shall be registered in Bangladesh.

h) The aircraft and aircraft records shall be inspected by CAAB for acceptability prior to the commencement of operation.

i) The lessee shall satisfy the Chairman CAAB that he has the required maintenance, engineering and operational resource necessary to comply with the related conditions of the lease.

j) If required, the Lessee in co-ordination with the Lessor shall arrange meeting between Civil Aviation Authorities for signing Memorandum of Agreement (M.O.A) to determine each other's responsibility for the lease operation as per the convention to International Civil Aviation Organization. (Articles 83bis).

Note: If the lease agreement is determined to be a wet lease, the Lessor normally exercises operation control over the aircraft and the responsibility for the airworthiness and operational oversight of the aircraft will remain with the State of Registry. If the agreement is in the nature of a dry lease, then responsibility for operational control will normally rest with the Lessee. However, for dry lease operation, it may be advantageous for the state of Registry to enter into an agreement with the state of the operator to transfer or share various facets of operational and airworthiness oversight.

k) Any special or additional requirements specified by the country of registry shall be incorporated in the lease agreement.

l) The Chairman may specify additional conditions or requirements not included in the lease agreement.

m) Following satisfactory compliance with the above-mentioned operational and maintenance requirements, the Chairman will issue approval.

3.2 The approval may be terminated for any of the following reasons:

a) Expiry of the lease agreement.

b) Expiry of the date specified by the Chairman in the lease approval.

c) Suspension or cancellation of the Certificate of Registration and Certificate of Airworthiness.

d) Suspension or cancellation of the operator's (Lessee) operating or maintenance approval.

e) Suspension or cancellation of the Lessor's is operating Certificate.

f) Breach of any of the leasing requirements or conditions specified in the lease agreement.

3.3 The Lessee shall bear all costs of overseas travel for the CAAB officials that may be required in this connection as per Rule-213 of the CAR 1984.

4. BANGLADESH REGISTERED AIRCRAFT LEASED TO FOREIGN OPERATORS.

4.1 Where a Bangladesh registered aircraft is intended to be leased to a foreign operator, the registered owner or operator of that aircraft shall be responsible to the Chairman for its continued airworthiness.

4.2 The lessor shall submit to the Chairman a copy of the lease agreement which should ensure that:

a) The aircraft shall continue to be maintained and certified in accordance with standards of airworthiness approved by CAAB.

b) No modification which may affect the basis of the aircraft type certificate or type approval shall be incorporated without prior approval of the Chairman.

c) Proposed maintenance procedure and maintenance control be defined.

d) Proposed operational use and operational control be defined.

e) Clear identification of the responsibilities of the airworthiness of the aircraft shall be mentioned in the Lease Agreement.

f) Responsibilities of the issuance of Maintenance Release / CRS shall be clearly identified in the Lease Agreement.

4.3 The Lessor shall arrange meeting between Civil Aviation Authority of the state of the Lessee and the CAAB for signing an agreement (M.O.A) convention, if required (Articles 83 bis).

4.4 The Lessor shall bear all costs of overseas travel of the CAAB officials that may be required in this connection as per Rule-213 of the CAR 1984.

5. INTRA STATE LEASE/DOMESTIC LEASING

5.1 In **case** a Bangladeshi operator intends to take an aircraft on lease from another Bangladesh operator for domestic or international operation is termed as intra state/ domestic leasing. This form of leasing only involves Bangladesh registered aircraft and is an arrangement either between two Bangladesh AOC holders or from a private company (e.g a leasing company or Bank) to Bangladesh AOC holder. For such lease arrangement, the registered owner of the aircraft to be leased is to apply to the CAAB at least 60 days prior to the commencement of operation with the leased aircraft along with a completed three sets of aircraft leasing form (CA-182D) and three sets lease agreement.

5.2 On receipt of such intra state/domestic lease application, the assigned Airworthiness Official(s) shall:

(a) ensure that the application has duly been completed and signed in ink

(b) check the organization leasing file to ensure that no Bangladesh operator shall lease it's aircraft to another Bangladesh air operator so as to disrupt it's own schedule.

(c) directorate of flight safety on receipt of the application will distribute it to with other documents like lease agreement to the following:

(i) airworthiness division
(ii) operation division

(d) The above noted divisions will review the application with other relevant documents and conduct inspection necessary to determine the compliance of the applicable regulations of lease.

5.3 Provide the evidence in the agreement establishing that throughout the term of lease, the aircraft:

(a) will be in the legal custody of the lessee; and will not be made the subject of another lease during the term of the lease period for that aircraft

(b) evidence establishing that the lessor and the lessee each hold the valid Bangladesh AOC

(c) evidence establishing that the lessee is responsible for the maintenance of the aircraft in case of dry lease, lessor in case of wet lease and as per agreement between lessor and lessee in case of damp lease.

(d) For dry lease operation, the lessee shall be responsible for the maintenance and continuing airworthiness of the leased aircraft that is the lessee shall become full responsible for maintenance control and continuing airworthiness.

(e) For wet lease operation, the lessor shall be responsible for maintenance and continuing airworthiness of the aircraft that is lessor shall become full responsible for maintenance control and continuing airworthiness.

(f) in case of dry lease, the aircraft will be entered into the AOC of the lessee and in case of wet lease the aircraft will remain in the AOC of the lessor. Radio license and all other applicable documents of the leased aircraft will be transferred accordingly.

(g) lease agreement giving details of the respective responsibilities of compliance with the regulatory requirements, arrangements of flight operation, quality assurance, flight dispatch for the type of aircraft and the responsibilities of the lessor and the lessee with regard to operation, maintenance and quality system of the aircraft.

5.4 PERIOD OF LEASE

Intra state wet lease: 12 months, subject to two times extension of an additional 24 months.

Issued in pursuance of the Civil Aviation Rules 1984, Rule-4, 100, 113, 190 and 288. This ANO is a complete re-issue and supersedes issue-5, dated 31 March, 2011.

AIR VICE MARSHAL M MAFIDUR RAHMAN
BBP, BSP, BUP, ndu, afwc, psc
Chairman
Civil Aviation Authority of Bangladesh

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B – MAINTENANCE DIRECTIONS

CHAPTER B. 14	**MAINTENANCE, PROCUREMENT, DISTRIBUTION OF AERONAUTICAL PRODUCTS AND USE OF AIRCRAFT SPARES UNDER PARTS POOLING AGREEMENT ON BANGLADESH REGISTERED AIRCRAFT**

1. GENERAL

1.1 This Order applies to the holder of a Certificate of Approval covering:

(a) The maintenance of aeronautical products;

(b) The procurement and distribution of aeronautical products; and

(c) Use of aircraft spares under parts pooling agreement.

1.2 This Order specifies the airworthiness documentation procedures for maintenance, procurement, distribution and the certification requirements for use of aeronautical products on Bangladesh registered civil aircraft.

1.3 The directives contained in this Order do not apply to parts and materials which are not normally manufactured or produced to accepted aeronautical specifications or other prescribed specifications, such as standard hardware, floor coverings and other furnishings, cleaning fluids, degreasing solvents, paint removers, sound proofing and insulating materials, inspection fluids and equipments for which there is no technical Standard Order (TSO) issued by the Federal Aviation Administration (FAA) of USA or Design Specification issued by the Civil Aviation Authority (CAA) of the UK or European Aviation Safety Agency (EASA).

1.4 Not withstanding anything contained in this ANO, Chairman's prior approval is required for repair, overhaul, modification or maintenance of any components of Bangladesh registered aircraft by organisation, which are not approved by the CAAB, provided such component (s) are installed or meant for installation on Bangladesh registered aircraft.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rule 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the rules, the under mentioned definitions shall apply:

(a) **"Aeronautical product"** means any aircraft appliance, aircraft materials, aircraft part and aircraft spares, approved for installation on an aircraft.

(b) **"Aircraft appliances"** means a major assembly of a complete aircraft, engine or propeller and includes for example wings, flight control surfaces, landing gears, generators, fuel pumps, actuators, avionic components etc.

(c) **"Aircraft materials"** means a raw product, which has undergone a quality programme to ensure that it conforms to aeronautical standards and is traceable to the source of supply.

(d) **"Aircraft part"** means a sub assembly of an aircraft component and standard items including fasteners, rivets, nuts, bolts, rigging cable and electrical wire.

(e) **"Aircraft spares"** means, engine, propeller, component, parts and materials meant for use on aircraft.

(f) **"Approved standard"** means a manufacturing/design/maintenance/quality standard approved by the competent authority.

(g) **"Authorised Release Certificate"** (previously known as release note) means a document issued by the delegated "Appropriate Person(s)" of an approved organization following manufacture, overhaul, repair, modification or procurement of aircraft materials, parts or components, which attests that the particular product/maintenance work on the item has been completed in the satisfactory manner in accordance with the approved data, the procedures described in the organization procedures manual, the item is considered airworthy for release to service and is an condition for safe operation.

(h) **"Inspected/Tested"** means the examination of an item to establish conformity with an approved standard.

(i) **"Lease", "Loan"** or **"Power-by-the-hour engines"** means engines which are supplied to operators under various agreements for long-term period, usually from the manufacturer or his agent, but which are not necessarily newly overhauled when supplied.

(j) **"Modified"** means the alteration of an item in conformity with an approved standard.

(k) **"New"** means an aeronautical product that has accumulated no operating time or operating cycles.

(l) **"Overhaul"** means, the restoration of a used component or item of aircraft by inspection, test and replacement in conformity with an approved standard to extend the operation life.

(m) "**Overhauled**" means, a product, which has not been operated or placed into service except for functional testing since having been overhauled, inspected and issue of Authorised Release Certificate (previously known as Release Note).

(n) **"Pool engines"** means engines interchanged between certain participating Operators on a temporary (get-you-home) basis limited to maximum of 500 (five hundred) hours.

(o) **"Reassembled"** means the reassembly of an item in conformity with an approved standard.

Note: This provision shall only be used in respect of items which were originally fully assembled by the manufacturer in accordance with manufacturing requirements (e.g. a propeller after transportation).

(p) **"Rebuilt/Recondition**" means an aeronautical product that has been disassembled, cleaned, inspected, repaired as necessary, and reassembled to the same approved standard tolerances as a new item.

(q) **"Repair**" means, the restoration of an item to a serviceable condition in conformity with an approved standard.

(r) **"Restoration"** means work necessary to return an item to a specific standard, which may very from cleaning or replacement of single parts up to a complete overhaul

(s) **"Retreaded**" means the restoration of a used tyre in conformity with an approved standard.

(t) **"Servicing"** means, the replenishment of consumables needed to keep an item or aircraft in operating condition.

(u) **"Unapproved part"** means a material, part, or appliance that:

(i) has not been manufactured or repaired in accordance with the appropriate procedures required by the rules; or
(ii) if serialised, has lost its manufacturer's serial number identification; or
(iii) may not conform to an approved type design; or
(iv) may not conform to established industry specifications

3. PROCUREMENT OF AIRCRAFT SPARES

3.1 The Bangladeshi Operators/Owners/AMO and the applicable certifying staffs (i.e. authorised maintenance personnel and stores inspectors) employed by them shall ensure that only the aircraft appliances/aircraft materials/aircraft parts/aircraft spares complying with the under mentioned conditions are installed on Bangladesh registered aircraft:

(a) "New" aircraft spares, parts, materials, appliances including engines, propellers and rotors;

(b) "Overhauled" or "Restored" or "Reconditioned" aircraft spares, parts, appliances (components) including engines, propellers and rotors;

(c) "Repaired" aircraft appliances and spares, but excluding engines, propellers (variable pitch) and rotors; However, the repaired engines, propellers (variable pitch) and rotors as mentioned below, may be installed:

(i) "Repaired" engines, propellers and rotors provided the concerned engine(s), propeller(s) and rotor(s) has been earlier removed from Bangladesh registered aircraft for rectification of snags/defects etc.; and

(ii) "Repaired" engines, propellers (variable pitch) and rotors as provided under the Section 8 of this Order to meet emergency requirements e.g. aircraft on ground (AOG) situation only.

3.2 New Aeronautical products should be obtained from the original manufacturer provided the products have been produced under Parts Manufacturing Approval (PMA) or Production Certificate (PC) or Technical Standard Order (TSO) under Federal Aviation Regulation (FAR) of the USA or equivalent authorisation of EASA and shall be accompanied by an appropriate Authorised Release Certificate.

3.3 It shall be ensured that all aeronautical products manufactured are acceptable to the Chairman as per the ANO (AW) A.1. Similarly, it must be ensured that all aeronautical products are overhauled/ restored/ reconditioned/ repaired by the concerned maintenance organisation(s) approved by the Chairman or pre-accepted by the Chairman (i.e. formal acceptance of the Chairman has to be obtained by the Operator/Owner in each case). The products shall be accompanied by history cards/data giving up-to-date status of compliance with components service bulletins, airworthiness directives and appropriate Authorised Release Certificate or other equivalent document acceptable to the Chairman as mentioned in the **Appendix-1** of this Order.

3.4 Aeronautical products may also be obtained from Supply and Stores organisation (stockists) approved by the Chairman under the ANO (AW) C.4 and holding a valid Certificate of Approval issued by the Chairman. The Supply and Stores organisation shall only distribute Aeronautical products obtained from sources (i.e. manufacturers and AMOs) approved by the Chairman.

3.5 Where aircraft spares, coming from a country other than the country in which they were manufactured, are to be purchased or installed or used, the Airworthiness and Engineering Licensing Division (AELD) shall be consulted first for confirmation as to the type of documents that shall be required in respect of the aircraft spares as evidence that the aircraft component or part or materials were certified by the competent authority of the country of manufacture and that they were adequately maintained in a serviceable condition during transit through the country of purchase.

3.6 Where aircraft spares from countries other than those listed in the **Appendix -1** to this ANO are to be purchased or installed or used, the Chairman shall first be consulted as to the type of documents that shall be required in respect of the aircraft spares.

3.7 Purchase orders placed to the suppliers of aircraft spares should specify the following:

(a) The full description and identity of the item to be supplied, including part numbers and/or specifications, modification status, any special finishes or features and any coding or identification relating to certification or type approval status (such as FAA TSO number);

(b) The exact type of manufacturing certification and any supporting technical documentation to be provided:

(i) if the supplier is the manufacturer of the item, or

(ii) if the supplier is not the manufacturer or approved repair agency for the item.

(c) That a certification be made by the supplier, when dispatching the aircraft spares:

(i) the item supplied comply in all respects with the description; and

(ii) if the supplier is not the manufacturer or approved repair agency of the item, the certified copy of the required manufacturing certification and technical documentation have been forwarded with the shipped item, the item is in the same condition as when received and the original copy of the required Authorised Release Certificate or equivalent documents are available and are on file with the supplier.

4. MAINTENANCE OF AIRCRAFT SPARES

4.1 **Maintenance:** The holder of a Certificate of Approval as aircraft maintenance organisation, while carrying out maintenance on an aircraft component, shall not install or use in that aircraft component, parts or material from an another aircraft component unless: -

(a) It complies with the rule 197 of the Civil Aviation Rules, 1984;

(b) It is serviceable; and

(c) Where maintenance has been carried out on the aircraft component or aircraft parts by another person, it has been returned under cover of an Authorised Release Certificate issued by CAAB approved AMO or a document of a kind specified in the appendix-1 to this ANO or a document otherwise specified or approved by the Chairman.

5. USE OF AERONAUTICAL PRODUCTS

5.1 When maintenance is performed on a Bangladesh aircraft or on a component of a Bangladesh aircraft, it is essential to ensure, inter alia (i.e. among other things), that any new or replacement parts fitted serve their intended purpose and achieve a fully airworthy result.

5.2 When maintenance is performed on a Bangladesh aircraft or on a component of a Bangladesh aircraft, it is essential to ensure that no "used" or "repaired" parts or material are used for assembly of the component.

5.3 To ensure that a component or part is serviceable and eligible for installation in such an aircraft or one of its component, the rule 197 of the CARs, 1984 and the ANO B.3 titled **"Maintenance Certification Systems"** establishes procedures to be followed in the handling and certification of such aircraft components, parts and materials. In particulars, this ANO directs that where a person receives an aircraft part or aircraft material from another person, that first mentioned person shall not hold the aircraft part or aircraft material in an approved Store and Distribution organisation and shall not install or use the aircraft part or aircraft material on a Bangladesh aircraft or in a component of such an aircraft unless that part or material was received from that other person under cover of a certificate or document of a kind specified in this Order.

5.4 The types of certification and document, which are acceptable to the CAAB, are mentioned in the **Appendix-1** to this Order and the text shall be in English language. Such a document shall not be considered to be of a specified or approved kind unless:

(a) It is the original or a copy issued by the originator;

(b) It identifies the originator; and

(c) It states the quantity of and fully describes each item the document covers, by name, part number and/or specification and serial number if applicable.

5.5 The procedures for use of aircraft spares under parts pool agreement on Bangladesh registered aircraft during maintenance outside Bangladesh are detailed in the section 8 of this Order.

6. PROCUREMENT SOURCES

6.1 As a general principal, it may be assumed that aeronautical products purchased as spares directly from the original manufacturer of an aircraft, engine, propeller or equipment will be acceptable provided that the appropriate certification is made, although that manufacturer may have sub-contracted the production of the parts and in some cases, may have arranged for direct shipment by the contractor.

6.2 It should not be concluded from the above that orders for such parts may safely be placed directly on subcontractor. Because in such a case, the sub-contractor may no longer be subject to the same controls as applicable for the manufacturer. The fact that a company producing aeronautical products is a known entity and the current sub-contractor for those parts aids confidence, but the company must still be regarded as a manufacturing source in its own right and due consideration must given to source adequacy and certification as outlined in the foregoing paragraphs.

6.3 It follows from the above that aircraft parts or materials must not be purchased unless they are to be supplied under cover of a document of the kind listed in the **Appendix -1** to this Order.

6.4 If the aircraft spares are procured or purchased from the Distributor, extra care is required on the part of the user. In cases where the responsible authority provides for the approval of distributors, the user is responsible for determining the scope of the approval.

6.5 No certification given by such agencies can relieve the user of his responsibility for ensuring that the purchased aeronautical products are of the required build standard and are of acceptable manufacturing origin. The CAAB expects that each Bangladeshi Operator/Owner/AMO should carry out Quality Audit of the foreign AMOs and Supply and Stores organisation (stockists) for compliance with the requirements of this Order before enlistment of them as a possible source of procurement or exchange of aeronautical products.

6.6 The user must still apply the considerations detailed in the Section 4 of this Order and ensure that his purchase order contains appropriate details and requirements. It is particularly important that the purchase order should, as a minimum, require the

distributor to declare the country of manufacturer of the aeronautical products and the type of certification provided by the manufacturer. The user will then be able to judge the value of that certification as evidence of acceptable manufacturing origin.

6.7 The extent to which the user can rely upon statements or declarations made by a distributor will vary according to the user's experience with that particular distributor. The verification procedures identified in the Section 5 of this Order must be applied to a degree consistent with gaining adequate confidence in that particular supplier.

6.8 Continuous satisfactory supplies over a period of time will help to reduce the need for verification checks on documentation but the checks should never be completely abandoned.

