



**Republic of the Philippines**

**CIVIL AVIATION REGULATIONS (CAR)**

**PART 8**

**OPERATIONS**

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Republic of the Philippines  
 Department of Transportation and Communications  
**CIVIL AVIATION AUTHORITY OF THE PHILIPPINES**  
 1300 MIA Road, Pasay City, Metro Manila  
 www.caap.gov.ph

**BOARD RESOLUTION NO. 2011-025**

**WHEREAS**, the Civil Aviation Authority of the Philippines (CAAP) was created by virtue of Republic Act 9497 which took effect on 23 March 2008;

**WHEREAS**, under Section 23, paragraph (j) of the same law, the Board is empowered to promulgate rules and regulations as may be necessary in the interest of safety in air commerce pertaining to the issuance of the airman's certificate including the licensing of operating and mechanical personnel, type certificate for aircraft, aircraft engines, propellers and appliances, airworthiness certificates, air carrier operating certificates, air agency certificates, navigation facility and aerodrome certificates; air traffic routes; radio and aeronautical telecommunications and air navigation aids; aircraft accident inquiries; aerodromes, both public and private-owned; construction of obstructions to aerodromes; height of buildings, antennae and other edifices; registration of aircraft; search and rescue; facilitation of air transports; operations of aircraft, both for domestic and international, including scheduled and non-scheduled; meteorology in relation to civil aviation; rules of the air; air traffic services; rules for prevention of collision of aircraft, identification of aircraft; rules for safe altitudes of flight; and such other rules and regulations, standards, governing other practices, methods and/or procedures as the Director General may find necessary and appropriate to provide adequately for safety regularity and efficiency in air commerce and air navigation;

**WHEREAS**, in the October 2009 ICAO-USOAP and 2010 EASA Audits, it was noted that portion of the Philippine Civil Aviation Regulations (PCAR) of 2008 is outdated and requires amendments/revisions;

**WHEREAS**, the CAAP Board of Directors, in its 03 March 2011 Board Meeting, approved the request of the Director General to initiate amendments and or revision of the Philippine Civil Aviation Regulations of 2008, subject to public consultations/hearings;

**WHEREAS**, the proposed PCARs cover the following regulatory/oversight functions:

- Part I General Policies, Procedures, Definitions
- Part II Personnel Licensing
- Part III Approved Training Organizations
- Part IV Aircraft Registration and Markings

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*[Signature]*  
 AIDA S. ROMULO  
 Chief, Central Records  
 and Archives Division

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05-27-2011  
**AIDA S. ROMULO**  
Chief, Central Records  
and Archives Division

|           |   |
|-----------|---|
| Part V    | Airworthiness   |
| Part VI   | Approved Maintenance Organizations  |
| Part VII  | Instruments and Organization  |
| Part VIII | Operations  |
| Part IX   | Air Operator Certification and Administration                                       |
| Part X    | Commercial Air Transport by Foreign Air Carriers within Republic of the Philippines |
| Part XI   | Aerial Work and Non-certificated Aircraft: Operating Limitations                    |

**WHEREAS**, the Board finds the 2011 Revised Philippine Civil Aviation Regulation (PCAR) sufficient in form and substance, and fully comply with the standards set forth by FAA/ICAO/EASA;

**WHEREFORE, RESOLVE**, as it is hereby **RESOLVED**, that the 2011 Revised Philippine Civil Aviation Regulations Parts I to XI be **APPROVED**, and shall be valid and effective upon completion of the requisite publication and a copy filed with the University of the Philippines Law Center-Office of the National Administrative Register (UP-ONAR);

**RESOLVED** further that the Director General shall fully implement the approved, 2011 Revised PCAR Parts I to XI with the accompanying information campaign to the Philippine civil aviation industry.

Adopted this 11<sup>th</sup> day of April 2011 at the Department of Transportation and Communications, Columbia Tower, Mandaluyong City.

**HON. JOSE P. DE JESUS**  
Chairman/Secretary, DOTC

*[Signature]*

**HON. RAMON S. GUTIERREZ**  
Vice-Chairman/Director General, CAAP

**HON. LEILA M. DE LIMA**  
Secretary, Department of Justice

*[Signature]*

**HON. ALBERT F. DEL ROSARIO**  
Secretary, Department of Foreign Affairs

**HON. JESSE M. ROBREDO**  
Secretary, DILG

*C. V. Purisima*  
for: HON. CESAR V. PURISIMA  
Secretary, Department of Finance

*Rosalinda D. Baldoz*  
HON. ROSALINDA D. BALDOZ  
Secretary, DOLE

*Alberto A. Lim*  
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Secretary, Department of Tourism

