



सत्यमेव जयते

GOVERNMENT OF INDIA

OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
TECHNICAL CENTRE, OPP SAFDURJUNG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS
SECTION 2 - AIRWORTHINESS
SERIES 'O', PART X
18TH AUGUST, 1999

EFFECTIVE: FORTHWITH

Subject : Requirement for Preparation of Operations Manual

1. INTRODUCTION

- 1.1 All operators including scheduled operators, non-scheduled operators, state government aircraft, private aircraft and flying training institutes are required to maintain an Operations manual detailing the company's policies on operations. Such manual shall be used for guidance by the flight crew while carrying out operations. One copy of the manual shall be carried on board the aircraft during every flight.
- 1.2 This Civil Aviation Requirement details the organisation and contents of Operations Manual. The Manual should be comprehensive and shall contain detailed operations policies and procedures of the operator, stipulations of the mandatory DGCA requirements, and standards of ICAO Annex 6. Notwithstanding the requirements of this CAR, the operator may include additional procedures to be adopted by him consistent with the provisions of regulatory documents to enhance surveillance and safety of operations.
- 1.3 This CAR is issued under the provisions of Rule 133A of the Aircraft Rules, 1937.

2. APPLICABILITY

This CAR is applicable to all scheduled operators, non-scheduled operators, State Government aircraft, private aircraft and flying training institutes.

3. EFFECTIVITY

All operators are required to frame their Operations Manual in accordance with the provisions of this CAR.

4. **ORGANISATION AND CONTENTS OF OPERATIONS MANUAL - Aeroplanes**

4.1 **Organisation** The contents of the Operations Manual, which may be issued in separate parts corresponding to specific aspects of operations, shall be organized with the following structure:

- a) General;
- b) Aircraft operating information;
- c) Areas, routes and aerodromes; and
- d) Training.

4.2 **Contents** The operations manual referred to in 4.1 shall contain at the least the following:

4.2.1 **General**

- (1) Instructions outlining the responsibilities of operations personnel pertaining to the conduct of flight operations.
- (2) Rules limiting the flight time and flight duty periods and providing for adequate rest periods for flight crew members and cabin crew.
- (3) A list of the navigational equipment to be carried including any requirements relating to operations in RNP airspace.
- (4) Where relevant to the operations, the long-range navigation procedures, engine failure procedure for ETOPS and the nomination and utilization of diversion aerodromes.
- (5) The circumstances in which a radio listening watch is to be maintained.
- (6) The method for determining minimum flight altitudes.
- (7) The methods for determining aerodrome operating minima.
- (8) Safety precautions during refuelling with passengers on board.
- (9) Ground handling arrangements and procedures.
- (10) Procedures, as prescribed in CAR Section 4 Series 'C' Part I, for pilots-in-command observing an accident.
- (11) The flight crew for each type of operation including the designation of the succession of command.

- (12) Specific instructions for the computation of the quantities of fuel and oil to be carried, having regard to all circumstances of the operation including the possibility loss of pressurization and of the failure of one or more power units while en route.
- (13) The conditions under which oxygen shall be used and the amount of oxygen determined.
- (14) Instructions for mass and balance control.
- (15) Instructions for the conduct and control of ground de-icing/anti-icing operations.
- (16) The specifications for the operational flight plan.
- (17) Standard operating procedures (SOP) for each phase of flight.
- (18) Instructions on the use of normal checklists and the timing of their use.
- (19) Departure contingency procedures.
- (20) Instructions on the maintenance of altitude awareness and the use of automated or flight crew altitude call-out.
- (21) Instructions on the use of autopilots and auto-throttles in IMC.
- (22) Instructions on the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved.
- (23) Departure and approach briefings.
- (24) Procedures for familiarization with areas, routes and aerodromes.
- (25) Stabilized approach procedure.
- (26) Limitation on high rates of descent near the surface.
- (27) Conditions required to commence or to continue an instrument approach.
- (28) Instructions for the conduct of precision and non-precision instrument approach procedures.
- (29) Allocation of flight crew duties and procedures for the management of crew workload during night and IMC instrument approach and landing operations.