7. REPORTING REJECTION OF AIRCRAFT SPARES

7.1 A person receiving aircraft components or aircraft materials under cover of a document of the kind specified in the **Appendix-1** to this Order or a document of the kind otherwise specified or approved by the Chairman and which because of manufacturing discrepancies or failure to observe proper quality control procedure during manufacture or maintenance are unsuitable for use on aircraft, shall make a written notification to the Chairman containing at least the followings:

(a) Description of components or materials including part drawing or specification number, serial (if applicable) and where possible a reference to the parts catalogue in which the part number is listed;

(b) Quantity received and quantity with discrepancies;

(c) Name of holder of certificate of approval or overseas organisation from which the components or materials were received;

(d) Details of the discrepancies; and

(e) In respect of components and materials not received directly from the manufacturer, any additional details which could assist in tracing the history of the goods e.g. manufacturer's identification marking, the name and address of the certificate of approval holder or overseas organisation which issued the certificate.

8. PARTS UNDER POOLING AGREEMENT OR ON LOAN/RENT

8.1 While operating Bangladesh registered aircraft outside the country, occasions may arise for the Operator(s) to utilise parts of similar aircraft from other operator(s) and also the services of licensed/approved persons from other contracting States for their installation and certification. In such situation, the rule 199 of the CARs, 1984 prohibits use of any aircraft component, aircraft material or other things in maintenance of aircraft, if its use in Bangladesh could be an offence under the CARs. The rule also states that the owner, operator or pilot-in command of Bangladesh aircraft, when it is outside Bangladesh, shall not authorize or permit any maintenance to be carried out on the aircraft except by:

(a) The holder of an aircraft maintenance engineer's licence covering that maintenance;

(b) A person authorized to carry out that maintenance;

(c) A person who is authorized by the appropriate authority of a Contracting State to carry out on aircraft in that State maintenance of the same kind; or

(d) A person who possesses qualifications that are recognised by the Chairman as sufficient for the purpose.

8.2 It automatically follows from these rules that before using parts, components or the services of approved/licensed personnel from other contracting states, it is necessary that the details of the airworthiness system prevailing in that country is intimated to Chairman, CAAB for his approval.

8.3 Parts pooling between the various Operators is a recognised international practice and an Operator enters into parts pooling agreement with other Operators for utilising the parts, components and services of approved personnel/licensed personnel for carrying out repairs to their aircraft when operating outside the country of registration. It is necessary that whenever an Operator enters into such parts pooling agreement, it should be approved by the airworthiness authority of the respective countries. This is to ensure that the airworthiness standards of the country is equivalent in achieving the airworthiness and safety levels which is prevalent in Bangladesh and no violations to the laid down standards are carried out.

8.4 Aircraft components obtained from another Operator or Maintenance Organisation shall not be installed on Bangladesh registered aircraft without the required Authorised Release Certificate or equivalent document. Only in the case of an Aircraft on Ground (AOG) situation, and subject to the aircraft component being accompanied with a "Serviceable Tag" issued by an approved maintenance organisation of an Operator, who is a member of the International Airline Technical Pool (IATP) spare pool agreement and in which participation has been approved by the CAAB, such component may be installed. The Operators must submit the proposal as per the following details:

(a) Name of the Operator with whom parts pooling agreement is to be entered into; (b)

Location of the stations where such parts will be maintained for pooling purposes;

(c) The name and address of the airworthiness authority of the country;

(d) The type of aircraft and details of the parts which are to be pooled;

(e) The method of replacement of the loaned parts by appropriately certified parts on return of the aircraft to the base and return of the loaned parts to the parent Operator; and

(f) The procedures to ensure that pooled parts and pooled engine are installed as per the paragraph 3.1 of this Order.

8.5 Normally no parts (except pool engine) should be used from the parts pooled beyond 200 (two hundred) hours or till return of the aircraft to the main base where sufficient time is available for its replacement. However, the Operator may document the procedure in the MPM/MCM wherein such parts can continue in service and are economical to use after outright purchase rather than return to the Owner/Operator.

8.6 The agreement shall also provide for surveillance of airworthiness procedures and certification of the pool partner (s) jointly by the Airworthiness and Engineering branch of the CAAB and by the Quality Control branch of the Operator. Such surveillance and inspection should be conducted at least once in 2 (two) years.

8.7 **Use of pool or rental engine for limited period and signed statement**: The use of pool or rental engines, for the limited purpose and period not exceeding 500 (five hundred) hours as covered by the definition in this Order is permitted provided:

(a) The conditions relating to Airworthiness, which must apply for a pooling agreement to be entered into, are laid down in advance by the operator, agreed by CAAB and published in the CAAB approved MCM of the operator;

(b) The conditions require consideration not only of the current status of the engine but also past history of the engine and the source (AMO) of engine overhaul and repair, which should be proven;

(c) Applicable Airworthiness Directives, mandatory modifications and inspections have been accomplished.

(e) In addition to the normal Authorised Release Certificate, the Bangladesh operator must obtain from the overseas Operator/AMO a Signed Statement certifying the engine (Part No. and Sl. No. be mentioned) is airworthy on the date of release on loan, declaring restriction (if any) in cycles or hours, etc. relating to inspection, replacement, or overhaul as necessary to maintain the airworthiness of the engine during the period of loan; and

(f) In case of Engine(s) type maintained in accordance with an "On Condition" maintenance programme approved by the Chairman, the complete Engine trend analysis report including recommendation/comments/findings of the Designated Analysis Center (DAC) for engine condition trend monitoring (ECTM) approved by the respective manufacturer of the engine type must have been checked by the Bangladeshi Operator/Owner and are forwarded.

8.8 **Use of engine from approved AMO on long term rental and signed statement:** Where an engine is obtained from the original manufacturer or an engine overhaul organisation approved by the Chairman, for long term loan or "power-by-the-hour" lease and the engine has been operated by a non Bangladeshi operator since the last time the engine was available to the manufacturer/overhauler, it will be acceptable if the serviceability of the engine is confirmed by the manufacturer/overhauler or his authorized representative issue a Signed Statement having been satisfied at least that:

(a) The previous operator has declared the engine (Part No. and Sl. No. shall be mentioned) to be serviceable at the time of removal, or has stated known defects;

(b) All outstanding defects have been rectified;

(c) All defects which were recorded during the term of the previous lease appear to have been rectified satisfactorily;

(d) Performance of the engine is satisfactory;

Note: This may be by reference to the previous operator's logged data where this is suitable;

(e) The engine has been stored satisfactorily and has not become deficient since removal from the aircraft due to the removal of any components;

(f) The status of all life-limited components in the engine is clearly defined;

(g) Inspection of the engine by the manufacturer or his authorized representative to a published schedule has been carried out to the extent necessary to confirm and certify that the engine is serviceable at the time of dispatch; and

(h) All applicable mandatory modifications and inspections have been accomplished.

8.8.1 In case of Engine(s) type maintained in accordance with an "On Condition" maintenance programme approved by the Chairman, the complete Engine trend analysis report including recommendation/comments/findings of the Designated Analysis Center (DAC) for ECTM approved by the respective manufacturer of the engine type must be checked by the Bangladeshi Operator/Owner and shall be forwarded to the Chairman.

8.8.2 **Statement by the Bangladeshi Operator/Owner/AME:** The Concerned AME issuing Maintenance Release for installation of the pooled or rental engine(s) on Bangladesh registered aircraft must endorse a statement in the appropriate Worksheet to the effect below:

"The Engine part no._____Serial No. _____has been accepted under the procedures complying with the ANO (AW) B.14, Section 8 issued by the Chairman."

9. STORING AND DISTRIBUTION OF AERONAUTICAL PRODUCTS AND SUB-CONTRACTING MAINTENANCE BY AMO/REPAIR STATIONS

9.1 The ANO (AW) C.4 titled **Certificate of Approval – Stores and Distribution Organisations** specifically deals with the procedures for approval of Organisations engaged in storing and distribution of aircraft spares.

9.2 Stockists and Distributors of Aeronautical Products have a significant influence over preventing the use of unapproved parts, as such must have quality control/assurance system to ascertain that only the Aeronautical Products accompanied with appropriate authorised release certificate are accepted. Some States approve stockists and distributors but others do not.

9.3 In airworthiness terms, role of the Stockists and Distributors is simply that of a holder of a part and its supporting data for a limited period, the part and data being passed in their entirety to the purchaser. The most effective control is exercised by the purchaser of the parts by ensuring that the part is correct and that the documentation truly reflects the status of the part. Further assurance is provided by the installer purchasing only from those suppliers having a known satisfactory record.

9.4 Parts distributors may also break down large orders of identical parts into smaller lots for shipment to end users. In this case they should provide documentation that the parts came from the original large order and shall attach an **attested copy** of the original airworthiness documentation.

9.5 Therefore, all end users (i.e. Operators, Maintenance Organisations) of aeronautical products are required to have robust contracts with suppliers and quality systems that their (end users) audit oversight is maintained over Organisation(s) from which the products are received or/and the AMOs (Repair Stations) by whom the products are repaired/restored/overhauled.

9.6 All Bangladeshi Operator shall forward aircraft components for maintenance to only CAAB approved AMOs (i.e. Repair Stations) for which the AMO (1st AMO) has in-house capability. In case the contracted AMO further contracts another approved AMO (2nd AMO) for complete maintenance of some components, in such cases the agreement entered between the Bangladeshi Operator and his contracted AMO (1st AMO), must have the provision clearly included in the agreement identifying the make and model of the components that may be further contracted for maintenance by the Bangladeshi contracted AMO (1st AMO). In such cases, provision must be included in the agreement between the Bangladeshi Operator and the contracted AMO (1st AMO) regarding facility to carry out surveillance inspection of the AMO (2nd AMO) by the Bangladeshi Operator and CAAB, if so considered by the Chairman.

9.7 In such cases the contracted AMO (1st AMO) must have written procedures in his Maintenance Organisation Exposition (MOE) for acceptance of aircraft components from the AMO (2nd AMO).

9.8 The original copy of airworthiness documentations i.e. Authorised Release Certificate or equivalent acceptable document (in case the item is part of single order) or an **attested copy of the original airworthiness documentation** (in case where the item is part of large order by Stockists and Distributors) must be provided by the approved AMOs or the Stockists and Distributors as may be applicable.

This Order is issued in pursuance of the Rules 4, 185, 194, 196, 197, 198 and 199 of the Civil Aviation Rules 1984. The ANO is a complete re-issue and supersedes the issue 2, dated 28 February 2002.

Air Cdre Mahmud Hussain, ndc, psc
Chairman
Civil Aviation Authority, Bangladesh

ACCEPTABLE AIRWORTHINESS DOCUMENTS

1. Subject to paragraph 2 of this Appendix, where an aircraft component or aircraft material is supplied from a country specified in the First Column of the table at the foot of this paragraph, the document referred to in this Air Navigation Order shall, as applicable, be a document of the kind specified in the Second Column of the table opposite to the country mentioned in the First column.

First Column	Second Column
Australia	(a) A document identified as a "Release Note" (Form CASA DA 1) and which contains a statement to the effect that the Release Note is issued under the authority of a Certificate of Approval granted by the Secretary to the Department of Aviation and notes the approval reference number of that Certificate; or (b) **In the case of an aircraft engine or aircraft propeller**: An appropriate Log Book in which all entries required by Air Navigation orders have been made.
Bangladesh	A document identified as an "Authorised Release Certificate", CA Form-1, (previously known as Release Note) issued by the supplier who shall be approved by the Chairman, for the manufacture, overhaul or stocking and distribution of such items. The document must quote the authority or reference number of the CAAB approval.
Canada	A document identified as the "Authorised Release Certificate", Form TC 24-0078
China	A document identified as "Authorised Release Certificate" or "Airworthiness Approval Tag".
India	A document identified as a "Authorised Release Certificate", CA Form 1, which have been issued under an approval granted by the Indian Director general of Civil Aviation and quotes the reference number of that approval.
Member Countries of the European Aviation Safety Agency (EASA)	A document identified as "Authorised Release Certificate" (EASA Form 1) issued by or on behalf of the respective NAA under reference.

First Column	Second Column
Japan	(a) In the case of aircraft engines, propellers and other major aircraft component for which there is: (i) a valid Certificate of Type Approval in effect; and (ii) a valid Airworthiness Certification issued by— (aa) in the case of new items — the manufacturer; or (bb) in the case of overhauled items — an approved repair station, (cc) - a Japanese Ministry of Transportation 'Form TCF 60-2 Certificate of Airworthiness for Export' issued by the Japanese Civil Aviation Bureau (J.C.A.B), (b) in the case of: (i) aircraft components awarded specification approval; and (ii) survival equipment or oxygen supply equipment for which a valid Certificate of Type Approval is in effect or which meets prescribed inspection requirements of the J.C.A.B— a Japanese Ministry of Transportation 'Form TCF 60-3“ Airworthiness Approval Tag issued by the J.C.A.B; or (c) in the case of- (i) aircraft components not eligible for Form TCF 60-2 or TCF 60-3 certification but which are specifically accepted as airworthy; (ii) aircraft components used in the manufacture of an aircraft component eligible for Form TCF 60-2 or TCF 60-3 certification; and (iii) approved genuine aircraft components made by the aircraft manufacturer — a Japanese Ministry of Transportation 'Form TCF 60-4' Airworthiness Approval Tag issued by the J.C.A.B
New Zealand	A document identified as a NZCAA Form 1, issued by or on behalf of the NZ CAA under reference.
Pakistan	(a) A document identified as a “Authorised Release Certificate” which have been issued under an approval granted by the Pakistan Director General of Civil Aviation and quotes the reference number of that approval.

United States of America	(a) In the case of FAA Class I Products - a USA Federal Aviation Administration (FAA) Form 8130-4, Export Certificate of Airworthiness; (b) In the case of FAA Class II products - a USA FAA Form 81 30-3 Airworthiness Approval Tag; (c) In the case of FAA Class III products: (i) a USA, FAA From 8130-3 Airworthiness Approval Tag; or (ii) a document issued by the manufacturer of the component and which contains a certification to the effect that the component was manufactured under: - (aa) a Production Certificate granted under USA, Federal Aviation Regulations (FAR) part 21, sub-part G; (bb) an FAA Parts Manufacturing Approval (PMA) granted under USA, FAR Part 21, Sub-part K; or (cc) a Technical Standard Order (TSO) authorization granted under USA, FAR part 37, Sub-part A. (d) In the case of any aircraft component a document issued by an FAA certificated Repair Station and which quotes the certificate number issued to that Repair Station under USA, FAR part 145. Note: Class I, II and III products are defined in USA, FAR Part 21, section 21. 321. They are briefly described below: Class I - a complete aircraft, aircraft engine, or propeller. Class II - a major component of a Class I product; or any part, material, or appliance, approved and manufactured under Technical Standard Order (TSO) system in the "C" series. Class III - any part or component which is not a Class I or Class II product and includes standard parts, i.e., those designated in one of the following series: Air Force-Navy Aeronautical Standard (AN) American National Standards Institute (ANSI) British Standards, Aircraft Series (BS) Military Standards (MS) Military Specification (MIL-SPEC) National Aerospace Standards (NAS) Society of Automotive Engineers (SAE)

2. Notwithstanding anything contained in paragraph 1 above, including the table, a document is not a document of a kind for the purpose of this Air Navigation Order unless:

   (a) It is the original or a copy issued by the originator;

   (b) It identifies the originator; and

   (c) It states the quantity of and fully describes each item the document covers, by name, part number and/or specification and serial number if applicable.

Note: The Operators should consult CAAB before procurement of aircraft spares from countries not listed in this appendix.

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART-B MAINTENANCE DIRECTIONS

CHAPTER B.15	APPROVAL OF AIRCRAFT MAINTENANCE PROGRAM AND AIRCRAFT MAINTENANCE SCHEDULES

1. INTRODUCTION AND BACKGROUND

1.1 The Rule 191 of the Civil Aviation Rules 1984 empowers the Chairman to give direction specifying requirements for maintenance of aircraft registered in Bangladesh. The requirements of this Order are applicable for Aircraft Maintenance Program (AMP) and/or Aircraft Maintenance Schedules (AMS) as are required for aircraft registered in Bangladesh or for aircraft under the holder of Air Operator Certificate (AOC) issued by the Chairman.

1.2 The AMP/AMS are required to be approved in accordance with the Rule 191 (3) of the CARs 1984 and the ANO (AW) B.2, Part-M issued by the Chairman.

1.3 In the early days of aviation, aircraft maintenance schedules were very simple without any analytical basis and the idea of scheduled maintenance in terms of proactive prevention of in-flight failures did not exist at that time. Entry of large jet aircraft resulted formation of Maintenance Steering Group (MSG) committee, which developed decision logic for scheduled maintenance as mentioned below:

(a) MSG-1(1968): Scheduled maintenance program for B-747 based on Overhaul and On-Condition concepts.

(b) MSG-2 (1970): ATA Task Forces revised MSG-1 and introduced Condition Monitored Maintenance Program for the initial development of L-1011, DC-10, and B-737-300/400/500. In 1972, the association of European Airlines developed EMSG, the initial maintenance program for A-300 and Concorde aircraft.

(c) MSG-3 (1980): ATA Task Force improved upon MSG-2 and through integrating the advances achieved from Reliability Centered Maintenance (RCM), developed Maintenance program for B-767, B-757, B-747-400, A-310, A-320 aircraft.

(d) MSG-3 (Rev. 1) made further improvement and cost saving to develop AMP for B-777, MD-11, MD-90, A-340, A-330 aircraft.

(e) MSG-3 (Rev. 2) provided guidelines on development of CPCP and AMP for B737-600/700/800 and B-717 aircraft.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the rules, the under mentioned definitions shall apply:

(a) **"Certification Maintenance Requirements (CMR)"** means a recurring flight crew or ground crew check that is required by design to help show compliance with the appropriate type certification requirements by detecting the presence of, and thereby limiting the exposure time to, a significant latent failure.

(b) **"Condition monitoring"** means, a primary maintenance process which is "non" preventive, having neither Hard Time nor On-Condition elements, but one in which information on items gained from operational experience is collected, analyzed and interpreted on a continuing basis as a means of implementing corrective process.

(c) **"Condition monitored maintenance"** means, formalized application of the primary maintenance processes i.e. Hard Time, On-Condition and Condition Monitoring, to specific items as prescribed in the approved maintenance schedule. The controlling activity of Condition Monitored Maintenance is condition monitoring irrespective of whether condition monitoring is prescribed as a primary maintenance process in the approved maintenance schedule or not.

(d) **"Critical parts"** means, those parts, where the failure analysis by the manufacturer shows that the part must achieve and maintain a particularly high level of integrity if hazardous effects are not to occur at a rate extremely remote.

(e) "**Engine condition trend monitoring (ECTM)"** means, all processes (e.g. Boroscope inspection, Spectrographic Oil Inspection Program-SOAP etc.) by which the condition of the engine is monitored during operation, including scheduled maintenance inspection.

(f) **"Extremely remote"** means, an unlikely event which may occur when considering the total operational life of a number of aircraft/engine of the type, but nevertheless, has to be regarded as being possible.(in numerical values a probability in the range 10^{-7} to 10^{-9} per hour of flight).

(g) **"Hard time"** means, a preventive primary maintenance process in which known deterioration of an item is limited to an accepted level by the maintenance actions which are at periods related to time in service (e.g. calendar time, number of cycles, number of landings). The prescribed actions normally include servicing and such other actions as Overhaul, Partial Overhaul, in accordance with instructions in the relevant manuals, that the item concerned (e.g. system, component, and portion of structure) is either replaced or restored to such a condition that it can be released for service for further specified period.

(h) **"Minimum equipment list (MEL)"** means, a list of items, which may be inoperative for flight under specified conditions.