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*Aida S. Romulo* 05-27-2011  
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Chief, Central Records  
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## RECORD OF AMENDMENTS

| Amendment No.    | Date            | Subject   | Incorporated By                          |
|------------------|-----------------|---|--|
| Initial Issue    | 23 June 2008    |   | Ruben F. Ciron                           |
| First Amendment  | 21 March 2011   | 8.2.1.8 Documents to be carried on Aircraft: All Operations (c)<br>8.5.1.21 Reporting of Hazardous conditions<br>8.10.1.1 Limitation of Privileges of Pilots Who Have Attained Their 60 <sup>th</sup> Birthday and Curtailment of Privileges of Pilots Who Have Attained Their 65th Birthday (c)<br>8.10.1.30.1 Route and Area Checks: Airplane Pilot Qualification (b) and (c) number (2) Note and (e)<br>8.10.1.41 Minimum Qualification For A Flight Operations Officer Instructor | Ramon S. Gutierrez                       |
| Second Amendment | 01 August 2013  | Inserted vertical bars on the previous amendments   | LT GEN William K Hotchkiss III AFP (Ret) |
| Third Amendment  | 31 October 2013 | 8.1.1.2 Definitions <ul style="list-style-type: none"> <li>• Accelerate-stop distance available (ASDA)</li> <li>• Airworthy</li> <li>• Alternate airport/aerodrome/helicopter               <ol style="list-style-type: none"> <li>a. Take-off alternate</li> <li>b. En-route alternate</li> <li>c. Destination alternate</li> </ol> </li> <li>• Approach and landing operations using instrument</li> </ul>  | LT GEN William K Hotchkiss III AFP (Ret) |

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|  |  | <p>approach procedures (A) (B) (C) (D)</p> <ul style="list-style-type: none"> <li>• Continuing airworthiness</li> <li>• Duty</li> <li>• Duty period</li> <li>• EDTO critical fuel</li> <li>• EDTO significant system</li> <li>• Engine</li> <li>• Extended diversion time operations (EDTO)</li> <li>• Fatigue</li> <li>• Fatigue risk management system (FRMS)</li> <li>• Flight duty period</li> <li>• Isolated aerodrome</li> <li>• Land distance available (LDA)</li> <li>• Maximum diversion time</li> <li>• Navigation specification</li> <li>• Point of no return</li> <li>• Rest period</li> <li>• State safety program</li> <li>• Threshold time</li> </ul> <p>8.1.1.3 Abbreviations</p> <ul style="list-style-type: none"> <li>• EDTO – extended diversion time operation</li> </ul> <p>8.6.2.2 Adequacy of operation facilities (d) (e) (f)</p> <p>8.6.2.4 Meteorological limitations for VFR flights</p> <p>8.6.2.5 IFR destination airport/helicopter</p> |  |
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|  |  | <p>8.6.2.6.1 IFR destination alternate airport/helicopter (a) (b) (c)</p> <p>8.6.2.6.3 IFR destination alternate requirement</p> <p>8.6.2.9 Take-off alternate airport/helicopter: commercial air transport operations</p> <p>8.6.2.11 Requirements for extended diversion time operations – airplanes [AOC]</p> <p>8.6.2.12 En route alternate airport: EDTO operations</p> <p>8.6.2.13.1 Fuel and oil planning and contingency factors (f) (g) (h) (i) (j)</p> <p>8.6.2.15.1 Commercial air transport: piston-engined airplanes (c) (d) (e)</p> <p>8.6.2.15.2 Commercial air transport: turbine-engined airplanes</p> <p>8.6.2.15.6 In-flight fuel management</p> <p>8.7.1.3 Aircraft performance calculations</p> <p>8.7.2.4.1 Take-off limitations: airplanes (a) (5)</p> <p>8.7.2.6 En route limitations: one engine inoperative</p> <p>8.7.2.7 En route limitations: two engines inoperative</p> <p>8.8.1.7 Instrument approach operating minima (b)</p> |  |
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|                  |                 | <p>8.8.1.32 Airplane operating procedures for rates of climb and descent</p> <p>8.10.1.34 Recurrent training: cabin crew (c) (2) (4) (5) (6)</p> <p>8.11 Fatigue Management for Flight Time, Flight Duty Periods, Duty Periods and Rest Periods: Commercial Air Transport</p> <p>8.11.1.1 Application</p> <p>8.11.1.2 Managing Fatigue-Related Safety Risks</p> <p>8.11.1.7 Flight Time, Flight Duty Periods, Duty Periods and Rest Periods Records</p> <p>IS: 8.11.1.2 Managing Fatigue-Related Safety Risks</p> |  |
| Fourth Amendment | 28 January 2014 | <p>8.1.1.2 Definitions (66) Flight Operations Officer/Flight Dispatcher (74) Ground Instructor (GI)</p> <p>8.6.3 Operational Information</p> <p>8.6.3.1 AIP, AIRAC and AIC</p> <p>8.6.3.2 Crew Briefings</p> <p>8.8.4.13 Continuation of an Instrument Approach, letter (c) and (d)</p> <p>8.10.1.41 Minimum Qualification for a Flight Operations Officer Instructor</p>   | LT GEN William K Hotchkiss III AFP (Ret) |
| Fifth Amendment  | 20 June 2014    | 8.10.1.1 Limitation of Privileges of Pilots who have Attained their 60 <sup>th</sup> Birthday and Curtailment of Privileges of Pilots who have Attained their 65 <sup>th</sup> and 67 <sup>th</sup> Birthday  | LT GEN William K Hotchkiss III AFP (Ret) |