- (30) Instructions and training requirements for the avoidance of controlled flight into terrain and policy for the use of the ground proximity warning system (GPWS).
 - (31) Policy, instructions, procedures and training requirements for the avoidance of collisions and the use of the airborne collision avoidance system (ACAS).
 - (32) Information and instructions relating to the interception of civil aircraft including:
 - a) procedures, as prescribed in CAR Section 4 Series 'E' Part I, for pilots-in-command of intercepted aircraft; and
 - b) visual signals for use by intercepting and intercepted aircraft, as contained in CAR Section 4 Series 'E' Part I.
 - (33) For aeroplanes intended to be operated above 15 000 m (49 000 ft):
 - a) information which will enable the pilot to determine the best course of action to take in the event of exposure to solar cosmic radiation; and
 - b) procedures in the event that a decision to descend is taken, covering:
 - 1) the necessity of giving the appropriate ATS unit prior warning of the situation and of obtaining a provisional descent clearance; and
 - 2) the action to be taken in the event that communication with the ATS unit cannot be established or is interrupted.
 - (34) Details of the accident prevention and flight safety programme including a statement of safety policy and the responsibility of personnel.
 - (35) Information and instructions on the carriage of dangerous goods, including action to be taken in the event of an emergency.
 - (36) Security instructions and guidance.
 - (37) The search procedure checklist.
- 4.2.2 Aircraft operating information
- (1) Certification limitations and operating limitations.

- (2) The normal, abnormal and emergency procedures to be used by the flight crew and the checklists relating thereto.
- (3) Operating instructions and information on climb performance with all engines operating, if provided.
- (4) Flight planning data for pre-flight and in-flight planning with different thrust/power and speed settings.
- (5) The maximum crosswind and tailwind components for each aeroplane type operated and the reductions to be applied to these values having regard to gusts, low visibility, runway surface conditions, crew experience, use of autopilot, abnormal or emergency circumstances, or any other relevant operational factors.
- (6) Instructions and data for mass and balance calculations.
- (7) Instructions for aircraft loading and securing of load.
- (8) Aircraft systems, associated controls and instructions for their use.
- (9) The minimum equipment list and configuration deviation list for the aeroplane types operated and specific operations authorized, including any requirements relating to operations in RNP airspace.
- (10) Checklist of emergency and safety equipment and instructions for its use.
- (11) Emergency evacuation procedures, including type-specific procedures, crew coordination, assignment of crew's emergency positions and the emergency duties assigned to each crew member.
- (12) The normal, abnormal and emergency procedures to be used by the cabin crew, the checklists relating thereto and aircraft systems information as required, including a statement related to the necessary procedures for the coordination between flight and cabin crew.
- (13) Survival and emergency equipment for different routes and the necessary procedures to verify its normal functioning before take-off, including procedures to determine the required amount of oxygen and the quantity available.
- (14) The ground-air visual signal code for use by survivors, as contained in CAR Section 4 Series 'C' Part I

4.2.3 Routes and aerodromes

A route guide to ensure that the flight crew will have, for each flight, information relating to communication facilities, navigation aids, aerodromes, instrument approaches, instrument arrivals and instrument departures as applicable for the operation, and such other information as the operator may deem necessary for the proper conduct of flight operations.

- (1) The minimum flight altitudes for each route to be flown.
- (2) Aerodrome operating minima for each of the aerodromes that are likely to be used as aerodromes of intended landing or as alternate aerodromes.
- (3) The increase of aerodrome operating minima in case of degradation of approach or aerodrome facilities.
- (4) The necessary information for compliance with all flight profiles required by regulations, including but not limited to, the determination of:
 - a) take-off runway length requirements for dry, wet and contaminated conditions, including those dictated by system failures which affect the take-off distance;
 - b) take-off climb limitations;
 - c) en-route climb limitations;
 - d) approach climb limitations and landing climb limitations;
 - e) landing runway length requirements for dry, wet and contaminated conditions, including systems failures which affect the landing distance; and
 - f) supplementary information, such as tire speed limitations.