(i) **"Maintenance program"** means, an approved document which describes the specific scheduled maintenance tasks and their frequency of completion and related procedures, such as a reliability program, necessary for safe operation of those aircraft to which it applies.

(j) **"Maintenance schedules"** means, an approved document containing a list of items to be inspected, calibrated, tested, overhauled, replaced, serviced or otherwise maintained at specified intervals for each aircraft, and details the periods at which maintenance certification shall be issued.

(k) **"Maintenance significant items (MSI)"** means, the functional system items, which are important from a safety or reliability standpoint and formulate candidates for maintenance steering group (MSG) analysis.

(l) **"On condition (OC)"** means, a preventive primary maintenance process, but one in which an item is inspected or tested, at specified periods, to an appropriate standard in order to determine whether it can continue in service (such an inspection or test may reveal a need of servicing actions). The fundamental purpose of On-Condition is to remove an item before its failure in service.

(m) **"Sampling program"** means, a program, which involves the examination and/or test of selected items at prescribed intervals in order to reveal possible unsatisfactory conditions.

(n) **"Structural significant item (SSI)"** means the detail, element or assembly identified by the manufacturer, which contributes significantly to carrying flight, ground, pressure or control loads and whose failure could affect the structural integrity necessary for the safety of the aircraft.

3. CONTENTS OF AIRCRAFT MAINTENANCE SCHEDULE AND PROGRAM

The contents of Aircraft Maintenance Program (AMP) shall be in accordance with the outline given in Appendix-2.

4. HUMAN FACTORS IN AIRCRAFT MAINTENANCE & AMP/AMS-ACCOUNTABLE MANAGER FOR SAFETY MANAGEMENT SYSTEMS

4.1 The ICAO Annex 6, Chapter 8 requires that the training program established by the maintenance organisation must include:

(a) Training knowledge and skills related to human performance and

(b) The design and application of the operator's maintenance program to observe human factors principles.

4.2 ICAO Doc. 9683-AN/950 provides guidelines on human factors elements in aircraft maintenance and inspection. The operators should prepare their AMS/AMP taking into consideration elements of Human Factors Limitations and effective counter measures.

4.3 The head of continuing airworthiness management functions of an operator shall be responsible for ensuring that the training program of the organisation and the AMS/AMP complies with the requirements of this order. The head of quality assurance system of an operator shall be responsible to monitor that the training program of the organisation and the AMS/AMP complies with the requirements of this order.

4.4 An operator holding Category "A" Air Operator Certificate (AOC) for Schedule, non-schedule passenger & cargo, both in international and domestic sectors, should have an accountable Manager (official) responsible for Safety Management Systems (SMS) including Human factors awareness and performance as mentioned below:

(a) Implementation and Organisation: Achieved through emphasizing good maintenance practices, human factors awareness training and commitment of the top level management to improve human factors awareness and performance within the organisation.

(b) Error management program:

(i) Error reduction; and
(ii) Error containment.

(c) Communication and maintenance resource management:

(i) Balance of technical skills and social skills in order to improve the workplace communication amongst all concerned staff members, both technical and non-technical; and

(ii) Better management of maintenance resources i.e. Maintenance Resource Management (MRM), which is a general process for improving communication, effectiveness and safety in aircraft maintenance operations in the same way as CRM for the flight crews.

(d) Inspection and quality systems:

(i) By establishing an independent quality assurance system to monitor compliance with and adequacy of the procedures; or

(ii) By providing a system of inspection to ensure that all maintenance is properly performed.

(e) Error management in aircraft maintenance:

(i) Minimize the probability of error by the individual or team;
(ii) Reduce the error vulnerability of particular tasks or task elements;
(iii) Discover, assess and then eliminate error-producing and violation producing factors within the workplace;
(iv) Diagnose organisational factors that create error-producing factors within the individual, team, task or workplace;
(v) Identify and improve practices which enhance error detection;
(vi) Increase the error tolerance of the workplace or system;
(vii) Make latent conditions more visible to those who operate and manage the system;
(viii) Identify and improve the organisation's intrinsic resistance to human error; and
(ix) Emphasize "good maintenance practices".

(f) Error capture through:
(i) Functional check;
(ii) Leak check;
(iii) Ground run; and
(iv) Duplicate inspections etc.

(g) Environmental interventions:
(i) Access to the work area itself;
(ii) Storage and retrieval of tools, test equipment, parts, materials etc;
(iii) Sound and noise;
(iv) Work platforms;
(v) Lighting; and
(vi) Temperature, humidity and airflow etc.

(h) Ergonomic interventions:
(i) To determine what the maintenance personnel are required to do;
(ii) To identify what information, tools, controls and procedures are needed; and
(iii) To provide those elements in their proper size, form and format.

(i) Documentary intervention in designing of AMS/ AMP:
(i) Task or job sequences which are likely to reduce the probability or effect of error in its application;
(ii) Work packages which suits an operator's specific operation (e.g. overnight packages); and Task or job or work cards or sheets which meet a standard for good document design.

(j) Fatigue **intervention:** Adverse effect of tiredness and fatigue due to excessive hours of duty and shift working causing impaired performance in quality of the accomplished work.

Note: Detail guidelines are given in the **ICAO Doc. 9824 titled Human factors for aircraft maintenance manual**, which may be referred by the operators while preparing their AMS/AMP.

5. RELIABILITY PROGRAM

5.1 The purpose of a Reliability Program is to ensure that the AMP tasks are effective and their periodicity is adequate. Through reliability program, operators of aeroplanes over 5700 kg or helicopters over 3175 kg maximum certificated take-off mass shall monitor and assess maintenance and operational experience with respect to continuing airworthiness. There are a number of maintenance reliability programs in operation that use new and improved maintenance management technique. All such programs are designed to supplement the operator's overall program for maintaining aircraft in a continuous state of airworthiness. However, the basic goals are the same – to recognize, access, and act upon meaningful symptoms of deterioration before malfunction or failure in order to establish and monitor maintenance requirements. Therefore, each operator should select the most suitable Reliability Program.

5.2 Minimum required essentials of operators' reliability program are:

(a) Organization structure;

(b) Data collection system;

(c) Data analysis and display;

(d) Performance standard;

(e) Establishing initial standard;

(i). Pilot reports per 1000 aircraft departures; and

(ii). Pilot reports per 1000 aircraft hours.

(f) Establishing alert values statistically;

(g) Corrective action;

(h) Maintenance interval adjustment and process change; and

(i) Program revision.

Note: Operator having less than 2 (two) aircraft of same type are not required to have an Alert Program/level.

5.3 **TURBINE ENGINE RELIABILITY FOR APPROVED OPERATIONS BY SINGLE-ENGINE TURBINE-POWERED AEROPLANES AT NIGHT AND/OR IN INSTRUMENT METEOROLOGICAL CONDITIONS (IMC):**

Single-engine turbine-powered aeroplanes approved to operate at night and/or in IMC shall have tocomply with the under mentioned requirements related to the turbine engine reliability:

5.3.1 Turbine engine reliability shall be shown to have a power loss rate of less than 1 per 100000 engine hours.

Note: Power loss in this context is defined as any loss of power, the cause of which may be traced to faulty engine or engine component design or installation, including design or installation of the fuel ancillary or engine control systems.

5.3.2 The operator shall be responsible for engine trend monitoring.

5.3.3 To minimize the probability of in-flight engine failure, the engine shall be equipped with:

(a) An ignition system that activates automatically, or is capable of being operated manually, for take-off and landing, and during flight, in visible moisture;

(b) A magnetic particle detection or equivalent system that monitors the engine, accessories gearbox, and reduction gearbox, and which includes a flight deck caution indication; and

(c) An emergency engine power control device that permits continuing operation of the engine through a sufficient power range to safely complete the flight in the event of any reasonably probable failure of the fuel control unit.

5.4 **Approval and Monitoring of Reliability Program**:

5.4.1 The programs are to be approved and monitored by CAAB. Operators' application for approval shall be accompanied by the document describing Reliability Program operation. The document shall contain the essentials of system operations as mentioned in the paragraph 5.2 of this order and in compliance with any additional requirements of the Chairman, because of the particular program or character of the maintenance organisation involved.

5.4.2 The procedures for implementing revisions to the program shall be described in sufficient detail to identify the isolated areas which require CAAB's approval. The AOC holder should also identify the segment of the organisation having overall responsibility for the approval of amendments to the program. The areas involving program revision which require CAAB approval include:

(a) Reliability measurement;

(b) Changes involving performance standards, including instructions relating to the development of these standards;

(c) Data collection and analysis;

(d) Data analysis methods and application to the maintenance program;

(e) Procedures for adding or deleting systems or components; and

(f) Procedures for transferring systems or components to other programs.

5.4.3 When evaluating program revision procedures, due consideration should also be given to the followings:

(a) Does the program provide for periodic review to determine if the established performance standard is still realistic or in need of recalculation?

(b) What distribution is given to revisions that have been approved?

(c) Are the overhaul and inspection periods, work content and rescheduled maintenance activities controlled by reliability methods reflected in the appropriate maintenance manuals?

5.4.4 Operator shall hold meeting of the Reliability Board at an interval not exceeding 3 (three) months. Operator shall forward the reliability report to AELD once in 3 (three) months.

5.5 **Operational Restrictions**: In the event that an acceptable level of reliability is not maintained, that significant adverse trends exist, or that significant deficiencies are detected in the type design or the conduct of the operation, the CAAB may initiate special evaluation or impose operational restrictions, if necessary, and stipulate corrective action for the operator to adopt to resolve the problems in a timely manner and will notify and alert the certificating authority of the State of the Design.

5.6 Operator should refer to the current issue of the following documents for guidance to adopt and develop its own Reliability Program, which is a mandatory requirement for Aircraft Maintenance Program based on MRB report and procedures:

(a) FAA Advisory Circular (AC) No.120-17A, titled **Maintenance control reliability method;** and

(b) ICAO Doc. 9760 titled **Airworthiness Manual, Volume I, and Chapter 6.6.**

6. CONDITION MONITORED MAINTENANCE PROGRAM

6.1 **Condition Monitoring Program**: The maintenance program introduced through MSG-1 and 2 provides for application of the three Primary Maintenance Process i.e.; Hard Time (HT), On-Condition (OC) and Condition Monitoring (CM), is known as Condition Monitored Maintenance Program (CMMP). In general terms, HT and OC both involve actions directly concerned with preventive failure, whereas CM is not a Preventive Maintenance.

6.2 In this program, functional conditions of systems or components are monitored without disturbing them in their installed environment. The program is based on the establishment of acceptable performance as base line data. Internal and external leakage, functional testing, and unit tear down analysis are the factors used to determine the base line.

6.3 Condition monitoring is not acceptable as the primary maintenance process for any items failure mode of which can produce a hazardous:

(a) Increase in crew workload,

(b) Degradation of flight qualities, performance or strength of the aircraft,

(c) Fire, or which can result in the necessity for an unscheduled landing, marginal conditions for occupants or injury to occupants.

6.4 Operators should refer to the current issue of the following documents for guidance to adopt and develop his own Condition Monitoring Program, which is mandatory requirement for a CMMP:

(a) UK CAA Publication No. CAP 418 titled **Condition Monitored Maintenance: An Explanatory Handbook;** and

(b) UK CAA Publication No. CAP 562 titled **Civil Aircraft Airworthiness Information and Procedures Leaflet No. 1-7.**

7. PRESENTATION OF AMS AND AMP

7.1 An AMS / AMP shall be submitted in 3 (three) rings binder (height of the binder not exceeding 12.25 inch and of appropriate thickness).

7.2 Title of the document (e.g. AMS or AMP as appropriate) and Name of the operator (e.g. XYZ airlines as appropriate) shall be mentioned on the front face and the Spine side of AMS / AMP.

7.3 Pages of the AMS /AMP should be printed on thick paper, preferably having thickness of 100 GSM or above to reduce possibility of tearing from the binder during frequent reference and handling.

7.4 Divider pages shall be placed in between each Chapters or Sections.

8. APPROVALS AND AMENDMENTS OF AMS AND AMP

8.1 The customized AMS/AMP shall be prepared, checked and certified by authorized persons against the maintenance review board report/equivalent documents of the manufacturer and maintenance planning document and other applicable referenced documents.

8.2 The operator shall submit the customized AMS/AMP to the Chairman along with the applicable reference documents and duly filled in compliance check list as given in the Appendix-2 of this order for scrutiny and approval at least 39 (thirty) days before commencement date of operation.

8.3 The CAAB will accord approval of an AMS/AMP by issuing an approval document to the applicant in respect of the AMS/AMP. A specimen copy of the approval documents is shown in the Appendix-1 of this order. Depending upon the maintenance schedule/program of each operator, the contents of the approval document may slightly vary. A copy of the approval documents shall be placed at the beginning of each copy or the first volume of the each approved schedule and/or program.

8.4 The procedures for implementing revisions to the AMS/AMP should be described in sufficient detail to identify the isolated areas which require AELD approval. The AOC holder should also identify the segment of the organization having overall responsibility for the approval of amendments to the program. The area involving program revision which require AELD approvals include:

(a) Escalation of check cycles interval;

(b) Escalation of components life; and

(c) Changes in the maintenance process.

8.5 When evaluating revision to AMS or AMP, consideration should be given to the followings:

(a) Does the program provide for periodic review to determine if the established performance standard is still realistic or in need of recalculation?

(b) Are the overhaul and inspection periods, work content and rescheduled maintenance activities controlled by reliability methods reflected in the appropriate maintenance manuals?

8.6 All amendments to an AMS or AMP shall be approved by the Chairman and unapproved amendments shall not be incorporated. AOC holder/owner of the aircraft is responsible to update the AMP/AMS available in AELD, CAAB following any change/amendment.

This order is issued in pursuance of the Rules-4,185,194,196,197,198 and 199 of the Civil Aviation Rules, 1984 and is a complete re-issue and supersedes issue-3, 30 April, 2017.

AIR VICE MARSHAL M MAFIDUR RAHMAN
BBP, BSP, BUP, ndu, afwc, psc
Chairman
Civil Aviation Authority of Bangladesh

CAAB Ref.: CAA/5513/ /AELD Dated: 2nd December, 2001

MAINTENANCE SCHEDULE APPROVAL (Specimen copy)

OPERATOR	**:**	**FRIENDS AIRLINES**
AIRCRAFT APPLICABILITY	**:**	**F-28 MARK 4000**
SCHEDULE APPROVAL REF. NO.	**:**	**CAA/5513/XX /AELD**

This maintenance schedule as identified above is approved subject to compliance with the following:

1. Requirements of this schedule are to be completed within the specified periods and Maintenance Release certificate or Certificate to Release to Service must be issued following completion of maintenance inspection as specified in approved MCM/AMP and shall be valid up to next equivalent check.

2. Maintenance Release certificate shall be issued in the form as shown in the current issue of ANO chapter B.3, or as specified in the approved MCM and the signatories shall be Aircraft Maintenance Engineers licensed in Categories "A" (Airframe), "C" (Engines), “E” (Electrical),“I”(Instrument) and "R"(Radio) or B.1 and /or B.2 and /or C as may be applicable for the particular check.

3. At the time of issue of Maintenance Release certificate or Certificate to Release to Service, no defect in respect of any item(s) which is related to the airworthiness of the aircraft shall be carried forward.

4. It is the responsibility of the operator to ensure that the recommendations issued by the aircraft or equipment manufacturers in the Maintenance Manuals, recommended Maintenance Schedule, Service Bulletins and other technical services information and relevant information issued by the CAAB are evaluated. Where appropriate, the operator must initiate the Maintenance Schedule amendment action with the CAAB.

5. Implementation of this schedule is to be controlled by documents/records which will enable persons authorized to make certifications as to their satisfaction that the requirements of the schedule have been complied with.

6. Any references to this schedule in aircraft/engine log books and technical records must include CAAB's schedule approval reference.

7. In addition to the performance of the maintenance actions prescribed in the schedule, compliance shall also be established with all appropriate mandatory requirements issued by the Airworthiness Authority of the State of Design of the aircraft and all appropriate mandatory modification/ inspection requirements issued by the CAAB.

8. A copy of this Approval document shall be attached to each copy of the Approved Maintenance Schedule and the schedule must be made available to persons responsible for ensuring compliance with the maintenance schedule at locations where requirements of the schedule are being implemented.

9. **(Enter name of the operator)** shall establish and maintain a Reliability and Condition Monitoring Program, including publication of periodical reports, which gives visibility to Approved Maintenance Schedule problem areas and deterioration trends regarding Airframe, Power plant systems and components and proposes changes to improve such conditions.

10. The Maintenance Schedule Approval will be revised only when there is a change in the interval requirements for issue of Maintenance Release as mentioned in the sub-paragraph 1 of this approval document.

11. Amendment to this schedule shall not be made without written approval of the CAAB. Non-compliance with any of the foregoing conditions will invalidate this approval.

Signature

(Name of the Official)
Designation of the Official
Airworthiness & Engineering Licensing
For Chairman Civil Aviation Authority of Bangladesh

Contents of the maintenance program

1. General requirements

1.1. The maintenance program should contain the following basic information:

1.1.1. The type/model and registration number of the aircraft, engines and, where applicable, auxiliary power units and propellers

1.1.2. The name and address of the owner or operator managing the aircraft airworthiness.

1.1.3. The reference, the date of issue and issue number of the approved maintenance program.

1.1.4. A statement signed by the owner or operator managing the aircraft airworthiness to the effect that the specified aircraft will be maintained to the program and that the program will be reviewed and updated as required.

1.1.5. Contents/list of effective pages and their revision status of the document.

1.1.6. Check periods, which reflect the anticipated utilization of the aircraft. Such utilization should be stated and include a tolerance of not more than 25%. Where utilization cannot be anticipated, calendar time limits should also be included.

1.1.7. Procedures for the escalation of established check periods, where applicable and acceptable to the competent authority of registry.

1.1.8. Provision to record the date and reference of approved amendments incorporated in the maintenance program.

1.1.9. Details of pre-flight maintenance tasks that are accomplished by maintenance staff.

1.1.10. The tasks and the periods (intervals/frequencies) at which each part of the aircraft, engines, APU's, propellers, components, accessories, equipment, instruments, electrical and radio apparatus, together with the associated systems and installations should be inspected. This should include the type and degree of inspection required.

1.1.11. The periods at which components should be checked, cleaned, lubricated, replenished, adjusted and tested.

1.1.12. If applicable details of ageing aircraft system requirements together with any specified sampling programs.

1.1.13. If applicable details of specific structural maintenance programs where issued by the type certificate holder including but not limited to:

a. Maintenance of structural Integrity by damage Tolerance and Supplemental Structural Inspection Programs (SSID).

b. Structural maintenance programs resulting from the SB review performed by the TC holder.

c. Corrosion prevention and control.
d. Repair Assessment.
e. Widespread Fatigue Damage

1.1.14. If applicable, details of Critical Design Configuration Control Limitations together with appropriate procedures.

1.1.15. If applicable a statement of the limit of validity in terms of total flight cycles/calendar date/flight hours for the structural program in 1.1.13.

1.1.16. The periods at which overhauls and/or replacements by new or overhauled components should be made.

1.1.17. A cross-reference to other documents approved by the competent authority which contain the details of maintenance tasks related to mandatory life limitations, Certification Maintenance Requirements (CMR's) and ADs.

Note: To prevent inadvertent variations to such tasks or intervals these items should not be included in the main portion of the maintenance program document , or any planning control system, without specific identification of their mandatory status.