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| Sixth Amendment    | 30 June 2014     | IS: 8.5.1.26<br>Guidelines/Procedures on the use of Transmitting Portable Electronic Device on Board the Aircraft   | LT GEN William K Hotchkiss III AFP (Ret) |
| Seventh Amendment  | 08 August 2014   | 8.10.1.1 Limitation of Privileges of Pilots who have Attained their 60 <sup>th</sup> Birthday and Curtailment of Privileges of Pilots who have Attained their 65 <sup>th</sup> and 67 <sup>th</sup> Birthday (c)  | LT GEN William K Hotchkiss III AFP (Ret) |
| Eighth Amendment   | 31 October 2014  | 8.2.1.8 Documents to be Carried on Aircraft: All Operations (a)(27) & (b)(20)   | LT GEN William K Hotchkiss III AFP (Ret) |
| Ninth Amendment    | 01 July 2016     | 8.3.1.9 Maintenance and Inspection Records Retention (a)  | LT GEN William K Hotchkiss III AFP (Ret) |
| Tenth amendment    | 14 July 2016     | 8.5.1.22 Reporting of Incident (e)<br>8.5.1.29 Laser Illumination Against Civil Aircraft (new Part)   |  |
| Eleventh Amendment | 24 November 2016 | 8.1.1.2 Definitions (b) (159)   | Capt. Jim C. Sydiongco                   |
| Twelfth Amendment  | 01 July 2017     | 8.1.1.2 Definitions <ul style="list-style-type: none"> <li>• Airport operating minima <ul style="list-style-type: none"> <li>- Take-off</li> <li>- Landing in 2D instrument approach</li> <li>- Landing in 3D instrument approach</li> </ul> </li> <li>• Aircraft tracking</li> <li>• Approach procedure with vertical guidance (APV)</li> <li>• Automatic dependent surveillance – contract (ADS-C)</li> </ul> | Capt. Jim C. Sydiongco                   |

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|  |  | <ul style="list-style-type: none"> <li>• Cargo</li> <li>• Continuous descent final approach (CDFA)</li> <li>• Decision altitude (DA) or Decision Height (DH)</li> <li>• Instrument approach operations</li> <li>• Instrument approach procedure</li> <li>• Non-precision approach (NPA) procedure</li> <li>• Minimum descent altitude (MDA)</li> <li>• Obstacle clearance altitude (OCA)</li> <li>• Rescue</li> <li>• Search</li> </ul> <p>8.1.1.3 Abbreviations (a)</p> <ul style="list-style-type: none"> <li>- ADS-C – Automatic dependent surveillance – contract</li> <li>- NOTOC – Notice to captain</li> <li>- SAR – Search and rescue</li> </ul> <p>8.2.2 [AOC] Aircraft tracking</p> <p>8.5.1.27 Carriage of dangerous goods</p> <p>8.5.1.27.1 General</p> <p>8.5.1.27.2 State responsibilities</p> <p>8.5.1.27.3 Operator responsibilities</p> <p>8.5.1.27.3.1 Operators with no operational approval to transport dangerous goods as cargo (no DG carry operator)</p> |  |
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| <p>Thirteenth Amendment</p> | <p>23 April 2018</p> | <p>8.1.1.2 Definitions (b)</p> <ul style="list-style-type: none"> <li>• Airplane upset</li> <li>• Airplane upset prevention and recovery training (UPRT)</li> <li>• Angle of attack (AOA)</li> <li>• Approach-to-stall</li> <li>• Core Group UPRT Instructors</li> <li>• Developed upset</li> <li>• Developing upset</li> </ul>  | <p>Capt. Jim C. Sydiongeo</p> |