4.2.4 Training

- (1) Details of the flight crew training programme.
- (2) Details of the cabin crew duties training programme.

- (3) Details of the flight operations officer/flight dispatcher training programme when employed in conjunction with a method of flight supervision.

5. ORGANISATION AND CONTENTS OF OPERATIONS MANUAL – Helicopters

5.1 **Organisation** The contents of the Operations Manual, which may be issued in separate parts corresponding to specific aspects of operations, shall be organized with the following structure:

- a) General;
- b) Aircraft operating information;
- c) Routes and aerodromes; and
- d) Training.

5.2 **Contents** The operations manual referred to in 5.1 shall contain at the least the following:

5.2.1 **General**

- (1) Instructions outlining the responsibilities of operations personnel pertaining to the conduct of flight operations.
- (2) Rules limiting the flight time and flight duty periods and providing for adequate rest periods for flight crew members and cabin crew.
- (3) A list of the navigational equipment to be carried.
- (4) The circumstances in which a radio listening watch is to be maintained.
- (5) The method for determining minimum flight altitudes.
- (6) The methods for determining heliport operating minima.
- (7) Safety precautions during refuelling with passengers on board.
- (8) Ground handling arrangements and procedures.
- (9) Procedures, as prescribed in CAR Section 4 Series 'C' Part I, for pilots-in-command observing an accident.
- (10) The flight crew for each type of operation including the designation of the succession of command.
- (11) Specific instructions for the computation of the quantities of fuel and oil to be carried, having regard to all circumstances of the operation including the possibility of loss of pressurisation and the failure of one or more power units while en route.

- (12) The conditions under which oxygen shall be used and the amount of oxygen determined.
- (13) Instructions for mass and balance control.
- (14) Instructions for the conduct and control of ground de-icing/anti-icing operations.
- (15) The specifications for the operational flight plan.
- (16) Standard operating procedures (SOP) for each phase of flight.
- (17) Instructions on the use of normal checklists and the timing of their use.
- (18) Departure contingency procedures.
- (19) Instructions on the maintenance of altitude awareness.
- (20) Instructions on the clarification and acceptance of ATC clearances, particularly where terrain clearance is involved.
- (21) Departure and approach briefings.
- (22) Route and destination familiarization.
- (23) Conditions required to commence or to continue an instrument approach.
- (24) Instructions for the conduct of precision and non-precision instrument approach procedures.
- (25) Allocation of flight crew duties and procedures for the management of crew workload during night and IMC instrument approach and landing operations.
- (26) Information and instructions relating to the interception of civil aircraft including:
 - a) procedures, as prescribed in CAR Section 4 Series 'E' Part I, for pilots-in-command of intercepted aircraft; and
 - b) visual signals for use by intercepting and intercepted aircraft, as contained in CAR Section 4 Series 'E' Part I.

- (27) Details of the accident prevention and flight safety programme, including a statement of safety policy and the responsibility of personnel.
- (28) Information and instructions on the carriage of dangerous goods, including action to be taken in the event of an emergency.
- (29) Security instructions and guidance.
- (30) The search procedure checklist provided.

5.2.2 Aircraft operating information

- (1) Certification limitations and operating limitations.
- (2) The normal, abnormal and emergency procedures to be used by the flight crew and the checklists relating thereto.
- (3) Flight planning data for pre-flight and in-flight planning with different thrust/power and speed settings.
- (4) Instructions and data for mass and balance calculations.
- (5) Instructions for aircraft loading and securing of load.
- (6) Aircraft systems, associated controls and instructions for their use.
- (7) The minimum equipment list for the helicopter types operated and specific operations authorized.
- (8) Checklist of emergency and safety equipment and instructions for its use.
- (9) Emergency evacuation procedures, including type-specific procedures, crew coordination, assignment of crew's emergency positions and the emergency duties assigned to each crew member.
- (10) The normal, abnormal and emergency procedures to be used by the cabin crew, the checklists relating thereto and aircraft systems information as required, including a statement related to the necessary procedures for the coordination between flight and cabin crew.
- (11) Survival and emergency equipment for different routes and the necessary procedures to verify its normal functioning before take-off, including procedures to determine the required amount of oxygen and the quantity available.