1.1.18. Details of, or cross-reference to, any required reliability program or statistical methods of continuous Surveillance.

1.1.19. A statement that practices and procedures to satisfy the program should be to the standards specified in the TC holder's Maintenance Instructions. In the case of approved practices and procedures that differ, the statement should refer to them.

1.1.20. Each maintenance task quoted should be defined in a definition section of the program.

2. Program basis

2.1 An owner or operator's aircraft maintenance program should normally be based upon the MRB report, where applicable, and the TC holder's maintenance planning document or Chapter 5 of the maintenance manual, (i.e. the manufacturer's recommended maintenance program). The structure and format of these maintenance recommendations may be re-written by the owner or operator to better suit the operation and control of the particular maintenance program.

2.2 For a newly type-certificated aircraft where no previously approved maintenance program exists, it will be necessary for the owner or operator to comprehensively appraise the manufacturer's recommendations (and the MRB report where applicable), together with other airworthiness information, in order to produce a realistic program for approval.

2.3 For existing aircraft types it is permissible for the operator to make comparisons with maintenance programs previously approved. It should not be assumed that a program approved for one owner or operator would automatically be approved for another. Evaluation should be made of the aircraft/fleet utilization, landing rate, equipment fit and, in particular, the experience of the owner or operator when assessing an existing program. Where the competent authority is not satisfied that the proposed maintenance program can be used as is, the competent authority should request appropriate changes such as additional maintenance tasks or de-escalation of check frequencies as necessary.

2.4 **Critical Design Configuration Control Limitations (CDCCL):** If CDCCL have been identified for the aircraft type by the TC/STC holder, maintenance instructions should be developed. CDCCL's are characterized by features in an aircraft installation or component that should be retained during modification, change, repair, or scheduled maintenance for the operational life of the aircraft or applicable component or part.

3. Amendments

Amendments (revisions) to the approved maintenance program should be made by the owner or operator to reflect changes in the TC holder's recommendations, modifications, service experience, or as required by the competent authority.

4. Permitted variations to maintenance periods

The owner or operator may only vary the periods prescribed by the program with the approval of the competent authority or through a procedure developed in the maintenance program and approved by the competent authority.

5. Periodic review of maintenance program contents

5.1. The owner or operator's approved maintenance programs should be subjected to periodic review to ensure that they reflect current TC holder's recommendations, revisions to the MRB report if applicable, mandatory requirements and the maintenance needs of the aircraft.

5.2. The owner or operator should review the detailed requirements at least annually for continued validity in the light of operating experience.

6. Reliability Programs

6.1 Applicability

6.1.1. A reliability program should be developed in the following cases:

(a) the aircraft maintenance program is based upon MSG-3 logic
(b) the aircraft maintenance program includes condition monitored components
(c) the aircraft maintenance program does not contain overhaul time periods for all significant system components
(d) when specified by the Manufacturer's maintenance planning document or MRB.

6.1.2. A reliability Program need not be developed in the following cases:

(a) the maintenance program is based upon the MSG-I or 2 logic but only contains hard time or on condition items
(b) the aircraft is not a large aircraft according to Part-M
(c) the aircraft maintenance program provides overhaul time periods for all significant system components.

Note: for the purpose of this paragraph, a significant system is a system the failure of which could hazard the aircraft safety.

6.1.3. Notwithstanding paragraphs 6.1.1 and 6.1.2 above, an operator may however, develop its own reliability monitoring program when it may be deemed beneficial from a maintenance planning point of view.

6.2 Applicability for operator of small fleets of aircraft

6.2.1. For the purpose of this paragraph, a small fleet of aircraft is a fleet of less than 6 aircrafts of the same type.

6.2.2. The requirement for a reliability program is irrespective of the operator's fleet size.

6.2.3. Complex reliability programs could be inappropriate for a small fleet. It is recommended that such operator tailor their reliability programs to suit the size and complexity of operation.

6.2.4. One difficulty with a small fleet of aircraft consists in the amount of available data which can be processed: when this amount is too low, the calculation of alert level is very coarse. Therefore "alert levels" should be used carefully.

6.2.5. An operator of a small fleet of aircraft, when establishing a reliability program, should consider the following:

(a) The program should focus on areas where a sufficient amount of data is likely to be processed.

(b) When the amount of available data is very limited, the operator's engineering judgement is then a vital element. In the following examples, careful engineering analysis should be exercised before taking decisions:

- A "O" rate in the statistical calculation may possibly simply reveal that enough statistical data is missing, rather that there is no potential problem

- When alert levels are used, a single event may have the figures reach the alert level. Engineering judgement is necessary so as to discriminate an artifact from an actual need for a corrective action.

- In making their engineering judgement, an operator is encouraged to establish contact and make comparisons with other operator of the same aircraft, where possible and relevant. Making comparison with data provided by the manufacturer may also be possible.

6.2.6. In order to obtain accurate reliability data, it should be recommended to pool data and analysis with one or more other operator. Paragraph 6.6 of this paragraph specifies under which conditions it is acceptable that operators share reliability data.

6.2.7. Notwithstanding the above there are cases where the operator will be unable to pool data with other operator, e.g. at the introduction to service of a new type. In that case the competent authority should impose additional restrictions on the MRB/MPD tasks intervals (e.g. no variations or only minor evolution are possible, and with the competent authority approval).

6.3 Engineering judgement

6.3.1. Engineering judgement is itself inherent to reliability programs as no interpretation of data is possible without judgement. In approving the operator's maintenance and reliability programs, the competent authority is expected to ensure that the organization which runs the program (it may be the AOC holder, or a Part-145 organization/ AMO under contract) hires sufficiently qualified personnel with appropriate engineering experience and understanding of reliability concept.

6.3.2. It follows that failure to provide appropriately qualified personnel for the reliability program may lead the competent authority to reject the approval of the reliability program and therefore the aircraft maintenance program.

6.4 Contracted maintenance

6.4.1. Whereas this requirement specifies that, the aircraft maintenance program - which includes the associated reliability program- , should be managed and presented by the AOC holder (operator) to the competent authority, it is understood that the operator may delegate certain functions to the Part-145 organization/AMO under contract, provided this organization proves to have the appropriate expertise.

6.4.2. These functions are:

(a) Developing the aircraft maintenance and reliability programs,

(b) Performing the collection and analysis of the reliability data,

(c) Providing reliability reports, and

(d) Proposing corrective actions to the operator.

6.4.3. Notwithstanding the above decision to implement a corrective action (or the decision to request from the competent authority the approval to implement a corrective action) remains the operator's prerogative and responsibility. In relation to paragraph 6.4.2(d) above, a decision not to implement a corrective action should be justified and documented.

6.4.4. The arrangement between the AOC holder (operator) and the Part- 145 organization should be specified in the maintenance contract and the relevant MCM, and MOE/MCPM procedures.

6.5 Reliability program

In preparing the program details, account should be taken of this paragraph. All associated procedures should be clearly defined.

6.5.1. Objectives

6.5.1.1. A statement should be included summarizing as precisely as possible the prime objectives of the program. To the minimum it should include the following:

(a) to recognise the need for corrective action,
(b) to establish what corrective action is needed and,
(c) to determine the effectiveness of that action

6.5.1.2. The extent of the objectives should be directly related to the scope of the program. Its scope could vary from a component defect monitoring system for a small operator, to an integrated maintenance management program for a big operator. The manufacturer's maintenance planning documents may give guidance on the objectives and should be consulted in every case.

6.5.1.3. In case of a MSG-3 based maintenance program , the reliability program should provide a monitor that all MSG-3 related tasks from the maintenance program are effective and their periodicity is adequate .

6.5.2. Identification of items:

The items controlled by the program should be stated, e.g. by ATA Chapters . Where some items (e.g. aircraft structure, engines, APU) are controlled by separate programs, the associated procedures (e.g. individual sampling or life development programs, constructor's structure sampling programs) should be cross referenced in the program.

6.5.3. Terms and definitions:

The significant terms and definitions applicable to the Program should be clearly identified. Terms are already defined in MSG-3, Part-145/ANO (AW)B.15 etc.

6.5.4. Information sources and collection:

6.5.4.1. Sources, together with the procedure for collecting and receiving it, should be set out in detail in the MCM or MOE/MCPM as appropriate.

6.5.4.2. The type of information to be collected should be related to the objectives of the Program and should be such that it enables both an overall broad based assessment of the information to be made and also allow for assessments to be made as to whether any reaction , both to trends and to individual events, is necessary. The following are examples of the normal prime sources:

(a) Pilots Reports.
(b) Technical Logs.
(c) Aircraft Maintenance Access Terminal / On-board Maintenance System readouts.
(d) Maintenance Worksheets.
(e) Workshop Reports.
(f) Reports on Functional Checks.
(h) Reports on Special Inspections
(g) Stores Issues/Reports.
(i) Air Safety Reports.
U) Reports on Technical Delays and Incidents.
(k) Other sources: ETOPS, RVSM, CAT II/III.

6.5.5. Display of information:

Collected information may be displayed graphically or in a tabular format or a combination of both. The rules governing any separation or discarding of information prior to incorporation into these formats should be stated. The format should be such that the identification of trends, specific highlights and related events would be readily apparent.

6.5.5.1. The above display of information should include provisions for "nil returns" to aid the examination of the total information.

6.5.5.2. Where "standards" or "alert levels" are included m the program, the display of information should be oriented accordingly.

6.5.6. Examination, analysis and interpretation of the information:

The method employed for examining, analysing and interpreting the program information should be explained.

6.5.6.1. Examination:

Methods of examination of information may be varied according to the content and quantity of information of individual programs. These can range from examination of the initial indication of performance variations to formalised detailed procedures at specific periods, and the methods should be fully described in the program documentation.

6.5.6.2. Analysis and Interpretation:

The procedures for analysis and interpretation of information should be such as to enable the performance of the items controlled by the program to be measured; they should also facilitate recognition, diagnosis and recording of significant problems. The whole process should be such as to enable a critical assessment to be made of the effectiveness of the program as a total activity. Such a process may involve:

(a) Comparisons of operational reliability with established or allocated standards

(in the initial period these could be obtained from in-service experience of similar equipment of aircraft types).

(b) Analysis and interpretation of trends.
(c) The evaluation of repetitive defects.
(d) Confidence testing of expected and achieved results.
(e) Studies of life-bands and survival characteristics.
(f) Reliability predictions.
(g) Other methods of assessment.

6.5.6.3. The range and depth of engineering analysis and i nterpretation should be related to the particular program and to the facilities available. The following, at least, should be taken into account:

(a) Flight defects and reductions in operational reliability.
(b) Defects occurring on-line and at main base.
(c) Deterioration observed during routine maintenance.
(d) Workshop and overhaul facility findings.
(e) Modification evaluations.
(f) Sampling programs.
(g) The adequacy of maintenance equipment and publications.
(h) The effectiveness of maintenance procedures.
(i) Staff training.
(j) Service bulletins, technical instructions, etc.

6.5.6.4. Where the AOC holder (operator) relies upon contracted maintenance and/or overhaul facilities as an information input to the program, the arrangements for availability and continuity of such information should be established and details should be included.

6.5.7. Corrective Actions:

6.5.7.1. The procedures and time scales both for implementing corrective actions and for monitoring the effects of corrective actions should be fully described. Corrective actions shall correct any reduction in reliability revealed by the program and could take the form of:

(a) Changes to maintenance, operational procedures or techniques.

(b) Maintenance changes involving inspection frequency and content, function checks, overhaul requirements and time limits, which will require amendment of the scheduled maintenance periods or tasks in the approved maintenance program. This may include escalation or de- escalation of tasks, addition, modification or deletion of tasks.

(c) Amendments to approved manuals (e.g. maintenance manual, crew manual).

(d) Initiation of modifications.

(e) Special inspections of fleet campaigns.

(f) Spares provisioning.

(g) Staff training.

(h) Manpower and equipment planning.

Note: Some of the above corrective actions may need the competent authority's approval before implementation.

6.5.7.2. The procedures for effecting changes to the maintenance program should be described , and the associated documentation should include a planned completion date for each corrective action, where applicable.

6.5.8. Organizational Responsibilities

The organizational structure and the department responsible for the administration of the program should be stated . The chains of responsibility for individuals and departments (Engineering, Production, Quality, Operations etc.) in respect of the program, together with the information and functions of any program control committees (reliability group), should be defined. Participation of the competent authority should be stated. This information should be contained in the MCM or MOE/MCPM as appropriate.

6.5.9. Presentation of information to the competent authority:

The following information should be submitted to the competent authority for approval as part of the reliability program:

(a) The format and content of routine reports.

(b) The time scales for the production of reports together with their distribution.

(c) The format and content of reports supporting request for increases in periods between maintenance (escalation) and for amendments to the approved maintenance program. These reports should contain sufficient detailed information to enable the competent authority to make its own evaluation where necessary.

6.5.10. Evaluation and review:

Each program should describe the procedures and individual responsibilities in respect of conti nuous monitoring of the effectiveness of the program as a whole. The time periods and the procedures for both routine and non-routine reviews of maintenance control should be detailed (progressive, monthly, quarterly, or annual reviews, procedures following reliability "standards" or "alert levels" being exceeded, etc.).

6.5.10.1. Each Program should contain procedures for monitoring and, as necessary, revising the reliability "standards" or "alert levels". The organizational responsibilities for monitoring and revising the "standards" should be specified together with associated time scales.

6.5.10.2. Although not exclusive, the following list gives guidance on the criteria to be taken into account during the review.

(a) Utilization (high/low/seasonal).
(b) Fleet commonality.
(c) Alert Level adjustment criteria.
(d) Adequacy of data.
(d) Reliability procedure audit.
(e) Staff training.
(f) Operational and maintenance procedures.

6.5.11. Approval of maintenance program amendment

The competent authority may authorise the operator to implement in the maintenance program changes arising from the reliability program results prior to their formal approval by the authority when satisfied that ;

(a) the Reliability Program monitors the content of the Maintenance Program in a comprehensive manner, and

(b) the procedures associated with the functioning of the "Reliability Group" provide the assurance that appropriate control is exercised by the Owner/operator over the internal validation of such changes.

6.6 Pooling Arrangements

6.6.1. In some cases, in order that sufficient data may be analysed it may be desirable to 'pool ' data: i.e. collate data from a number of operators of the same type of aircraft. For the analysis to be valid, the aircraft concerned, mode of operation, and maintenance procedures applied should be substantially the same: variations in utilization between two operators may, more than anything, fundamentally corrupt the analysis. Although not exhaustive, the following list gives guidance on the primary factors which need to be taken into account.

(a) Certification factors, such as: aircraft TCDS compliance (variant)/modification status, including SB compliance.

(b) Operational Factors, such as: operational environment/ utilization, e.g. low/ high/ seasonal, etc. /respective fleet size operating rules applicable (e.g. ETOPS/ RVSM/ All Weather etc.)/ operating procedures / MEL and MEL utilization.

(c) Maintenance factors, such as: aircraft age maintenance procedures; maintenance standards applicable; lubrication procedures and program; MPD revision or escalation applied or maintenance program applicable.

6.6.2. Although it may not be necessary for all of the foregoing to be completely common, it is necessary for a substantial amount of commonality to prevail. Decision should be taken by the competent authority on a case by case basis.

6.6.3. In case of a short term lease agreement (less than 6 month) more flexibility against the para 6.6.1 criteria may be granted by the competent authority, so as to allow the owner/operator to operate the aircraft under the same program during the lease agreement effectivity.

6.6.4. Changes by any one of the operator to the above, requires assessment in order that the pooling benefits can be maintained. Where an operator wishes to pool data in this way, the approval of the competent authority should be sought prior to any formal agreement being signed between operators.

6.6.5. Whereas this paragraph 6.6 is intended to address the pooling of data directly between operators, it is acceptable that the operator participates in a reliability program managed by the aircraft manufacturer, when the competent authority is satisfied that the manufacturer manages a reliability program which complies with the intent of this paragraph.

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B - AIRWORTHINESS DIRECTIONS

CHAPTER B. 16 AIRCRAFT MAINTENANCE LOG

SECTIONS

1. GENERAL

1.1 The Rule 166 (1) (g) of the Civil Aviation Rules, 1984 requires that an Aircraft Maintenance Log (AML) shall be kept for an aircraft registered in Bangladesh. The rule 166 (7) of the CARs, 1984 further requires that, entries in any logbook shall be made in the form and manner as may be specified by the Chairman.

2. AIRCRAFT MAINTENANCE LOG - BASIC REQUIREMENTS

2.1 An aircraft maintenance log shall contain at least the folio wings:

(a) A Title Page with the registered name and address of the operator, the aircraft type and the full international registration marks of the aircraft.

(b) A valid Certificate of Maintenance Release as specified in the ANO (airworthiness) B.3

(c) A statement on the next issue of Maintenance Release due at aircraft hours and date (as may be applicable) to comply with the inspection cycle of the Approved Maintenance Schedule and any out of phase inspection or component change due before that time.

(d) A readily identifiable section containing sector record pages at least in duplicate. Each page shall be pre-printed with the operator's name and page serial number and shall make provision for recording the following:

(i) The aircraft type and registration marks.

(ii) The date and place of take-off and landing.

(iii) The times at which the aircraft took off and landed.

(iv) Particulars of any defect in any part of the aircraft affecting the airworthiness or safe operation of the aircraft which is known to the Pilot-5n-Command or, if no such defect is known to him, an entry to that effect.

(v) The date and signature of the Pilot-in-Command following completion of item (d) (iv) as mentioned above.

(vi) The arrival fuel state.

(vii) A Certificate of Compliance as required by the ANO (airworthiness) B.3 in respect of any work carried out for the rectification of defects. This certificate shall be entered in such a position and manner as to be readily identifiable with the entry of the defect to which it relates.

(viii) The quantities of fuel and oil uplifted, and the quantity available in each tank, or combination of tanks, at the beginning of each flight.

(ix) The running total of flying hours, such that the hours to the next inspection can be readily determined.

(x) Provision of signatures for certification of Pre-Flight, Transit and Daily Inspection as is applicable.

(xi) The times when ground de-icing (if applicable) was started and completed.

(xii) The running total of landings.

(e) A readily identifiable section containing acceptable deferred defect record pages at least in duplicate. Each page shall be pre-printed with the operator's name and page serial number and shall make provision for recording the following:

(i) A cross-reference for each deferred defect such that the original defect can be clearly identified in the sector record page section.

(ii) The original date of occurrence of the defect deferred,

(iii) Brief details of the defect.

(iv) A cross-reference for each deferred defect such that the action in respect of such deferred defect can be readily identified on the sector record page.

NOTE: (1) Where sector record pages are of the multi-sector "part-removable portion" type then such "part-removable portions" shall contain any of the above information necessary plus all relevant as required by the section 3 of this Order, if applicable, to ensure the safe operation of the aircraft.

(2) Examples of Aircraft defect and servicing sector record page and Deferred defect record page are shown in the appendix 1 and 2 of this ANO.

2.2 A specimen copy of the A.M.L. shall be submitted to the CAAB for acceptance, and agreement in respect of the supplementary information required (see section 3 of this Order).

3. AIRCRAFT MAINTENANCE LOG – SUPPLEMENTARY REQUIREMENTS

3.1 It will be necessary to record additional information for a specified aircraft. The following items are typical of what is required, where appropriate, but the list is not intended to be exhaustive:

(a) Maximum or Intermediate Contingency Power. It is necessary to record the duration of maximum and intermediate contingency power usage, and subsequently to transfer the information to the engine logbook or maintenance record. For rotorcraft the record of each use of these powers must also subsequently be transferred to the log cards or other appropriate documents applicable to those components of the transmission which always transmit the power from a single engine only, i.e. components upstream of any combining gearbox.