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|  |  | <ul style="list-style-type: none"> <li>• Energy state</li> <li>• Fidelity level</li> <li>• First indication of a stall</li> <li>• Flight crew resilience</li> <li>• Flight path</li> <li>• Flight path management</li> <li>• Load factor</li> <li>• Loss of control in flight (LOCI)</li> <li>• Manoeuvre-based training</li> <li>• Negative training</li> <li>• Negative transfer of training</li> <li>• Post-stall regime</li> <li>• Scenario-based training</li> <li>• Spin</li> <li>• Stall</li> <li>• Stall Event</li> <li>• Stall (event) recovery procedure</li> <li>• Stall warning</li> <li>• Startle</li> <li>• Stick pusher</li> <li>• Stick shaker</li> <li>• Stress (response)</li> <li>• Surprise</li> <li>• Train-to-proficiency</li> </ul> <p>8.1.1.3 Abbreviations (a)</p> <ul style="list-style-type: none"> <li>• AOA – Angle of Attack</li> <li>• UPRT – Airplane upset prevention and recovery training</li> </ul> <p>8.10.1.8.3 Flight Crew Member Training Programs (c)</p> <p>8.10.1.15 Initial Aircraft Flight Training (b)</p> |  |
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| Fourteenth Amendment  | 25 September 2018 | 8.2.2 [AOC] Aircraft Tracking (b) and (c)   | Capt. Jim C. Sydiongco |
| Fifteenth Amendment   | 28 December 2018  | 8.2.2 [AOC] Aircraft Tracking (d) and (e)   | Capt. Jim C. Sydiongco |
| Sixteenth Amendment   | 20 March 2019     | 8.6.2.2 Adequacy of Operating Facilities Note 2   | Capt. Jim C. Sydiongco |
| Seventeenth Amendment | 09 June 2020      | <p>8.6.1.6 Closing a Flight Plan (d)</p> <p>8.8.1.5 Minimum Safe Altitudes (a) (4)</p>  | Capt. Jim C. Sydiongco |
| Eighteenth Amendment  | 01 July 2020      | 8.5.1.27.1 General (g)  | Capt. Jim C. Sydiongco |
| Nineteenth Amendment  | 22 December 2020  | 8.13 Safety Management System – International General Aviation Operators  | Capt. Jim C. Sydiongco |
| Twentieth Amendment   | 20 April 2021     | <p>8.5.1.1 Authority and Responsibility of the PIC (f) and (g)</p> <p>8.5.1.6 Flight Crew Member Use of Seat Belts and Safety Harnesses (b)</p>   | Capt. Jim C. Sydiongco |

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|  |  | <p>8.5.1.21 Reporting of Hazardous Conditions (b) and (c)</p> <p>8.5.1.30 Safeguarding of Cabin Crew and Passengers in Pressurized Airplanes in the Event of Loss of Pressurization</p> <p>8.5.2.21 In-Flight Operational Instructions (g)</p> <p>8.6.2.13.2 Oxygen Planning and Contingency Factors</p> <p>8.6.2.21 Time Capability of Cargo Compartment Fire Suppression System</p> <p>8.7 Aircraft Operating and Performance Limitations</p> <p>8.7.1.1 Applicability</p> <p>8.7.1.2 General</p> <p>8.7.1.5 Applicable to Aeroplanes Certificated in accordance with Parts IIIA and IIIB of ICAO Annex 8</p> <p>8.7.1.6 Obstacle Data (a) and (b)</p> <p>8.8.1.29 Noise Abatement Procedures (b) and (d)</p> <p>8.8.1.32 Airplane Operating Procedures for Rates of Climb and Descent</p> <p>8.8.1.33 Aeroplane Operating Procedures for Landing Performance</p> <p>8.8.4.1 Applicability</p> <p>8.8.4.11 Continuation of IFR Flight Toward a Destination (b)</p> |  |
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| <p>Twenty-first Amendment</p> | <p>30 June 2021</p> | <p>8.5.1.1 Authority and Responsibility of the PIC (f) and (g) (deleted)</p> <p>8.5.1.6 Flight Crew Member Use of Seat Belts and Safety Harness (b)</p> <p>8.5.1.21 Reporting of Hazardous Conditions (a) (3) and (b)</p> <p>8.5.1.23 Accident Notification</p> <p>8.5.1.25 Crew Member Oxygen: Minimum Supply and Use</p> <p>8.5.1.30 Safeguarding of Cabin Crew and Passengers in Pressurized Airplanes in the Event of Loss of Pressurization (deleted)</p> <p>8.5.2.21 In-Flight Operational Instructions (g) (deleted)</p> <p>8.6.2.21 Time Capability of Cargo Compartment Fire Suppression System</p> <p>8.7.1.2 General</p> | <p>Capt. Jim C. Sydiongo</p> |

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| Twenty-second Amendment | 14 July 2021    | <p>8.5.1.21 Reporting of Hazardous Conditions (a) (3) Note 2</p> <p>8.7.1.3 Aircraft Performance Calculations (b)</p> <p>8.7.2.8 Landing Limitations (a) Note</p> <p>8.8.4.13 Continuation of an Instrument Approach (e), Note 1 and 2</p>  | Capt. Jim C. Sydiongco |
| Twenty-third Amendment  | 04 January 2022 | 8.1.1.2 Definitions (Removed and transferred to PCAR Part 1 Appendix A: Definitions)  | Capt. Jim C. Sydiongco |