- (12) The ground-air visual signal code for use by survivors, as contained in CAR Section 4 Series 'C' Part I.

5.2.3 Routes and aerodromes

- (1) A route guide to ensure that the flight crew will have, for each flight, information relating to communication facilities, navigation aids, aerodromes, instrument approaches, instrument arrivals and instrument departures as applicable for the operation, and such other information as the operator may deem necessary for the proper conduct of flight operations.
- (2) The minimum flight altitudes for each route to be flown.
- (3) Heliport operating minima for each of the heliports that are likely to be used as heliports of intended landing or as alternate heliports.
- (4) The increase of heliport operating minima in case of degradation of approach or heliport facilities.

5.2.4 Training

- (1) Details of the flight crew training programme and requirements.
- (2) Details of the cabin crew duties training programme.
- (3) Details of the flight operations officer/flight dispatcher training programme when employed in conjunction with a method of flight supervision.

6. **GENERAL GUIDELINES FOR THE PREPARATION OF THE OPERATIONS MANUAL.**

- 6.1 The detailed guidelines for preparation of Operations Manual are available in ICAO Doc 9376 - AN / 914.
- 6.2 The contents of the Operations Manual, which may be issued in separate parts corresponding to specific aspects of operations, shall be organized as per the structure given in the above paras.
- 6.3 Wherever separate manuals have been prepared on different aspects of operation, (on topics such as Dangerous Goods, Training Manual, Search and Rescue

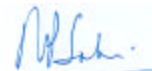
Manual, Security Manual etc) reference of such manual should be given in the particular chapter of Operations Manual.

- 6.4 The Operator shall designate an executive who shall be charged with the responsibility for the control of contents of the operations manual. He shall also be responsible for assurance of the individual manual and for ensuring that appropriate amendments are dispatched to the holder of the manual.

**CIVIL AVIATION REQUIREMENTS
SERIES 'O' PART X**

**SECTION 2-AIRWORTHINESS
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- 6.5 Any amendments, revisions and addition to the operations manual must be approved by the executive responsible for the manual. Amendments to the operations manual must be produced as new or replacement page. Handwritten amendments to an Operations Manual are not acceptable. New or replacement pages must include a page identification number and date of issue. He shall also ensure that the contents of the manual are in conformity with the regulatory documents. The procedure for incorporation of amendments shall also be included in the manual.
- 6.6 The operator shall ensure that all concerned operations personnel are aware of the contents of the Operation Manual.
- 6.7 The operator shall provide a copy of the Operations Manual to all concerned operations personnel for their use and guidance.
- 6.8 The Operations Manual shall be amended or revised as is necessary to ensure that the information contained therein is kept up to date. All such amendments or revisions shall be issued to all personnel that are required to use this manual.
- 6.9 The manual shall be such that it is easy to handle on flight deck. The quality of printing shall be such that it is easily readable under all operational conditions. The manual shall have separators for each section.
- 6.10 The manual should be loose leaf in a ring binder.
- 6.11 Each page of the manual should contain the name of the operator, the name of the manual, section, page number, issue number and date of issue.
- 6.12 While preparing the Operations Manual, it shall be necessary to guard against the inclusion of irrelevant material as the document is intended to be easily usable in the operational environment.
- 6.13 For an operator operating different types of aircraft, the Operations manual shall be so formed that chapters pertaining to specific aircraft type are easily identifiable. One of the method for easy identification could be Color coding of the chapters.
- 6.14 Four copies of the Operations Manual shall be submitted to DGCA (headquarters) at least sixty days prior to the expected date of issuance of AOP for review and acceptance/ approval. Subsequently, any revisions shall also be provided to DGCA Headquarters in quadruplet for review and acceptance/ approval.
- 6.15 One copy of the manual finally accepted by DGCA along with revisions shall also be provided to the concerned Regional Airworthiness Office.



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