(b) Landings. The number of landing carried out will be necessary for undercarriage component life consideration.

(c) Flight Pressure Cycles. The number of pressure cycles will be necessary for fuselage life considerations.

3.2 Supplementary information shall be assessed by the operator and agreed by the CAAB.

4. RETENTION OF RECORDS

4.1 All entries in the Aircraft Maintenance Log shall be made at least in duplicate, with provision for one copy of each entry to be removed and retained on the ground before the next flight, except that, in the case of an aeroplane of which the maximum total weight authorised does not exceed 2730kg, or a helicopter, if it is not reasonably practicable for the copy of the Aircraft Maintenance Log to be kept on the ground it may be carried in the aeroplane or helicopter, as the case may be, in a fire proof (reasonably) box approved by the CAAB for that purpose. Adequate arrangements shall be made to extract information recorded in the Aircraft maintenance Log for use by the maintenance organization and component overhaul organisation.

4.2 All entries and signature in the AML shall be made in ink or indelible pencil.

4.3 All entries in the Aircraft maintenance Log shall be retained by the operator for a period not less than two years after the particular aircraft has been destroyed or permanently withdrawn from use and its Certificate of Registration in cancelled. The CAAB may consider a different retention period in a particular case.

This order is issued in pursuance of the Rules 4 and 166 of the Civil Aviation Rules,

Air Cdre Lutfur Rahman ndu, psc
Chairman
Civil Aviation Authority of Bangladesh

EXAMPLE OF AIRCRAFT DEFECT & SERVICING SECTOR RECORD PAGE

XYZ AIRLINES	AIRCRAFT MAINTENANCE LOG	REGN. MARKS: / A/C TYPE:	AML PAGE NO.

Flight No.	Date:	From:	To:	Captain:	First Officer:

ECTM:	OAT (ºC):	IAS (Kts):	ALT (Ft):	Bleed Air: ON/OFF	Anti Ice: ON/OFF

	Torque (%)	N_P (RPM)	ITT (ºC)	N_H (%)	N_L (%)	W_F (Lbs/Hrs)	Oil Temperature (ºC)	Oil Pressure (PSI)
Engine # 1								
Engine # 2								

Entry No.	Flight Defects or Maintenance Entry (NIL to be mentioned incase of no defect)	Corrective Actions (Applicable Part No., Sl. No., GRN & NRC No. to be mentioned)		
1	"100 FH" Check is to be accomplished as per the Work Order # 31/2009 Dated 17 December 2009	"100 FH" Check satisfactorily accomplished as per the Work Order.	P/N OFF	
			S/N OFF	
			P/N ON	
			S/N ON	
			GRN	
			NRC No.	

MAINTENANCE RELEASE: It is certified that the work specified above has been carried out in accordance with applicable approved maintenance data, the aircraft is considered airworthy for release to service and is in a condition for safe operation. The Maintenance Release is issued as per the ANO (AW) B.3A and the rule 201 of the Civil Aviation Rules, 1984.

Signature : Captain / AME		Signature	AME# 431 AUTH. No.	18 Dec 2009 Date
AME-321 AUTH. NO.	17/12/09 Date			

FLIGHT DATA	Airport	Time (LT) Hrs.	Min
Arrival:			
Departure:			
Sector Air Borne Time (Take off to Landing)			
Aircraft Time (Brought Forward)			
Grand Total AC Time			
No. of Landing (This Sector)			
Total Landings (Brought Forward)			
Grand Total Landings			

2 (if needed use next page)				
			P/N OFF	
			S/N OFF	
			P/N ON	
			S/N ON	
			GRN	
			NRC No.	

MAINTENANCE RELEASE: MAINTENANCE RELEASE: It is certified that the work specified above has been carried out in accordance with applicable approved maintenance data, the aircraft is considered airworthy for release to service and is in a condition for safe operation. The Maintenance Release is issued as per the ANO (AW) B.3A and the rule 201 of the Civil Aviation Rules, 1984.

Signature: Captain / AME)		Signature	AUTH. No.	Date
AUTH. NO.	Date			

CAPTAIN'S ACCEPTANCE OF THE AIRCRAFT FOR THE FLIGHT

Signature	ATPL No.	Time

Engine Oil (Qtrs.)	Engine # 1	Engine # 2
Uplift		
Total		

APU Oil (Qtrs.)	
Uplift	
Total	

Posn	Arrival	Uplift	Total
No. 1 Tank			
No. 2 Tank			
Total			

Fuel up lift from bowser (Ltrs)	
Qty. Delivered	
Voucher No.	

CERTIFICATE OF COMPLIANCE FOR
PRE-DEPARTURE INSPECTION / DAILY INSPECTION
(cross out the non-applicable)

I hereby certify that PDI / DAILY INSPECTION has been carried out in accordance with the current inspection card, approved procedures and the requirements of the Chairman, CAAB.

Signature (AME):	AUTH. No.:	Date:	Time:

DEFERRED DEFECT RECORD PAGE

Page Serial No. ****
****(to be pre-printed)

Operator (to be pre-printed) Aircraft Registration S2-

DEFERRED DEFECT DETAILS FROM SECTOR RECORD					MEL Item Nr. And Defect Deferred to (State Limit)	DEFECT CLEARED		
Nr.	Mention Sector Record Page	Defect as Transferred from original	Auth. Nr. And Signature	Date		Mention Sector Record Page No.	Auth. No.	Date

Before the Defect Cleared section of this page are completed, details of the deferred defect, its number, the sector record page number, together with rectification action, must be recorded and certified on the current sector record page to provide a duplicate record

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B - AIRWORTHINESS DIRECTIONS

CHAPTER B.17	**REFUELING AND DE FUELING WITH PASSENGERS EMBARKING, ON BOARD OR DISEMBARKING**

SECTIONS

1. GENERAL

1.1 ICAO Standard and Recommended Practices require than an aeroplane shall not be refueled when passengers are embarking, on board or disembarking unless it is properly attended by qualified personnel ready to initiate and direct an evacuation of the aeroplane by the most practical and expeditious means available.

1.2 The Rule 327 of the Civil Aviation Rules 1984 mandates that refueling of an aircraft shall be carried out according to the procedures approved or issued by the Chairman.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2 and 183 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the rule, the under mentioned definitions shall apply:

(a) **"Wide-cut fuel"** means, an aviation turbine fuel, (normally designated JET B, JP-4 or AVTAG) that falls between **'gasoline'** and **'kerosene'** in distillation range and consequently compared to kerosene (**JET A or JET A1**), it has the properties of higher volatility (vapor pressure), lower flash point and lower freezing point.

3. APPLICABILITY

3.1 An operator must establish operational procedures for refueling/de-fuelling with passengers embarking, on board or disembarking to ensure the following precautions are taken:

(a) one qualified person must remain at a specified location during fuelling operations with passengers on board ready to initiate an evacuation of the aeroplane by the most practical and expeditious means available. The qualified person must be capable of handling emergency procedures concerning fire protection and firefighting, handling communications and initiating and directing an evacuation;

(b) When refueling with passengers embarking, on board or disembarking, two-way communication shall be maintained by the aeroplanes inter-communication system or other suitable means between the ground crew supervising the refueling and the qualified personnel on board the aeroplane;

(c) Crew, staff and passengers must be warned that refueling/de-fuelling will take place;

(d) **"FASTEN SEAT BELTS"** signs must be **"OFF"** and **"NO SMOKING"** signs must be **"ON"**, together with interior lighting to enable emergency exits to be identified;

(e) Passengers must be instructed to unfasten their seat belts and refrain from smoking;

(f) Sufficient qualified personnel must be on board and be prepared for an immediate emergency evacuation by the most practical and expeditious means available using sufficient number of exits;

(g) If the presence of fuel vapor is detected inside the aeroplane, or any other hazard arises during refueling/de-fuelling, fuelling must be stopped immediately;

(h) The ground area beneath the exits intended for emergency evacuation and slide deployment areas must be kept clear;

(i) Provision is made for a safe and rapid escape routes and evacuation.

(j) When refueling/de-fueling with passengers on board, ground servicing activities and work inside the aeroplane, such as catering and cleaning, should be conducted in such a manner that they do not create a hazard and that the aisles and emergency doors are unobstructed; and

(k) Fire extinguishing equipment suitable for at least initial intervention in the event of a fuel fire and personnel trained in its use be readily available during the ground servicing of an aircraft, and there shall a means of quickly summoning the rescue and fire fighting service in the event of a fire or major fuel spill.

4. ADDITIONAL PRECAUSTIONS

4.1 Additional precautions are required when refueling with fuels other than aviation kerosene or when refueling results in a mixture of aviation kerosene with other aviation turbine fuels, or when an open line is used. An operator shall establish procedures for refueling/de-fueling with wide-cut fuel, if this is required.

This Order is issued in pursuance to the Rules 4 and 327 of the Civil Aviation Rules, 1984.

Air Cdre Lutfur Rahman ndu, psc
Chairman
Civil Aviation Authority of Bangladesh

CIVIL AVIATION AUTHORITYOF BANGLADESH
AIR NAVIGATION ORDERS AIRWORTHINESS REQUIREMENTS

PART B – MAINTENANCE DIRECTIONS

CHAPTER B. 18	**DISPOSITION OF SCRAP AIRCRAFT PARTS AND MATERIALS**

SECTIONS

1. GENERAL

1.1 This order provide information and guidance to persons involved in the maintenance, sale, or disposal of aircraft parts and for preventing scrap aircraft parts and material from being sold or acquired as serviceable parts and materials.

1.2 It is common practice for owners of aircraft parts to dispose of scrap parts & materials by selling, discarding, or transferring such items. In some instances, these items have reappeared for sale in the active parts inventories of the aviation community. Misrepresentation of the status of parts & material and the practice of making such items appear serviceable could result in the use of non conforming parts & materials.

2. DEFINITIONS

2.1. For the purpose of this Order, the definitions as mentioned under the Rules 2 and 183 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the Rule, the under mentioned definitions shall apply:

(a) **Equivalent level of safety** as used in type certification, means a finding where literal compliance with a specific airworthiness requirement cannot be demonstrated but compensating factors exist in the type design that can be shown to provide a level of safety equivalent to that intended by the certification basis.

(b) **Failure condition** means the effect on the aircraft and its occupants, both direct and consequential, caused or contributed to by one or more failures, considering relevant adverse operational or environmental conditions.

(c) **Latent failure** means a failure that is not detected and/or enunciated when it occurs

(d) **Life Limited Parts** means any part for which a retirement time, service life limitation, part retirement, retirement life limitation or life limitation exists, and is permanently removed from service when its operating limit (hours, cycles or calendar time) is exceeded.

(e) **Principle structural element (PSE)** means any element of structure which contributes significantly to carrying flight, ground, & pressurization loads & whose failure could result in catastrophic failure of the airplane.

3. PARTS RECOVERED FROM AIRCRAFT INVOLVED IN ACCIDENTS

3.1 When an aircraft has been involved in an accident, the title to the salvage may pass from the insured owner to other persons (e.g. aircraft insurers); this salvage may be offered for sale either complete or as separate aircraft items in an "as is, where is" condition. While some items may be totally unaffected by the accident or incident which caused the aircraft to be declared as salvage, it is essential to obtain clear evidence that this is the case. If such evidence cannot be obtained, the item may not be returned to service.

3.2 Before overhaul and reinstallation can be considered, all such items must therefore be subject to airworthiness assessment and inspection in the light of adequate knowledge of the circumstances of the accident, subsequent storage and transport conditions, and with evidence of previous operational history obtained from valid airworthiness records. Confirmation of this assessment in the form of an airworthiness release is essential.

3.3 In particular, if a crash load is sufficient to take any part above its proof strength, residual strains may remain which could reduce the effective strength of the item or otherwise impair its functions. Loads higher than this may of course crack the item, with an even more dangerous potential. Further, a reduction in strength may be caused by virtue of the change of a material's characteristics following overheat from a fire. It is therefore of the utmost importance to establish that the item is neither cracked, distorted or overheated. The degree of distortion may be difficult to assess if the precise original dimensions are not known, in which case there is no option but to reject the item. Any suggestion of overheating would be cause for a laboratory investigation into significant change of material properties.

3.4 Scrapping of parts and materials may not be appropriate in certain cases when there is an ongoing evaluation process to determine whether a part or material may be restored to an airworthy condition. Examples of these cases include the extension of life limits, the re-establishment of in-service history records, or the approval of new repair methods and technologies. In these cases, such parts should be segregated from serviceable parts until the decision has been made as to whether these parts can be restored to an airworthy condition, or be scrapped.

4. TYPES OF PARTS AND MATERIALS THAT MAY BE MISREPRESENTED

4.1 Those responsible for the disposal of scrapped aircraft parts and materials should consider the possibility of such parts and materials being misrepresented and sold as serviceable at a later date. Caution should be exercised to ensure that the following types of parts and materials are disposed of in a controlled manner that does not allow them to be returned to service:

(a) Parts and materials for which further processing or rework cannot make them eligible for certification under an approved system;

(b) Parts subjected to unacceptable modifications or rework that is irreversible;

(c) Life-limited parts that have reached or exceeded their life limits, or have permanently missing or incomplete records;

(d) Parts that cannot be returned to an airworthy condition due to exposure to extreme forces or heat (see paragraph 4.5.8 above);

(e) Principal Structural Elements (PSE) removed from a high-cycle aircraft for which conformity cannot be accomplished by complying with the mandatory requirements applicable to ageing aircraft;

(f) Parts that are not within the specifications set forth by the approved design, and cannot be brought into conformance with applicable specifications; and

(g) Parts with non-repairable defects, whether visible or not to the naked eye.

5. METHODS TO PREVENT MISREPRESENTATION OF SCRAP PARTS AND MATERIALS

5.1 **Mutilation of Parts:** Scrapped parts should always be segregated from serviceable parts and when eventually disposed of should be mutilated or clearly and permanently marked. This should be accomplished in such a manner that the parts become unusable for their original intended use and unable to be reworked or camouflaged to provide the appearance of being serviceable. Mutilation may be accomplished by one or a combination of the following procedures, but is not limited to:

(a) Grinding;
(b) Burning;
(c) Removal of a major lug or other integral feature;
(d) Permanent distortion of parts;
(e) Cutting hole with cutting torch or saw;
(f) Melting;
(g) Sawing into many small pieces.

5.1.1 The following procedures are examples of mutilation that are often less successful because they may not be consistently effective:-

(a) Stamping (such as a stamped 'R' on a part);
(b) Spraying with paint;
(c) Hammer marks;
(d) Identification by tag or markings;
(e) Drilling small holes;
(f) Sawing in two pieces. Persons who rework scrap parts & materials may be skilled technicians and attempt to restore parts cut in two pieces in such a manner that the mutilation proves difficult to detect.

5.2 When scrapped parts are disposed of for legitimate non-flight uses, such as training and education aids, research and development, or for non-aviation applications, mutilation is often not appropriate. In such cases the parts should be permanently marked indicating that they are not serviceable; alternatively, the original part number or data plate information can be removed or a record kept of the disposition of the parts. In such instances the following methods should be used to prevent misrepresentation:

(a) Permanently marking or stamping the parts, subparts and material as ' NOT SERVICEABLE'. (Ink stamping is not an acceptable method);

(b) Removing original part number identification;

(c) Removing data plate identification;

(d) Maintaining a tracking or accountability system, by serial number or other individualized data, to record transferred scrap aircraft parts & materials; and

(e) Including written instructions concerning disposition and disposal of such parts & materials in any agreement or contract transferring such parts & materials.

NOTE: Scrap or expired life-limited parts & materials should not be passed on to any persons or organization who may end up placing the parts & materials back in actual use, due to the criticality of parts & material failure and the potential safety threat.

(f) Organization handling scrap or expired life-limited aircraft parts & materials should establish a quarantine store area in which to segregate such items from active serviceable inventories and to prevent unauthorized access. Caution should be exercised to ensure that these parts & materials receive the disposition specified in this Notice.

(g) Manufactures producing approved aircraft parts should consider maintaining records of serial numbers for 'retired' life-limited or other critical parts. In such cases, the owner who mutilates applicable parts is encouraged to provide the original manufacturer with the data plate and/or serial number and final disposition of the part.

6. METHOD TO IDENTIFY MISREPRESENTED PARTS

6.1 All purchasers of aircraft parts & materials should be ensure that misrepresented scrap parts & materials are not received into active inventory. The following are examples of conditions to be alert for when receiving parts:-

(a) Parts showing signs of rework which were purchased as 'new'

(b) Used parts showing signs of unapproved or inappropriate repair.

(c) Parts with poor workmanship or signs of rework in the area of the part data plate, number or serial number inscription.

(d) Used parts lacking verifiable documentation of history and approval.

(e) Parts with prices 'too good to be true'.

(f) Questionable part numbers, fraudulent or suspicious Technical Standard Order of FAA-Parts Manufacturer Approval markings and/or re-identification, stamp-overs or vibro-etching on the data plate.

(g) Parts delivered with photocopied or missing JAA Form 1 or other acceptable maintenance release documentation.

(h) Parts with a finish that is inconsistent with industry standards (e.g., discoloration, inconsistencies, resurfacing)

(i) Parts purchased as new but with release documentation reflecting a status other than new.

(j) Parts with poor documentation exhibiting incomplete or inconsistent part identity information.

(k) Intact 'scrap' unsalvageable parts offered in bulk weight for prices higher than for mutilated parts with identical weight and content.

6.2 An approved organization or AME who receives suspect parts should report to the Chairman CAAB of the suspected parts.

Issued in pursuance of the Rules 4, 185, 194, 196, 197, 198 and 199 of the Civil Aviation Rules 1984.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority of Bangladesh

CIVIL AVIATION AUTHORITY OF BANGLADESH

AIR NAVIGATION ORDERS AIRWORTHINESS REQUIREMENTS

PART B – MAINTENANCE DIRECTIONS

CHAPTER B.19	REPORTING OF UNAPPROVED PARTS TO TYPE CERTIFICATE HOLDERS AND CAAB

SECTIONS

1. GENERAL

1.1. This order prescribes importance of installing only approved parts and materials on aircraft and also provides guidelines to the industry and AMEs for identifying both approved and unapproved parts / materials, and procedures of reporting by the organisation and AMEs of Suspected Unapproved Parts (SUP) to the Chairman and the Holder of Type Certificate.

1.2 The need to ensure that parts installed on an aircraft meet the design specification and are serviceable is self-evident. The installation of any part failing to meet the intended design requirements degrades those requirements, leading to a degradation of airworthiness.

1.3 An approved part is one whose design has been found to be acceptable to the State of Design, whose proper manufacture has been approved by the State of Registry, and that has been found to be in a condition for safe operation by the State of Registry.

NOTE: Parts approved pursuant to 1.3 above are eligible for installation on a specific aircraft if, and only if, they also meet the approved design data applicable to the particular aircraft they are to be installed on. For example, a seat designed and approved for 9 g forward loads is not eligible for installation on an aircraft which is required to have a seat that is dynamically tested for 16 g.

1.4 Standard parts such as fasteners are considered as approved parts when they are in compliance with a national or industry accepted standard and when referenced in the type design of the particular aircraft.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2 and 183 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the Rule, the under mentioned definitions shall apply:

(a) **Approved Parts** means a part that has met one of the applicable certification requirements as mentioned in the ANO (AW) A.1 and the ANO (AW) B.14, Appendix-1.