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| Twenty-fourth Amendment | 09 February 2022 | 8.1.1.3 Abbreviations (a) <ul style="list-style-type: none"> <li>• PBC – Performance-based Communication</li> <li>• PBS – Performance-based Surveillance</li> <li>• RCP – Required Communication Performance</li> <li>• RNAV – Area Navigation</li> <li>• RNP – Required Navigation Performance</li> <li>• RSP – Required Surveillance Performance</li> </ul> 8.11.1.2 Managing Fatigue-Related Safety Risks Note | Capt. Jim C. Sydiongco         |
| Twenty-fifth Amendment  | 01 December 2022 | 8.10.1.34 Recurrent Training: Cabin Crew (c) (6), Note 2 and 3<br>IS: 8.10.1.14 (c1) Initial and Re-qualification Aircraft Ground Training: Cabin Crew Members Note 1, 2 and 3  | Capt. Manuel Antonio L. Tamayo |
| Twenty-sixth Amendment  | 29 August 2023   | 8.2.2 [AOC] Aircraft Tracking (c) Note 3 and (e) Note 1 and 2<br>8.6.2.11 Requirements for Extended Diversion Time Operations – Airplanes [AOC] (b) (1) and (2) Note, (e) Note and (f) Note<br>8.8.1.7 Instrument Approach Operating Minima (c), (i) and (j)  | Capt. Manuel Antonio L. Tamayo |

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| <p>Twenty-seventh Amendment</p> | <p>09 October 2024</p>  | <p>8.6.2.3 Weather Reports and Forecasts Note 1, 2 and 3<br/>             8.6.2.6.1 IFR Destination Alternate Airport/Heliport<br/>             8.6.2.12 En Route Alternate Airports: EDTO Operations<br/>             8.6.2.16 Flight Planning Document Distribution and Retention – Commercial Air Transport Note 1, 2, 3 and 4<br/>             8.12.1.3 Functions Associated with Operational Control (a) (13)<br/>             8.12.1.4 Operational Control Duties (a)</p>  | <p>Capt. Manuel Antonio L. Tamayo</p> |
| <p>Twenty-eighth Amendment</p>  | <p>03 February 2025</p> | <p>8.1.1.3 Abbreviations (a)<br/>             • FOO – Flight Operations Officer<br/>             8.10.1.24.2 Competency Checks: Cabin Crew Members (b)<br/>             8.10.1.37 Instructor Training (a)<br/>             8.10.1.38 Personnel Approved to Conduct Checks (a), (b) and (c)<br/>             8.10.1.39 Check Personnel Qualifications (a) and (b)<br/>             8.10.1.40 Check Personnel Training (a)<br/>             IS: 8.10.1.24 Competency Checks: Cabin Crew Members<br/>             IS: 8.10.1.37 Instructor Training (a) and (b)<br/>             IS: 8.10.1.40 Check Personnel Training</p> |                                       |

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|  | 8.5-2  | Amendment 21   | 30 July 2021    |
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**8.1 GENERAL****8.1.1 APPLICABILITY AND DEFINITIONS****8.1.1.1 APPLICABILITY**

- (a) (1) The Standards and Recommended Practices contained in Annex 6 Part I shall be applicable to the operation of airplanes by operators authorized to conduct commercial air transport operations (international and domestic).
- (2) The Standards and Recommended Practices contained in Annex 6, Part II (airplanes), and Annex 6 Part III Section III (helicopters) shall be applicable to general aviation operations (international and domestic).
- (3) The Standards and Recommended Practices contained in Annex 6, Part III Sections I and II, shall be applicable to all helicopters engaged in commercial air transport operations (international and domestic), except for these Standards and Recommended Practices are not applicable to helicopters in aerial work.
- (b) CAR Part 8 prescribes the requirements for:
- (1) Operations conducted by airman certified in Republic of the Philippines while operating aircraft registered in Republic of the Philippines.
- (2) Operations of foreign registered aircraft by Republic of the Philippines Operators.
- (3) Operations of aircraft within Republic of the Philippines by airman or Operators of a foreign State.
- (c) For operations outside of Republic of the Philippines, all Republic of the Philippines pilots and operators shall comply with these requirements unless compliance would result in a violation of the laws of the foreign State in which the operation is conducted.