NOTE: In case parts produced in USA, the "approved parts" shall meet the requirements outlined in the FAR Part 21 for parts produced in EASA countries the requirements mentioned in the JTSO.

(b) **Unapproved Parts** means a part or materials intended for installation on a type certificated product/aircraft, which has been neither manufactured according to approved procedures, nor conforms to an approved type design; or it fails to conform to declared specifications or accepted industry standards (i.e. standard parts).

(c) **Counterfeit Part** means a part made or altered to imitate or resemble an "approved part" without authority or right, and with the intent to mislead or defraud by passing as original or genuine.

(d) **Distributors** mean Brokers, dealers, resellers, or other persons or agencies engaged in the sale of parts for installation in TC aircraft, aircraft engines, propellers, and appliances.

(e) **Part Not Eligible for Installation** means a part that is not eligible for installation on an FAA TC product. This also includes parts that are determined to be "approved parts," but are awaiting maintenance.

(f) **Product** means **an** aircraft, aircraft engine, or propeller, as defined in part 21.

(g) **Production Approval Holder (PAH)** means the holder of a Production Certificate (PC), Approved Production Inspection System (APIS), Parts Manufacturing Authorisation (PMA), or Technical Standard Order Authorisatioin (TSOA) who controls the design and quality of a product or part thereof.

(h) **Reporter** means any person who furnishes information regarding a SUP.

(i) **Anonymous Reporter.** One who deliberately withholds personal information that might reveal their identity. For example, the name, address, and phone number are not provided.

(j) **Confidential Reporter** means one who requests his or her personal information to be confidential. Information provided for law or regulatory enforcement purposes will be protected under the Freedom of Information Act (FOIA), to the greatest extent allowed. If the reporter requests confidentiality, details relevant to the SUP report that could reveal the reporter's identity are not to be released outside the CAAB.

(k) **Standard Part** means a part manufactured in complete compliance with an established industry or international specification that includes design, manufacturing, test and acceptance criteria, and uniform identification requirements. It also includes a type of part that the FAA/EASA has found demonstrates conformity based solely on meeting performance criteria, and is in complete compliance with an established industry or international specification which contains performance criteria, test and acceptance criteria, and uniform identification requirements. The specification must include all information necessary to produce and conform to the part, and be published so that any party may manufacture the part. Examples include, but are not limited to, National Aerospace Standards (NAS), Army/Navy (AN) Aeronautical Standard, Military Standard (MS), Society of Automotive Engineers (SAE), Joint Electron Device Engineering Council, Joint Electron Tube Engineering Council, and American National Standards Institute (ANSI).

(l) **Supplier** means any person who furnishes aircraft parts or related services, at any tier, to the producer of a product or part thereof.

(m) **Suspected Unapproved Part (SUP)** means a part, component, or material that is suspected of not meeting the requirements of an "approved part." A part that, for any reason, a person believes is not approved. Reasons may include findings such as different finish, size, color, improper (or lack of) identification, incomplete or altered paperwork, or any other questionable indication.

NOTE: An "approved part" which is used in the wrong application should be addressed as a potential violation of the rule 198, however it is not considered to be an SUP.

(n) **Unapproved Part** means a part that does not meet the requirements of an "approved part" (refer to definition of "approved parts" in paragraph 3b). This term also includes parts that may fall under one or more of the following categories:

(i) Parts shipped directly to the end user by a manufacturer, supplier, or distributor, where the parts were not produced under the authority of (and in accordance with) an FAA production approval for the part (e.g., production overruns where the parts did not pass through an approved quality system).

NOTE: This includes parts shipped to an end user by a Production Approval Holder's(PAH) supplier who does not have direct ship authority from the PAH.

(ii) New parts that have passed through a PAH's quality system which do not conform to the approved design/data.

NOTE: Do not report parts damaged due to shipping or warranty issues as an SUP.

(iii) Parts that have been intentionally misrepresented, including counterfeit parts.

(iv) Parts maintained or approved for return to service by a person or organization not approved to do so;

(v) Parts not maintained in accordance with the requirements of the applicable approved data; and

(vi) Parts having reaching their life limit, including, if applicable, any shelf-life.

3. RESPONSIBILITY OF THE INSTALLER OF THE PART

3.1 To determine that the installation of a part complies with the applicable regulations, the installer of the part is ultimately responsible for establishing that the part conforms to its type design and is in a condition for safe operation ("airworthy").

3.2 To enable compliance with the regulations, and to offer further guidance and clarification relevant to the eligibility of aeronautical replacement parts, the FAA AC 20-62D may be referred.

4. DETECTION OF SUSPECTED UNAPPROVED PARTS

4.1 The airworthiness of aeronautical products would be in question if the design and quality of the parts are unknown. Positive identification of unapproved parts can be difficult if the parts display characteristics similar to that of an "approved part." The following guidelines offer a means by which "approved parts" (and their sources) may be assessed:

4.1.1 **Procurement Process.** Establish a procedure to ensure the procurement of "approved" parts prior to purchasing parts and material for installation in TC products. This procedure should include the following as a minimum:

(a) Methods of identifying distributors and/or suppliers who have a documentation system, and receiving inspection system that ensures the traceability of their parts to an acceptable approved source.

(b) Methods of screening unfamiliar distributors and/or suppliers to determine if the parts present a potential risk of being "unapproved." The following are situations that may raise questions:

(i) A quoted or advertised price that is significantly lower than the price quoted by other distributors and/or suppliers of the same part.

(ii) A delivery schedule that is significantly shorter than that of other distributors and/or suppliers (when the stock of a like item is exhausted).

(iii) Sales quotes or discussions from unidentified distributors that create the perception that an unlimited supply of parts, components, or material is available to the end user.

(iv) A distributor and/or supplier's inability to provide substantiating documentation that the part was produced in accordance to an appropriate regulatory approval, or inspected, repaired, overhauled, preserved, or altered in accordance with the applicable regulations.

4.1.2 **Acceptance Procedures.** Procedures should include a means of identifying SUP during the receiving inspection and prevent their acceptance. Suggested areas to be addressed include the following:

(a) Confirm the packaging of the part identifies the supplier or distributor, and is free from alteration or damage.

(b) Verify that the actual part and delivery receipt reflect the same information as the purchase order regarding part number, serial number, and historical information (if applicable).

(c) Verify that the identification on the part has not been tampered with (e.g., serial number stamped over, label or part/serial numbers improper or missing, vibro-etch or serial numbers located at other than the normal location).

(d) Ensure that the shelf life and/or life limit has not expired, if applicable.

(e) Conduct a visual inspection of the part and supporting documents to the extent necessary to determine if the part is traceable to an approved source. For detailed guidelines on the identification of replacement parts, refer to AC 20-62D. The following are examples of positive forms of identification:

(i) FAA Form 8130-3, Airworthiness Approval Tag or acceptable equivalent as mentioned in the ANO (AW) B.14.

(ii) European Aviation Safety Agency (EASA) or Transport Canada Civil Aviation Authorized Release Certificate (equivalent to FAA Form 8130-3). Maintenance records or release document with approval for return to service.

(iii) FAA Technical Standard Order (TSO) markings.

(iv) FAA Parts Manufacturer Approval (PMA) markings.

(v) Shipping ticket/invoice from PAH.

(vi) Direct ship authority letter from PAH.

(f) Evaluate any visible irregularities (e.g., altered or unusual surface, absence of required plating, evidence of prior usage, scratches, new paint over old, attempted exterior repair, pitting, or corrosion).

(g) Conduct random sampling of standard hardware packaged in large quantities in a manner that corresponds to the type and quantity of the parts.

(h) Segregate parts of questionable nature and attempt to resolve issues regarding questionable status of part (e.g., obtain necessary documentation if inadvertently not provided, or determine if irregularities are a result of shipping damage and handle accordingly).

4.2 **Supporting documentation:** A documentation process providing written evidence of the acceptability of a part is an essential element of any system designed to ensure that only approved parts are installed on an aircraft. Such a process is intended to provide all relevant information concerning the part to which it refers sufficient to enable a potential installer to readily ascertain its status. Such documents will contain information relating to:

(a) The authority under which it is issued;

(b) Reference identification for the purposes of traceability;

(c) Name, address and approval reference of the issuing organization;

(d) Work order, contract or invoice number;

(e) Quantity, description, part number and, if applicable, serial number of the part;

(f) Relevant information concerning any life limitations, including in-service history records;

(g) The signature and approval reference of the person issuing the document; **and**

(h) Whether the part is new or used.

4.3 At any time a part is deemed to be suspect, it and any accompanying documentation should be quarantined immediately and held until the body responsible for processing the reports is satisfied that the evidence is no longer required or until the authenticity of the part has been established.

5. PRECAUTIONS TO PREVENT THE INADVERTENT ACCEPTANCE OF UNAPPROVED PARTS

5.1 Documentary evidence of compliance with an approved process will not in itself provide a guarantee against the installation of unapproved parts if the original supplier of such parts knowingly provides false information or otherwise sets out to deceive.

5.2 It is always necessary to have secondary defences in place designed to give early warning of unapproved parts prior to their release for installation. The primary defence in such cases is a strong, well-informed and alert parts ordering and receiving system which, through auditing and reports, establishes a satisfactory level of confidence in its parts suppliers and which:

(a) Ensures a continual correlation between parts ordered and parts received;

(b) Is alert to any unauthorized alterations to supporting documentation and to any inability of the supplier to supply the required documentation;

(c) Is aware if a quoted price for the part is significantly lower than that quoted by other suppliers;

(d) Is aware that delivery times are significantly shorter than those quoted by other suppliers; **and**

(e) Is aware of parts packaging methods used by approved parts manufacturers, maintenance organizations and distributors, and can detect deviations from these methods.

5.3 Organizations, particularly approved maintenance organizations and operators, should ensure that all those staff who have routine contact with parts, including especially buyers, stores staff, mechanics and certifying staff, are fully aware of the dangers posed by unapproved parts and also the likely sources. Ample warnings should be given to such staff about accessing any unapproved parts database. Approved maintenance organizations and operators will also need to ensure that their parts suppliers are fully integrated into the reporting network, and audits will be necessary among staff at intervals to ensure that all remain vigilant to the problem.

6. UNAPPROVED PARTS REPORTING

6.1 Systems used by end users to report to Type Certificate holders and regulatory agencies are intended to provide widespread warning of the detection of unapproved parts so that operators of similar equipment can be made aware as soon as possible. In view of the likely random appearance of unapproved parts, access to a reporting system should be easy and available at all reasonable times. It follows that publicity for the reporting system (and the programmes generally) should be widespread.

6.2 In order to obtain as much information as possible from a report of a suspected unapproved part, it is necessary to have a standardized reporting format. Information required will include part description and from where received; part and (if applicable) serial numbers; particular colours, markings, dimensions and features common to the unapproved part which distinguish it from the genuine item; and the nature of any accompanying documentation.

6.3 At any time a part is deemed to be suspect, it and any accompanying documentation should be quarantined immediately and held until the body responsible for processing the reports is satisfied that the evidence is no longer required or until the authenticity of the part has been established.

6.4 Some reports of suspected unapproved parts will eventually turn out to be false as further information becomes available in the form of supporting documentation, etc. A successful reporting system should accept such false alarms and the wasted effort they generate in the knowledge that to discourage them might eventually lead to the suppression of a genuine report.

6.5 A relatively simple database, preferably computer driven, will be required to maintain a record and allow easy processing of reports of suspected unapproved parts. The database should be capable of interrogation such that any common thread within the reports received is readily identified by keyword access. The database itself can be a dedicated system or part of a much larger general occurrence reporting system.

6.6 In view of the international nature of the aviation industry and in particular the known international nature of the generation and distribution of unapproved parts, the ability to link national databases is obviously advantageous, the unimpeded cross-flow of information being essential in successfully combating the problem.

6.7 It is recognized that parts stockists and distributors have a significant influence over preventing the use of unapproved parts. Such organizations have an established commercial role of stocking or obtaining parts, often at short notice. Some States approve stockists and distributors but others do not.

6.8 In airworthiness terms, the parts supplier's role is simply that of a holder of a part and its supporting data for a limited period, the part and data being passed in their entirety to the purchaser. The most effective control is exercised by the purchaser of the parts by ensuring that the part is correct and that the documentation truly reflects the status of the part. Further assurance is provided by the installer purchasing only from those suppliers having a known satisfactory record.

6.9 Parts distributors may also break down large orders of identical parts into smaller lots for shipment to end users. In this case they should provide documentation that the parts came from the original large order and either issue a second set of airworthiness documentation, if authorised by their State regulatory authority to do so, or attach a copy of the original airworthiness documentation.

6.10 Reports of SUP may originate from numerous sources such as incoming/receiving inspections, audits, facility surveillance, complaints, congressional inquiries, accident, or incident investigations, or various service difficulty reports.

6.11 The CAAB encourages the disclosure of information regarding aviation safety. Reporters may be concerned with the potential repercussions of reporting the discovery of parts that are alleged to be unapproved. Although reports may be made anonymously, request the submission of the reporter's name to enable the Chairman to contact the regulatory authority of the concerned country for verification of information and provide follow-up to the reporter.

6.12 The reporter i.e. Organisation or AMEs should complete the Form shown as the Appendix A to this ANO and shall forward the completed form to the Chairman and the holder of the applicable Type Certificate.

Issued in pursuance of the Rules 4, 185, 194, 196, 197, 198 and 199 of the Civil Aviation Rules 1984.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority of Bangladesh

SUSPECTED UNAPPROVED PARTS(SUP) REPORT		
1. Reference No & Date of the submitter:		
2. Date the part was discovered:		3. Part Name:
4. Part Number:		5. Part S/N:
6. Quantity:	7A. Assembly Name:	7B. Assembly Number:
8. Aircraft Make & Model		
9. Name & Address of (the company or Person) where the SUP was discovered: Name & Address: Phone (Land Phone): Phone (Cell phone):		
Check one of the following Applicable to the company or person who discovered the parts:		
10. AMO Approval Number		11. Authorization Number
12. AME Number:		13. Other
14. Brief details of suspicion of the parts:		
15. Particulars of the Supplier (From whom the parts was received): Name & Address: Phone (Land Phone): Phone (Cell phone):		
16. Tick the Box if you request anonymity (Do not want your particulars to be known in such case do not complete block 1,9, 10-13)		☐
17. Additional information if any:		

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B – MAINTENANCE DIRECTIONS

CHAPTER B. 20	**USE OF PARTS REMOVED FROM AN AIRCRAFT NO LONGER IN SERVICE**

1. GENERAL

1.1 This order provide information, guidance to persons involved in the maintenance, sale, or disposal of aircraft parts, regarding disposal and use of aircraft materials, parts, appliances and components from an aircraft, which is no longer in use and also direction on reporting of defects to the Chairman, following installation on aircraft.

1.2 It is a common practice for owners of aircraft parts to dispose off aircraft materials, parts, appliances and components of an out of use aircraft by selling, discarding, or transferring such items. These items may reappear for sale in the active parts inventories of the aviation community. Misrepresentation of the status of such items and the practice of making such items appear serviceable could result in the use of non conforming aeronautical products.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2, 183 and 234 of the Civil Aviation Rules (CARs), 1984 shall apply.

3. MAINTENANCE CONSIDERATIONS

3.1 Aircraft withdrawn from service are often used as a source of spare parts. These parts, although serviceable at the time the aircraft was placed in storage, may have been affected adversely by storage conditions, including especially environmental factors, or by the length of storage.

3.2 The records for the aircraft and its parts prior to the aircraft being placed into storage will need to be researched in order to ascertain the previous maintenance history, and airworthiness directive, modification and repair status of the parts being removed. Any unusual events immediately prior to storage, e.g. heavy landings or lightning strikes, will also have to be considered when deciding on the serviceability of the parts being removed.

3.3 It is important that the parts removal process be planned and controlled in a manner as close as possible to that adopted for routine maintenance tasks on in-service aircraft. The following points in particular should be considered:

(a) The means by which the part is removed should be in accordance with the normal maintenance data (e.g. maintenance manuals), using the tooling specified;

(b) Adequate access equipment should be provided;

(c) If conducted in the open, disassembly should cease during inclement weather;

(d) All work should be carried out by appropriately qualified maintenance personnel;

(e) Open connections should be blanked;

(f) A protected and enclosed quarantine storage area for the parts being removed should be provided in the immediate vicinity of the work area; and

(g) Normal maintenance documentary controls should be used, e.g. the use of work sheets or cards to record component removals, and label identification to show serviceability status.

4. ASSESSMENT OF CONDITION AND RETURN TO SERVICE

4.1 An assessment for condition and eventual return to service of each removed part will need to be conducted by an approved organization. The extent of the work necessary before the part is returned to service may, depending on the factors noted, as mentioned in the paragraph 3.1 of this order. The task needed, may range from a simple external visual inspection to a complete overhaul/restoration in accordance with the respective manufacturers' manual.

5. REPORTING OF DEFECT(S)

5.1 Any defect(s) found in such component(s) installed in aircraft, shall be reported to the Chairman on the form CA–31 as shown in the ANO (AW) B.5.

Issued in pursuance of the Rules 4, 191, 192, 194, 196, 197, 198, 200 and 208 of the Civil Aviation Rules 1984.

Air Cdre Sakeb Iqbal Khan Majlis, ndu, psc
Chairman
Civil Aviation Authority of Bangladesh

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B - MAINTENANCE DIRECTIONS

CHAPTER B. 21	**AGE LIMIT FOR IMPORT OF AGING AIRCRAFT AND ITS MAINTENANCE**

1. INTRODUCTION

1.1 The Rule 295(3) of the Civil Aviation Rules, 1984 specifies that no purchase of an aircraft or an engine by the licensee of Commercial Operator and no sale thereof shall be effected without the approval of the Chairman.

1.2 This Order lays down the age criteria of aircraft to be used by Bangladeshi operator for:

(a) Registration in Bangladesh; and

(b) Operation under Wet Lease agreement.

2. DEFINITIONS

2.1 For the purpose of this Order, the definitions as mentioned under the Rules 2, 183 and 234 of the Civil Aviation Rules, 1984 shall apply. Where a particular definition is not given under the Rule, the under mentioned definitions shall apply:

(a) **"Accidental Damage"** means a damage sustained by an aircraft structure due to discreet sources caused by birds, uncontained engine failure, damage due to wrong handling of ground equipment occurring during routine inspection of an aeroplane.

(b) **"Aging Aircraft"** means the aircraft which have completed design economic life or 20 (twenty) years of age (as applicable) from the date of manufacture, whichever is earlier.

(c) **"Aerial work operation"** means the operation conducted under the rule 105 (2) of the Civil Aviation Rules, 1984.

(d) **"Damage Tolerant"** means the ability of structure to sustain regulatory fail-safe loads in the presence of damage, such as fatigue cracks or corrosion, until the damage is detected through inspection or malfunction and repaired.

(e) **"Design Service Goal (DSG)" / "Design Service Objectives (DSO) / Economic Service life (ESL)"** means the minimum period of service (in terms of Flight Cycle and Flight Hours) during which primary structure is defined to be essentially free of detectable fatigue cracks.

(g) **"Environmental Damage"** means damage due to environment is in the form of corrosion and stress corrosion and may be or may not be time and/or usage dependent.

(h) **"Extended Service Goal"** means in terms of Flight Cycle and Flight Hours utilization of the aircraft model for further period beyond initial Design Service Goal (DSG) and the continuing validity of the Maintenance Programme up to the new defined Limit of Validity.

(i) **"Fatigue Damage"** means the damage caused to a metal structure characterised by initiation of the crack subsequent propagation and as a result of continuous process whose effect is cumulative with respect of aeroplane usage.

(j) **"Multiple Site Damage"** means the presence of secondary damage (cracking) dependent or independent of the primary damage (crack).

(k) **"Limit of Validity (LoV)"** means the point (usually measured in cycles) in the structural life of an aeroplane where the engineering basis for the maintenance actions contained in the Airworthiness Limitations Sections of the Instructions for Continued Airworthiness are no longer a valid predictor of future structural

behaviour. Thus, it presents an operational limit for the aeroplane based on an engineering safety assessment of the supportive engineering data.

(l) "**An eligible on-demand carriage of person and /or goods on payment or promise of payment by a commercial operator not as a scheduled or non-scheduled air carrier"** means operation conducted under this ANO, that meets the requirements of at least 2 (two) qualified pilots employed or contracted by the certificate holder.

Note: The term DSG/DSO/ESL though meaning essentially similar, are separately used by different manufacturer It reflects the expected average utilization of specific aircraft model over 20 (twenty) years of normal airline service. The DSG/DSO/ESL is a figure for design and certification and does not represent any operational limitation, provided that a Structural Maintenance Program is updated and certified up to a new LoV.

3. BACKGROUND

3.1 Current concerns over the continuing airworthiness of older aircraft dates back from a dramatic event on 28th April, 1988, the day when the Aloha Airlines Boeing 737- 200 landed with a section of its upper fuselage missing and its passenger exposed to the open air. The Aloha accident, of course, did not mark the beginning of the aviation industry work to maintain the long-term integrity of an aging aircraft structure and system – but it was indeed a wakeup call to start thinking about continuing airworthiness all over again.

3.2 The Aloha accident referred above is a classic example of an aging aeroplane that suffered structural failure despite having complied with the various maintenance programmes.

4. DESIGN SERVICE OBJECTIVE/GOAL/ECONOMIC SERVICE LIFE - APPLICABILITY

4.1 It has been observed that private operators are keen to bring aircraft which are very old, sometimes even exceeding 30 (thirty) years in age. It is with a view to check the age related problems of the aircraft that the manufacturers indicate a design economic life/design service goal/design service objective life in terms of 20 (twenty) years and/or 60,000 Landings/ Pressurization cycles for the jet aircraft. The purpose behind having this minimum standard in the life of the aircraft is to ensure that the aircraft does not have problems of corrosion, fatigue, metal fatigue, cracks etc, in areas which are normally not accessible even during major checks.

4.2 Normally all aircraft can continue to operate safely beyond DSG/DSO/ESL with proper maintenance as specified in the MPD, CPCP, SSID and all airworthiness directives together with timely incorporation of service bulletins and other mandated structural programme. As an aeroplane ages, the probability of local and multiple site cracking, corrosion and their potential interaction as well as the maintenance costs increase. These aging concerns necessitate additional maintenance activities. Therefore, Structures Tasks Working Groups comprised of regulatory agencies, operators and manufacturers are developing new programmes such as Widespread Fatigue Damage (WFD) and Limit of Validity (LoV) of the aeroplanes maintenance programme.

4.3 Economic considerations determined by the operators will define the operational life of the aeroplane. An operator may choose to stop operation due to many economic reasons including but not limited to seat mile cost, passenger appeal and maintenance costs. However the airworthiness of the aeroplane structures can be maintained or restored through an aggressive maintenance programme to assure safe operation until the Limit of Validity of the aeroplane.

4.4 While certain aircrafts are operating in the airlines of their countries even beyond the DSG/DSO/ESL age, these are exceptions and they are mostly operating in the airlines to which they entered service. As the airline operating such aircraft are fully aware of the entire history of the aircraft and are thoroughly familiar with the various services it has undergone and the environment in which it has operated, they are able to maintain these aircraft beyond the designed economic life. Nevertheless, they carry out major modifications/ inspections as per programs issued by manufacturers/ regulatory authorities of the country concerned.

4.5 **Repair Assessment for Pressurized Fuselage:** The FAA of USA has tasked the aviation industry to develop a method for airlines to evaluate aeroplane repairs to determine whether they are acceptable permanent repairs incorporating damage tolerance. This would restrict the operation of certain large transport category aeroplanes (Airbus Model A300; British Aerospace Model BAC1-11; Boeing Models B-707/720, B-727, B-737, B-747; McDonnell Douglas Model DC-8, DC-9/MD-80, DC-10; Fokker Model F28; and Lockheed Model L-1011 series aeroplanes) beyond a specific compliance time, unless the operator of those aeroplanes had incorporated FAA approved repair assessment guidelines applicable to the fuselage pressure boundary (fuselage skin, door skin, and bulkhead webs) in its operations specification(s) or approved inspection programme, as applicable.

5. DSG/DSO/ESL OF SOME SELECTED AIRCRAFT MODEL

5.1 The DSG/DSO/ESL and LoV and anticipated (preliminary) LoV of some of the selected aircraft model are shown in the **Appendix-1** of this Order. The prospective applicant shall obtain the DSG/DSO/ESL and LoV of the aircraft from the Manufacturer and submit the same before the registration of the aircraft to the CAAB.

5.2 The Bangladeshi Operators are reminded that the anticipated LoV values nor subsequent revisions of the LoV (if any) represents an obligation or commitment by manufacturers (e.g. Boeing aeroplane company) to support an aeroplane to these LoV values, including release of any specific service information, such as inspections, maintenance and preventive modification etc.

5.3 Operators are also reminded that maintenance of aircraft beyond DSG/DSO/ESL and up to LoV life, may not be economical and the cost of maintenance is likely to increase invariably.

5.4 If the aircraft to be imported is not listed in **Appendix-1** of this order, the operator shall make necessary arrangements so that CAAB receives relevant data in respect to that type of aircraft from the manufacturer or regulatory authority of the manufacturer.

6. AGE LIMIT OF AIRCRAFT

6.1 The Bangladeshi Operator(s) and the CAAB are not fully aware of the past history of old aircraft being brought into Bangladesh nor is there an assurance of manufacturers support to maintain such aircraft. Moreover, the kinds of knowledge and engineering product support required for proper maintenance of aging aircraft are not available in Bangladesh in respect of aircraft which have not seen service in this country with any airline. Therefore, after considering flight safety aspects, it has been decided to control operation of old aircraft (in all cases i.e. Purchase, Dry lease and Wet lease) and introduce requirement of strict maintenance in respect of the aging aircraft that has reached specified age limit as mentioned in this Order.

6.2 An Operator desiring to import an ageing aircraft for registration in Bangladesh shall ensure that "C" check or equivalent schedule maintenance is completed on the aircraft within a maximum period not exceeding 90 (ninety) days before the arrival date of the aircraft in Bangladesh. Additionally, the aircraft and its records shall be examined by the Airworthiness Official(s) on behalf of the Chairman. The inspection team will comprise of at least 2 (two) Airworthiness Officials as mentioned below:

(a) Airworthiness Inspector (Aerospace); and

(b) Airworthiness Inspector (Avionics).

6.3 Procurement of the aircraft may be allowed only if found satisfactory and changes as suggested by the Chairman subsequent to inspection are carried out.

6.4 All costs of travel abroad for the above purposes by the Airworthiness Official(s) shall be borne by the importer of the aircraft as per the rule 213 of the CARs, 1984.

6.5 Age limit of aircraft on Commercial Air Transport Operation of Aeroplanes or Commercial Air Transport Helicopter Operations:

6.5.1 Pressurized aircraft to be utilized for carriage of **Persons,** on Purchase / dry / wet lease arrangement:

(a) shall not be more than 20 (twenty) years in age or has completed not more than 70% (seventy percent) of the DSG/DSO/ESL, anyone of the three is acceptable, in terms age or flight cycle/ flight hours, whichever is earlier.

6.5.2 Pressurized aircraft to be utilized for carriage of **Cargo only,** on Purchase / dry / wet lease arrangement:

(a) shall not be more than 30 (thirty) years in age or has completed not more than 75% (seventy five) of the DSG/DSO/ESL, anyone of the three is acceptable, in terms age or flight cycle/ flight hours, whichever is earlier.

6.5.3 Un-Pressurized aircraft to be utilized for carriage of **Persons** on Purchase / dry / wet lease arrangement:

(a) shall not be more than 25 (twenty five) years in age or has completed not more than 75% (seventy five) of the DSG/DSO/ESL (anyone of the three is acceptable) in terms age or flight cycle/ flight hours, whichever is earlier.

6.5.4 Un-Pressurized aircraft to be utilized for carriage of **Cargo** on Purchase / dry / wet lease arrangement:

(a) shall not be more than 30 (thirty) years in age or has completed not more than 75% (seventy five) of the DSG/DSO/ESL (anyone of the three is acceptable) in terms age or flight cycle/ flight hours, whichever is earlier.

Note: *If the manufacturer does not define DSG/DSO/ESL (anyone of the three is acceptable) in terms flight cycle or flight hours confirmed in accordance with paragraph 5.4 of this order, in that case only age restriction will be applicable.*

6.6 Age limit of aircraft for Aerial work Operations

6.6.1 Purchase and/or dry lease arrangement for Aerial work operation [As per rule 105(2)]:

(a) **Pressurized aircraft** shall not be more than 25 (twenty five) years in age or have completed not more than 70% (seventy percent) of its DSG/DSO/ESL (anyone of the three is acceptable) in terms age or flight cycle/ flight hours, whichever is earlier.

(b) **Un-Pressurized aircraft** shall not be more than 30 (thirty) years in age or have completed not more than 80% (eighty percent) of it's the DSG/DSO/ESL (anyone of the three is acceptable) in terms age or flight cycle/ flight hours, whichever is earlier.

6.6.2 Wet lease agreement:

(a) For both **Pressurized and Un-pressurized aircraft**, the aircraft shall not be more than 25 (twenty) years in age and has not completed not more than 75% (seventy five percent) of it's the DSG/DSO/ESL (anyone of the three is acceptable) in terms of age or flight cycle/ flight hours.

Note: *If the manufacturer does not define DSG/DSO/ESL in terms of flight cycle or flight hours confirmed accordance with paragraph 5.4 of this order, in that case only age restriction will be applicable*.

6.7 General Aviation Aircraft [(only as per the 105(3) (a) (d)] of the Civil Aviation Rules, 1984.

6.7.1 Purchase and/or dry lease arrangement:

(a) **Pressurized aircraft** shall not be more than 25 (twenty) years in age or has completed not more than 70% (seventy percent) of the DSG/DSO/ESL, anyone of the three is acceptable, in terms age or flight cycle/ flight hours, whichever is earlier.

(b) **Un-Pressurized aircraft** shall not be more than 30 (thirty) years in age or has completed not more than 70% (seventy percent) of the DSG/DSO/ESL (anyone of the three is acceptable) in terms age or flight cycle/ flight hours, whichever is earlier.

6.8 **General Aviation Aircraft [(only as per the 105(3) (b)] of the Civil Aviation Rules, 1984.**

6.8.1 Purchase and/or dry lease arrangement:

(a) **Pressurized aircraft** shall not be more than 25 (twenty) years in age or have completed not more than 75% (seventy five percent) of its DSG/DSO/ESL (anyone of the three is acceptable) in terms age flight cycle/ flight hours, whichever is earlier.

(b) **Un-Pressurized aircraft** shall not be more than 35 (thirty five) years in age or have completed not more than 15000 hours (total time) or not more than 80% (eighty percent) of it's DSG/DSO/ESL (any one of the three is acceptable) the in terms age or flight hours/ flight cycle.

6.8.2 For both **Pressurized and Un-pressurized aircraft**, the aircraft shall not be more than 25 (twenty five) years in age. Both the type of aircraft have not completed more than 75% (seventy five) of it's the DSG/DSO/ESL (anyone of the three is acceptable) in terms of age or flight cycle/ flight hours.

Note: *If the manufacturer does not define DSG/DSO/ESL in terms of flight cycle or flight hours confirmed accordance with paragraph 5.4 of this order, in that case only age restriction will be applicable.*

6.9 **General Aviation Aircraft [(only as per the 105(3) (c)] of the Civil Aviation Rules, 1984.**

6.9.1 (a) **Pressurized aircraft** shall not be more than 25 (twenty) years in age or has completed not more than 70% (seventy percent) of the DSG/DSO/ESL, anyone of the three is acceptable, in terms age or flight cycle/ flight hours, whichever is earlier.

(b) **Un-Pressurized aircraft** shall not be more than 30 (thirty) years in age or has completed not more than 70% (seventy percent) of the DSG/DSO/ESL (anyone of the three is acceptable) in terms age or flight cycle/ flight hours, whichever is earlier.

Note: *If the manufacturer does not define DSG/DSO/ESL in terms of flight cycle or flight hours or age confirmed accordance with paragraph 5.4 of this order, in that case only age restriction will be applicable.*

6.9.1.1 The Chairman may permit import of un-pressurized aircraft age limit of 35 (thirty five) years of age for the purpose of **flying training purpose only** subject to the following conditions.

(i) the aircraft will be imported with new or overhauled engines within maximum 30% percent since last overhauled as per approved life ;

(ii) the aircraft will be subjected to the Annual Inspection within maximum 30% percent since Annual Inspection accomplished;

(ix) the rotable components shall have proper records and life;

(v) the aircraft must be equipped with DME, ILS and VOR;

(vi) the aircraft will have been operated for not more than 15,000 (total time) hours prior to import; and

(vii) the aircraft will have a valid Export Certificate of Airworthiness/ Certificate of Airworthiness and all components of the aircraft will be within their stipulated overhaul life.

Note: These requirements will not be applicable for local acquisition of Bangladesh registered aircraft maintained in accordance with the Chairman approved procedures which are intended to be acquired for operations mentioned above.

6.9.2 For Pressurized and Un-pressurized aircraft, the operator has to position at least 1 (one) type rated AME from abroad if he is not having required number of type rated Bangladeshi AMEs.

7. DETAILS TO BE FURNISHED FOR IMPORT OF AIRCRAFT

7.1 All persons desirous of importing aircraft are required to furnish the following information:

(i) Copy of Type Certificate if the aircraft is first of its type to be imported.

(ii) Before the import of aircraft which is not operating in Bangladesh, documents/manuals given in ANO(AW) A.1.shall be furnished.

(iii) Manufacturers certified date of Manufacture of the aircraft.

(iv) Time Since New (TSN) / Time since Overhaul (TSO) of aircraft, engines and life of each module since last overhaul/ refurbishment, and any life limiting features.

(v) The history of the airframe Major checks of structure and details of number of landings/ pressurization cycles.

(vi) Details of all significant incidents/accidents in which the aircraft had sustained damage since its induction into service along with the details of repairs that were carried out after these incidents/ accidents to make aircraft airworthy.

(vii) Status of compliance of SBs/ modifications and inspections prescribed by manufacturers requiring structural inspection of specific areas at certain intervals.

(viii) Status of compliance of Airworthiness Directives/mandatory modifications.

(ix) Status of compliance of Supplemental Structural Inspection Programme (SSIP), Corrosion Protection and Control Programme [(CPCP) and if applicable for small aircraft].

(x) Status of aircraft components/ equipment including mandatory equipments.

(xi) Repair assessment programme (RAP).

(xii) Aging Aircraft Repair and Modification Programme

8. RESOURCE REQUIREMENTS (Facilities and Documents)

8.1 Each applicant is required to perform flight test of the aircraft immediately before registration on the Register of Civil Aircraft to the satisfaction of the CAAB.

8.2 Each applicant should provide Resource Requirements as mentioned in the paragraph 4.3 of the ANO (AT) A-2.

9. CALCULATING AIRCRAFT AGE AND POSITIONING OF THE AIRCRAFT

9.1 Age limit of aircraft shall be calculated from the date of manufacture of the aircraft to the date of application in complete for technical clearance to CAAB. After accordance of technical clearance, the aircraft must be positioned in Bangladesh within a period of 90 (ninety) days for the proposed operation of the aircraft if under wet lease and registration of the aircraft if under purchase or dry lease arrangements. Failure to position the aircraft within the stipulated deadline shall require the applicant to initiate a fresh process including fresh calculation of age of the aircraft.

Note: Date of manufacture of the aircraft will be counted from the date itself (when DD-MM-YYYY is available) or last day of the month (when only MM-YYYY is available). But non-availability of the exact date or month from any source, the last day of the manufacturing year i.e. 31st December will be counted for calculation of the age of the aircraft.

10. TECHNICAL DETAILS REQUIRED FOR IMPORT OF AIRCRAFT

10.1 The operator should also import required spares along with the aircraft, so that the aircraft is maintained in airworthy condition as per the Civil Aviation Rules, 1984 and Air Navigation Orders (Airworthiness Requirements) issued by the Chairman from time to time.

11. MAINTENANCE OF AGING AIRCRAFT - GENERAL

11.1 The Rule 186 of the CARs, 1984 lays down the conditions for issue of Certificate of Airworthiness (C of A) to an aircraft and the rule 187 states the requirements for its continued validity. To ensure continued validity of the C of A, the operators are required to maintain their aircraft as per the prescribed approved maintenance programmes, wherein inspections are required to be carried out on FH/FC/calendar period basis. The maintenance programmes are prescribed by the manufacturers taking into account the normal utilisation of aircraft and its operational environment. Naturally a number of associated problems creeps in those aircrafts which have reached or crossed their design economic life, because of age, fatigue, environmental corrosion and accidental damage experienced during the service. These damages if not properly detected and repaired in time, can cause catastrophe. To ensure continued airworthiness of aircraft, manufacturers of aircraft have issued documents prescribing additional structural inspections beyond design economic life.

12. ADDITIONAL MAINTENANCE REQUIREMENTS FOR AGING AIRCRAFT

12.1. The aircraft which have crossed their Design Service Goal /Design Service Objectives / Economic Service Life, shall be maintained (C checks, SIP, CPCP and above) by an Approved Maintenance Organisation having at least 5 (five) years experience in maintenance of aging aircraft of the same type or similar type of aircraft.

12.2 Additionally to cater for operations of the used aircraft in the humid and salty environment of Bangladesh, the following procedures is required to be followed on all the aircraft including private aircraft, which have crossed their DSG/DSO/ESL either in terms of (i) calendar year, or (ii) Flight Cycle or (iii) Flight Hours, whichever is earlier:

(a) The items of Structural Inspection Programme (SIP) or Supplemental Structural Inspection Programme (SSID) as given (if any) in the Maintenance Planning Document (MPD) or any other equivalent document of the manufacturer shall be closely monitored and where required, necessary action be taken in consultation with the manufacturer and shall be incorporated in the AMS/AMP as per the procedures.

(b) Life of major components should be closely monitored to ensure that the life approved in the AMS/AMP by the Chairman is achieved. If it is observed that there is a wide variation between the approved life and the average life achieved, in which case, the approved life should be down graded to the average life achieved.

(c) All minor and major defects should be thoroughly analyzed and exact reason as to the cause of the defect shall be established. Appropriate corrective action should be taken to ensure that the defects are not repeated and the occurrence of defects are minimized. Major defects should be promptly reported to the Chairman.

(d) Test flight shall be carried out at periods not exceeding 2 (two) years and subsequent to accomplishment of the defined Scheduled inspection as may be specified in the AMS/AMP of the aircraft approved by the Chairman.