*Note: Where a particular requirement is applicable only to a particular segment of aviation operations, it will be identified by a reference to those particular operations, such as "commercial air transport" or "small non-turbojet or turbofan airplanes".*

*Note: Those specific subsections not applicable to foreign operators will include the phrase "This requirement is not applicable to foreign operators"*

**8.1.1.2 RESERVED****8.1.1.3 ABBREVIATIONS**

- (a) The following acronyms and abbreviations are used in this Part:
- (1) ADS-C – Automatic Dependent Surveillance – Contract
- (2) AFM - Airplane Flight Manual
- (3) AGL - Above Ground Level
- (4) AOC - Air Operator Certificate
- (5) AOA – Angle of Attack
- (6) AOM - Aircraft Operating Manual
- (7) APU - Auxiliary Power Unit
- (8) ATC - Air Traffic Control
- (9) CAT - Category
- (10) CDL - Configuration Deviation List

- (11) CP - Co-pilot
- (12) CRM - Crew Resource Management
- (13) DH - Decision Height
- (14) EDTO – Extended Diversion Time Operation
- (15) ETA - Estimated Time of Arrival
- (16) FE - Flight Engineer
- (17) FL - Flight Level
- (18) FOO – Flight Operations Officer
- (19) GPS - Global Positioning System
- (20) IMC - Instrument Meteorological Conditions
- (21) INS - Inertial Navigation System
- (22) LDA - Localizer-type Directional Aid
- (23) LOC - Localizer
- (24) LORAN - Long-range Navigation
- (25) LVTO – Low Visibility Take Off
- (26) MDA – Minimum Decent Altitude
- (27) MEA — Minimum En Route Altitude
- (28) MEL – Minimum Equipment List
- (29) MMEL – Master Minimum Equipment List
- (30) MNPS – Minimum Navigation Performance Specifications
- (31) MOCA — Minimum Obstruction Clearance Altitude
- (32) MSL – Mean Sea Level
- (33) NOTAM – Notice to Airmen
- (34) NOTOC- Notice to Captain
- (35) RFM – Rotorcraft Flight Manual
- (36) RVR – Runway Visibility Range
- (37) RVSM – Reduced Vertical Separation Minimum
- (38) PBC – Performance-based Communication
- (39) PBE – Protective Breathing Equipment
- (40) PBN – Performance-based Navigation
- (41) PBS – Performance-based Surveillance
- (42) PIC – Pilot In Command
- (43) RCP – Required Communication Performance
- (44) RNAV – Area Navigation
- (45) RNP – Required Navigation Performance
- (46) RSP – Required Surveillance Performance
- (47) SAR – Search and Rescue
- (48) SCC – Senior Cabin crew
- (49) SIC – Second-in-command (co-pilot or first officer)
- (50) SM – Statute Miles
- (51) TACAN – Tactical Air Navigation System
- (52) UPRT – Airplane upset prevention and recovery training

- (53) VMC – Visual Meteorological Conditions
- (54) VSM – Vertical Separation Minimum
- (55) V1 - Take-off decision speed.
- (56) V<sub>MO</sub>- Maximum operating speed.
- (57) V<sub>SO</sub> - Stalling speed or the minimum steady flight speed in the landing configuration.

## 8.2 GENERAL OPERATIONS REQUIREMENTS

### 8.2.1 AIRCRAFT REQUIREMENTS

#### 8.2.1.1 REGISTRATION MARKINGS

No person may operate a Republic of the Philippines-registered aircraft unless it displays the proper markings prescribed in Part 4.

#### 8.2.1.2 CIVIL AIRCRAFT AIRWORTHINESS

- (a) No person may operate a civil aircraft unless it is in an airworthy condition.
- (b) Each PIC shall determine whether an aircraft is in a condition for safe flight.
- (c) The PIC shall discontinue a flight as soon as practicable when an unairworthy mechanical, electrical or structural condition occurs.

#### 8.2.1.3 SPECIAL AIRWORTHINESS CERTIFICATE OPERATIONAL RESTRICTIONS

No person may operate an aircraft with a special airworthiness certificate except as provided in the limitations issued with that certificate.

#### 8.2.1.4 AIRCRAFT INSTRUMENTS AND EQUIPMENT

No person may operate an aircraft unless it is equipped with the required instruments and navigation equipment appropriate to type of flight operation conducted and the route being flown.

*Note: The instrument and equipment required for specific operations are listed in Part 7.*

#### 8.2.1.5 INOPERATIVE INSTRUMENTS AND EQUIPMENT

- (a) No person may take-off an aircraft with inoperative instruments or equipment installed, except as authorized by the Authority.
- (b) An Operator shall not operate a multi-engine aircraft with inoperative instruments and equipment installed unless the following conditions are met:
  - (1) An approved Minimum Equipment List exists for that aircraft.
  - (2) The Authority has issued the Operator specific operating provisions authorizing operations in accordance with an approved Minimum Equipment List. The flight crew shall have direct access at all times prior to flight to all of the information contained in the approved Minimum Equipment List through printed or other means approved by the Authority in the Operators specific operating provisions. An approved Minimum Equipment List, as authorized by the specific operating provisions, constitutes an approved change to the type design without requiring recertification.
  - (3) The approved Minimum Equipment List must:
    - (i) Be prepared in accordance with the limitations specified in paragraph (c) of this section.
    - (ii) Provide for the operation of the aircraft with certain instruments and equipment in an inoperative condition.