Issued in pursuance of the Rules 4, 186, 187, 191, 192 and 201 of the Civil Aviation Rule 1984, supersedes the ANO B.21, Issue no. 2 dated 24 August 2011 and cancels the Air Transport Circular No. 2/2008, circulated under the reference no. CAAB/1703/AT/4583, dated 30 December 2008.

Air Vice Marshal Mahmud Hussain, ndc, psc
Chairman
Civil Aviation Authority of Bangladesh

DESIGN SERVICE GOAL (DSG) / DESIGN SERVICE OBJECTIVES (DSO) ECONOMIC SERVICE LIFE (ESL) AND LIMIT OF VALIDITY (LoV) OF FEW SELECTED AIRCRAFT MODEL

AIRCRAFT MAKE AND MODEL	DSG / DSO / ESL & LoV OF FEW SELECTED AIRCRAFT			LI MIT OF VALIDITY (LoV)/ EXTENDED SERVICE GOAL (ESG) AND REMARKS
	Calendar Years (Yrs)	Flight Cycles (FC)	Flight Hrs. (FH)	
Airbus A310-200	20 Yrs.	40,000 FC	60,000 FH	40,000 FC/105000 FH (LoV)
Airbus A310-300	20 Yrs.	35,000 FC	60,000 FH	40,000 FC/116000 FH (LoV)
A320-200	20 Yrs.	48,000 FC	60,000 FH	60,000 FC/120,00 FH (ESG-1)
DC 10-30		30,000 FC	60,000 FH	60,000 FC/ 120,000 FH (LoV)
F.27 Mk 100- 700	20 Yrs.	90,000 FC	--	90,000 FC (LoV)
F.28 Mk1000-4000	--	60,000 FC	--	90,000 FC for Pre SB F28-51-26(LoV) 100,000 FC for Post SB F28-51-26(LoV)
HS-748 Series 2A/2B	20 Yrs.	30,000 FC	30,000 FH	90,000 FH (High Utilisation Schedule); or 48 Years for Low Utilisation Schedule
B 707	20 Yrs.	20,000 FC	--	Under evaluation by Boeing and approval by FAA
B 727-100/200	20 Yrs.	--	--	*85,000 FC/85,000 FH
B 737-100/200 L/N 1-291	20 Yrs.	51,000 FC	75,000 FH	*75,000 FC/75,000 FH
B 737-100/200 L/N 292 and on	20 Yrs.	51,000 FC	75,000 FH	*85,000 FC/100,000 FH
B 737-300 / 400 / 500	20 Yrs.	--	--	*85,000 FC/100,000 FH
B 747-100/ 200 / 300 /SP	20 Yrs.	20,000 FC	60,000 FH	*35,000 FC/135,000 FH
B 777-200 / 200LR / 300 /300 ER	30 Yrs.	40,000 FC	--	*60,000 FC/160,000 FH
DC 9 Series	20 Yrs	40,000 FC	--	*110,000 FC/FH
MD 80 Series	20 Yrs.	50,000 FC	--	*110,000 FC/150,000 FH
Lockheed 1011 Tri Star	--	36,000 FC	72,000 FH	Under evaluation by Lockheed and approval by FAA
Pilatus PC-12/45 (Post SB 04-009)	--	30,000 FC	25,000 FH	1. As it is small aircraft certified under the FAR Part 23, therefore it has no Design Economic Life. The current Life Limit is same as the Design Service Objective/Goal Life. 2. The current Life Limit is under evaluation to allow higher Airframe Life.
Dash 8	--	80,000 FC	80,000 FH	1,60,000 FC/FH (Economic Repair Life) Assuming 1 FH = 1 FC

Note: Asterisk marked FC/FH are based on Preliminary engineering calculation and will be subject to revision following the completion of pending FAA rulemaking.

CIVIL AVIATION AUTHORITY OF BANGLADESH
AIR NAVIGATION ORDERS

AIRWORTHINESS REQUIREMENTS

PART B- MAINTENANCE DIRECTIONS

CHAPTER B.22	REQUIREMENTS FOR REGISTRATION AND AIRWORTHINESS CONTROL OF FREE BALLOONS

1. APPLICABILITY

1.1 This part of the Air Navigation Orders lays down the requirements for registration, issue/ renewal of Certificate of Airworthiness and continuous maintenance of manned free balloons. The persons engaged on maintenance / overhaul / inspection / repair of the balloons and the balloon components shall be licensed / approved by the Chairman.

2. DEFINITIONS

(i) **"Balloon"** means a non-power-driven lighter than air aircraft.

(ii) **"Free Air Balloon"** means a balloon that drives its lift from heated air or gas contained within the envelope.

(iii) **"Balloon Component"** means any part, soundness and correct functioning of which when fitted to a Free Air Balloon is essential for the continued airworthiness and safety of the balloon.

(iv) **"Major Damage"** means any damage to a balloon or balloon component which may affect the safety of the free air balloon or safety of the person on board.

(v) **"Major Defect"** means any failure or malfunctioning of a free air balloon or balloon component, which may affect safety of balloon and/or of persons on board.

(vi) **"Envelope"** means the enclosure in which the lifting medium is contained.

(vii) **"Basket"** means the container suspended beneath the envelope, mainly used for the free air balloon occupants.

(viii) **"Design Maximum Weight"** means the maximum all up weight of the free air balloon when not filled with lifting gas or air.

3. ASSEMBLY OF FREE AIR BALLOONS

3.1 Before a firm undertakes assembly of free air balloon, a security clearance from the Ministry of Home Affairs authorities for the purpose shall be obtained. The Security Clearance is to be renewed after every 5 (five) years.

3.2 The standards prescribed in the FAR Part 31 for the design shall be the minimum requirements for airworthiness of the free air balloons.

3.3 The suitability and durability of all materials must be established on the basis of experience or tests. It will be ensured that they have the strength and other properties assumed in the design.

3.4 Firm(s) desirous to take up assembly of free air balloons will intimate the Chairman of their intention and apply for necessary approval as required under ANO (AW) A.1.

3.5 A free air balloon used for personal flying by the pilot(s) shall need to have a Type Certificate.

3.6 The firm(s) taking responsibility for the quality assurance of the products will issue a Certificate of Compliance to airworthiness standard duly signed by the CAAB approved technical personnel..

3.7 The Operator shall keep a complete record of all free air balloons assembled and shall produce this record to Chairman when required.

3.8 The Operator shall prepare the necessary documents regarding maintenance and operation for approval of the Chairman in accordance with ANO (AW) A.1.

3.9 The firm(s) shall issue satisfactory maintenance programme to ensure continued airworthiness of the free air balloon and shall deliver the same with every balloon assembled. The firm(s) shall also specify the overhaul life of the burner / instruments / gas pipelines and advise the operators regarding organisations which shall be approached for the overhaul or other major maintenance. The firm(s) shall be responsible for issuance of any modifications to the free air balloon to improve safety of operations after the approval of the Chairman. For this purpose the manufacturer of the free air Balloon may provide kits or drawings or suggest alternate methods so that the operators can carry out the modifications.

3.10 Components of Free Air Balloon/Spare Parts and Materials used on a Free Air Balloon shall be:

(i) Covered by a Release Note, or equivalent document acceptable to the Chairman, issued by an approved firm.

(ii) Manufactured or repaired/overhauled, inspected and certified as airworthy by an approved organisation or persons appropriately licensed or approved by the Chairman.

4. REGISTRATION AND MARKINGS OF BALLOONS

4.1 All manned free air balloons are required to be registered before any flight is undertaken and registration markings must be affixed thereon in manner prescribed in the Rules 179 and 180 of the CARs 1984 and the ANO (AW) A.5.

4.2 The application for registration should be made on the form CA-27C and should include the prescribed fee as mentioned in the ANO (AW) A.10. Bank Draft payable to the Chairman.

4.3 The Certificate of Registration, when issued, shall include information on the type of free air balloon, constructor's serial number, nationality, registration markings assigned, the number and date of registration. A copy of this C of R shall be kept on board during flight.

4.4 Every free air balloon shall carry an identification plate showing the registration markings, constructor's name, the balloon serial number and the name and address of the owner of the balloon.

5. SECURITY ASPECTS

5.1 Security clearance of the Firm(s) / Owner/ Operator as is applicable shall be obtained from the Ministry of Home Affairs authorities before initial commencement of the operations.

5.2 Before registration of free air balloon in the name of any firm(s), full particulars thereof shall be obtained in the prescribed form as is enclosed in the **Appendix-1.**

5.3 The free air balloon shall not be sold or disposed of in any way to any person or firm without production of a certificate from the Chairman. The certificate shall granted by the Chairman after verifying the antecedents of the prospective buyers.

5.4 The free air balloon shall not be flown over entire air space covering VIP locations, defence installations, other restricted and prohibited areas. The free air balloon shall also not be flown over an assembly of persons or over congested areas unless prior permission in writing is obtained from the CAAB authorities. The restricted areas shall be notified by the Chairman from time to time in consultation with the Ministry of Home Affairs.

5.5 The operator shall obtain clearance of the "Local Air Traffic Control" for flyig "the maximum Altitude" in "Local Area" under the Control of the "Local Air Traffic".

5.6 Similarly, he shall obtain clearance of the "Dhaka Flight Information Region, DAC ACC" in all cases, if he operates in the areas "not under control" of the "Local Air Traffic".

5.7 The Operator shall be responsible for the safe custody, security and access control to the free air balloon.

5.8 Normal security measures shall be ensured by the Operator at the place of operation before each flight.

5.9 No photographic equipments shall be taken in the balloons and no photography is permitted from the air except as may be granted by the AT Division of the CAAB.

5.10 No harmful objects, remote-controlled devices, arms, explosive, sensors should be carried in the free air balloons.

5.11 Severe penalties/ action will be taken against the defaulters.

5.12 The form for furnishing particulars for the security clearance of the applicants by the Section Officer of the Ministry of Home Affairs is given in **Appendix -1.**

6. CONDITIONS FOR FLIGHT OF A FREE AIR BALLOON

6.1 No free air balloon shall be flown unless it possesses a valid Certificate of Airworthiness.

6.2 Free air balloons engaged in any type of operations shall possess a Type Certificate issued or validated by the Chairman or export C of A issued by a country whose airworthiness standards are equivalent and acceptable to the Chairman.

6.3 The Certificate of Airworthiness may remain valid for period 1 (one) year, unless withdrawn or suspended earlier by the Chairman if he is satisfied that reasonable doubt exists as to safety of the balloon in question.

6.4 The Certificate of Airworthiness of a balloon shall automatically stand suspended:

(i) If the free air balloon is not inspected and certified by Approved/licensed personnel at intervals prescribed in the approved Quality Control Cum Maintenance System Manual;

(ii) If mandatory modifications/inspections as required by the Chairman are not carried out;

(iii) If modifications / repairs affecting airworthiness of the balloon and not approved by the manufacturer or by the Chairman, are carried out; and

(iv) If a balloon suffers major damage or reveals any major defect which may render the machine unsafe for flight and shall remain suspended till such time the above deficiencies are removed.

6.5 The Chairman may renew the Certificate of Airworthiness in respect of a balloon for a maximum period of 12 (twelve) months, after such inspection and subject to such conditions as may be prescribed. Application for renewal of Certificate of Airworthiness shall be made to the Chairman on the proper form, together with prescribed fee.

7. CERTIFICATION

7.1 No free air balloon shall be flown unless during 24 (twenty four) hours preceding the "lift off", it has been inspected in accordance with an approved schedule and the **"Maintenance Release"** issued, in the form as indicated in the appendix-3 the ANO (AW) B.3A by an AME personnel licensed/approved by the Chairman.

7.2 After issue of the **Maintenance Release** as per the **Appendix-3 of the ANO (AW) B. 3A,** preflight inspection shall have to be carried out before the first flight of the day by an appropriately licensed AME personnel or approved personnel, in accordance with a duly approved schedule.

7.3 The Maintenance Release will remain for 25 (twenty five) hours or 30 (thirty) days inspection times which ever is earlier. The overhaul of the balloon and its components shall be carried out by holders of AME license, endorsed for a particular type of balloon, or persons specially approved or authorised by the CAAB to inspect / repair / modify and certify the airworthiness to the extent and scope of their license/approval permits.

7.4 The Certificate of Maintenance Release shall be made in duplicate, one copy of which shall be handed over to the pilot and the other shall be retained by the operator for a period of one month unless directed otherwise by the Chairman.

8. WEIGING OF THE FREE AIR BALLOON

8.1 The Chairman may require the free air balloon to be weighed at the time of renewal of C of A or at any other time considered necessary.

9. FLIGHT MANUAL

9.1 The operating limitations, normal and emergency procedures and other pertinent information, peculiar to balloon operating characteristics are provided in the Flight Manual, furnished with each free air balloon or by a placard in the balloon, that is clearly visible to the pilot. The cockpit and emergency checklist in laminated form shall be carried on board, unless they form a part of the Flight Manual. The Flight Manual where applicable, shall always be carried on board.

10. SERVICE DOCUMENTS, MANUALS, REPAIR SCHEMES ETC.

10.1 Operators / Organisations shall not undertake maintenance / overhaul of free air balloons unless they possess the manufacturers' maintenance/overhaul manuals and have an arrangement for receiving amendments thereto.

10.2 Repairs, modifications and overhaul of free balloons and free air balloon components shall be performed in accordance with approved drawings / repair schemes and overhaul instructions issued by the manufacturers. In certain cases, the Chairman may accept repairs carried out conforming to standard aeronautical practices.

10.3 Compliance of Service Bulletins / Instructions, mandatory inspections/ modifications issued by the makers or the Chairman will be governed by the requirements of the ANO (AW) B.4 and B.5.

11. LOG BOOKS

11.1 A Journey log Book in respect of each free air balloon indicating details of every flight, like the date of flight, lift off time, total flight time, the places of departure and arrival, shall be maintained. The entries in the log book shall be certified by the pilots undertaking the flights.

11.2 A Balloon log book shall be maintained by every operator to keep a record of the flying, modification and other repair work carried out on the balloon.

11.3 Overhaul Records / Maintenance / Records of Inspection / Replacements / Repairs / Modifications / Flight times shall be maintained in appropriate free air balloon log-book. The entries in the log book shall be certified by a licensed/approved person.

11.4 The records shall be preserved for the following periods :

(i) **Free Air Balloon Log book:** Until such time the balloon is permanently withdrawn and its C of A is canceled by the Chairman. Provided that in case the

free air balloon is involved in an accident resulting in damage beyond economical repairs, the free air balloon log book shall be preserved for a period of 2 (two) years after the accident or for such period as required by a competent authority investigating the accident.

(ii) **Procedure/Worksheet:** For at least 5 (five) years after the pertaining to balloon completion of work.

(iii) **Records/Worksheet:** One year after the component pertaining to lifed is permanently withdrawn from use to lifed components

12. MANUAL REQUIREMENTS

12.1 All free air balloon Operators are required to prepare Quality Control-cum- Maintenance Systems Manuals for the guidance of their maintenance staff which will cover the following aspects :

(i) All approved maintenance schedules and if they are too bulky then only the nomenclature of the approved maintenance schedules along with reference number and date of approval be quoted in the Manual and approved schedules be stocked separately.

(ii) Safety requirements required to be followed during free air balloon handling on the ground or at the time of refueling/defueling, or while being housed inside a hangar.

(iii) Procedure for keeping free air balloon log books/work sheets upto- date and preservation of the same and individuals authorised to certify these documents.

(iv) Procedure of recording/reporting of all defects observed during inspection or during flight and recording of rectification work undertaken.

(v) Occasions when test flights would be carried out.

(vi) Procedure of embodying mandatory modifications/ inspections.

12.2 Such Manuals are to be submitted to the AELD Office for the scrutiny. The manuals prepared by operators shall have to be approved by the Chairman, in accordance with ANO (AW) A.1.

13. DOCUMENTS TO BE CARRIED ON BOARD IN FLIGHT

(1) Journey Log Book.

(2) Radio-Telegraph apparatus log book, if applicable.

(3) Certificate of Registration.

(4) Certificate of Airworthiness.

(5) Appropriate licence for the Flight Crew and Maintenance crew.

(6) Cockpit and Emergency Check List in laminated form or Flight Manual (if applicable).

(7) Weight Schedule, duly approved and to be displayed at a prominent place.

14. DEFECTS REPORTING

14.1 All defects observed on ground and during flight shall be recorded in the Aircraft Maintenance Log book, against which the rectification action taken, shall also be appended by a licensed/approved person and signed and dated. The requirements of ANO (AW) B.5 shall be observed.

15. INSTRUMENTS & EQUIPMENT TO BE CARRIED BY BALLOONS IN FLIGHT

(1) Hand fire extinguisher of an approved type, in the main compartment carrying personnel.

(2) Safety harness for each personnel on board. The harness for each person need not be provided for gondola or basket type of balloons.

(3) A compass

(4) An altimeter

(5) A rate of climb indicator.

(6) First aid kit

(7) A fuel quantity gauge.

(8) An envelop temperature indicator.

(9) Burner relighter.

(10) Two way R/T Communication Equipment.

(11) Life jackets

(12) Any other instruments informed by the Chairman.

16. THE OPERATION OF THE BALLOON

16.1 Flights will only be undertaken during day time under V.F.R conditions.

17. TEST FLIGHTS:

17.1 The Test Flights shall be carried out in accordance with the requirements of before issue / renewal of the C of A or any other time informed by the Chairman.

18. PILOT LICENSING

18.1 The provisions of free air balloon pilot licensing is mentioned in the rule 27 A of the Civil Aviation Rules 1984.

The ANO is issued in pursuance of the Rules 4 and 186 of the Civil Aviation Rules 1984, is a new issue.

(Air Cdre. Mahmud Hussain, ndc, psc)
Chairman
Civil Aviation Authority of Bangladesh

APPENDIX-1

PROFORMA DETAILING PARTICULARS FOR VERIFICATION BY POLICE REGARDING THE APPLICANT/FIRMS FOR ASSEMBLY, PURCHASE, REGISTRATION AND OPERATION OF FREE AIR BALLOONS

WARNING: SUPPRESSION OF MATERIAL OR FACTUAL INFORMATION IN THIS FORM SHALL BE A DISQUALIFICATION.

1. (a) Name of Applicant in Full (in Block Letters)

Surname Name Aliases, if any

(b) Parentage :

Surname Name Aliases, if any

2. Present address in full, including Police Station:

3. (a) Permanent address in full, including Police Station :

(b) If originally a resident of a country other than Bangladesh, address in that country and the date of migration to Bangladesh:

4. Nationality : _____

5. Date and place of birth, with full address:

6. Profession/occupation after the age of 18 years :

7. Particulars of places, with full address, where the applicant has resided for more than a year during the preceding ten years :

8. (a) Particulars of relatives - Bangladeshi and non-Bangladeshi - working in foreign Missions, foreign organizations including foreign concerns, with full details :

(b) Particulars of relatives living abroad with their full address:

9. Is the applicant or any of his relatives a member of social or cultural organisation which is associated with or assisted by a foreign Mission or organisation?

10. Has the applicant visited a foreign country recently? If so, details thereof:

11. Has the applicant ever been arrested, prosecuted, kept under detention, or convicted by a court? Give details:

Certified that the information furnished in this proforma is correct and complete to the best of my knowledge and belief. I am aware that furnishing of wrong information or suppression of factual or material information will dis-entitle me from grant of the licence/permit.

Date :

Signature of the Applicant
(Ministry of Home Affairs)