- (4) Records identifying the inoperative instruments and equipment and the information required by subparagraph (b) (3) (ii) of this section must be available to the pilot.
  - (5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the specific operating provisions authorizing use of the Minimum Equipment List.
- (c) The following instruments and equipment may not be included in the Minimum Equipment List:
- (1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the aircraft is type certificated and which are essential for safe operations under all operating conditions.
  - (2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.
  - (3) Instruments and equipment required for specific operations under Part 7, Part 8 and/or Part 9 of these regulations.
- (d) Notwithstanding paragraphs (c)(1) and (c)(3) of this section, an aircraft with inoperative instruments or equipment may be operated under a special flight permit under Subpart 5.4.1.11 of these regulations

*Implementing Standard: See IS: 8.2.1.5 for specific limitation on inoperative instruments and equipment.*

#### **8.2.1.6 CIVIL AIRCRAFT FLIGHT MANUAL, MARKING AND PLACARD REQUIREMENTS**

- (a) No person may operate a Republic of the Philippines-registered civil aircraft unless there is available in the aircraft
- (1) A current, approved AFM or RFM; or
  - (2) An AOM approved by the Authority for the Operator,
  - (3) If no AFM or RFM exists, approved manual material, markings and placards, or any combination thereof, which provide the PIC with the necessary limitations for safe operation.
- (b) No person may operate a civil aircraft within or over Republic of the Philippines without complying with the operating limitations specified in the approved AFM or RFM, markings and placards, or as otherwise prescribed by the certifying authority for the aircraft's State of Registry.
- (c) Each AFM or RFM shall be updated by implementing changes made mandatory by the State of Registry.
- (d) Each operator shall display in the aircraft all placards, listings, instrument markings or combination thereof, containing those operating limitations prescribed by the certifying authority for the aircraft's State of Registry for visual presentation.

#### **8.2.1.7 REQUIRED AIRCRAFT AND EQUIPMENT INSPECTIONS**

- (a) Unless otherwise authorized by the Authority, no person may operate a Republic of the Philippines civil aircraft unless it has had the following inspections.
- (1) An annual inspection within the past 12 calendar months;
  - (2) For remuneration or hire operations, a 100-hour inspection;

- (3) For IFR operations, an altimeter and pitot-static system inspection in the past 24 calendar months;
  - (4) For transponder equipped aircraft, a transponder check within the past 12 calendar months; and
  - (5) For ELT-equipped aircraft, an ELT check within the past 12 calendar months.
- (b) Aircraft maintained under an alternate maintenance and inspection program approved by the Authority, as specified in Subpart 5.7.1.3 (a), may not have current annual or 100-hour inspections in their maintenance records.

*Note: An "alternate maintenance and inspection program" may include a manufacturer's recommended program, instructions for continued airworthiness, or a program designed by the operator and approved by the Authority.*

*Note: The requirements of these inspections are provided in Part 5.*

#### **8.2.1.8 DOCUMENTS TO BE CARRIED ON AIRCRAFT: ALL OPERATIONS**

- (a) Except as provided in Subpart 8.2.1.6, no person may operate a civil aircraft in commercial air transport operations unless it has within it the following current and approved documents:
- (1) Certificate of Aircraft Registration issued to the owner.
  - (2) Certificate of Airworthiness.
  - (3) Aircraft Journey Log.
  - (4) Aircraft Radio License.
  - (5) List of passenger names and points of embarkation and destination, if applicable.
  - (6) Cargo manifest including special loads information.
  - (7) Aircraft Technical Log.
  - (8) Air Operator Certificate: where applicable, shall carry a certified true copy of the AOC specified in Subpart 9.1.1.4, and a copy of the operations specifications relevant to the aircraft type, issued in conjunction with the certificate. When the certificate and the associated operations specifications are issued by the State of the Operator in a language other than English, an English translation shall be included.
  - (9) Noise Certificate, or a document attesting noise certification. When the document, or a suitable statement attesting noise certification as contained in another document approved by the State of Registry, is issued in a language other than English, it shall include an English translation.
  - (10) AFM (for airplanes) or RFM (for helicopters).
  - (11) Part(s) of the Operations Manual relevant to operation(s) conducted.
  - (12) MEL.
  - (13) Category II or III Manual, as applicable.
  - (14) Operational Flight Plan.
  - (15) Filed ATC flight plan.
  - (16) NOTAMS briefing documentation.

- (17) Meteorological information.
  - (18) Mass and balance documentation.
  - (19) Roster of special situation passengers.
  - (20) Maps and charts for routes of proposed flight or possibly diverted flights.
  - (21) Forms for complying with the reporting requirements of the Authority and the Operator.
  - (22) For international flights, a general declaration for customs.
  - (23) Any documentation that may be required by the Authority or States concerned with a proposed flight.
  - (24) The appropriate licenses for each crew member of the flight crew.
  - (25) Copy of the return to service, if any, in force with respect to the aircraft.
  - (26) Search and rescue information, for international flights.
  - (27) Aircraft insurance coverage
- (b) Except as provided in Subpart 8.2.1.6, no person may operate a civil aircraft in general aviation operations unless it has within it the following current and approved documents:
- (1) Certificate of Registration issued to the owner.
  - (2) Certificate of Airworthiness.
  - (3) Aircraft Journey Log.
  - (4) Aircraft Radio License.
  - (5) List of passenger names and points of embarkation and destination, if applicable.
  - (6) Cargo manifest including special loads information.
  - (7) The appropriate licenses for each crew member of the flight crew.
  - (8) Copy of the return to service, if any, in force with respect to the aircraft.
  - (9) Noise Certificate, or a document attesting noise certification. When the document, or a suitable statement attesting noise certification as contained in another document approved by the State of Registry, is issued in a language other than English, it shall include an English translation.
  - (10) AFM (for airplanes) or RFM (for helicopters).
  - (11) Category II or III Manual, as applicable.
  - (12) Operational Flight Plan.
  - (13) NOTAMS briefing documentation.
  - (14) Maps and charts for routes of proposed flight or possibly diverted flights.
  - (15) Forms for complying with the reporting requirements of the Authority.
  - (16) For international flights, a general declaration for customs.
  - (17) Any documentation that may be required by the Authority or States concerned with a proposed flight.
  - (18) Search and rescue information, for international flights.
  - (19) Any documentation that may be required by the Authority or States concerned with a proposed flight.

(20) Aircraft insurance coverage

- (c) In case of loss or theft of any of the following: Certificate of Registration, Certificate of Airworthiness, Noise Certificate, Aircraft Radio License or Air Operator Certificate, the operation is allowed to continue until the flight reaches the base or place where a replacement document can be provided.

*Note: "Special situation passengers" includes armed security personnel, deportees, persons in custody, and persons with special medical needs.*

*Note: The noise certificate shall state the standards in ICAO Annex 16, Volume 1. The statement may be contained in any document, carried on board, approved by the Authority.*

### 8.2.1.9 INSURANCE REQUIREMENTS: ALL OPERATIONS

No person may operate an aircraft unless it has a valid insurance guarantee covering aircraft hull, each person, freight and mail on board aircraft, and third parties liability, as prescribed by the Authority.

### 8.2.2 [AOC] AIRCRAFT TRACKING

- (a) On and after 8 November 2018, an Operator shall establish an aircraft tracking capability to track airplanes throughout its area of operations.

*Note.- Guidance on aircraft tracking capabilities is contained in the Normal Aircraft Tracking Implementation Guidelines (Cir 347)*

- (b) An Operator should track the position of an airplane through automated reporting at least every 15 minutes for the portion(s) of the inflight operation(s) under the following conditions:

- (1) the airplane has a maximum certificated take-off mass of over 27,000 kg and a seating capacity greater than 19; and
- (2) where an ATS unit obtains airplane position information at greater than 15 minute intervals.

*Note.- See CAR-ANS Part 11.2, for coordination between the operator and air traffic services providers regarding position report messages.*

- (c) An Operator shall track the position of an airplane through automated reporting at least every 15 minutes for the portion(s) of the inflight operation(s) that is planned in an oceanic area(s) under the following conditions:

- (1) the airplane has a maximum certificated take-off mass of over 45,500 kg and a seating capacity greater than 19; and
- (2) where an ATS unit obtains airplane position information at greater than 15 minutes intervals.

*Note 1.- Oceanic area- for the purpose of aircraft tracking is the airspace which overlies waters outside the territory of the Philippines.*

*Note 2.- See CAR-ANS Part 11.2, for coordination between the operator and air traffic services providers regarding position report messages.*

*Note 3. – Operational procedures for monitoring the aircraft tracking information are contained in PANS-OPS, Volume III, Section 10.*

- (d) Notwithstanding the provisions in Part 8.2.2 (b) and (c), the Authority shall, based on the results of an approved risk assessment process implemented by the operator, allow for variations to automated reporting intervals. The process shall demonstrate how risks to the operation resulting from such variations can be managed and shall include at least the following:
- (1) capability of the operator's operational control systems and processes, including those for contacting ATS units;
  - (2) overall capability of the aeroplane and its systems;
  - (3) available means to determine the position of, and communicate with, the aeroplane;
  - (4) frequency and duration of gaps in automated reporting;
  - (5) human factors consequences resulting from changes to flight crew procedures; and
  - (6) specific mitigation measures and contingency procedures.

*Note. - Guidance on development, implementation and approval of the risk assessment process which allows for variations to the need for automatic reporting and the required interval, including variation examples, is contained in the Aircraft Tracking Implementation Guidelines (Cir 347).*

- (e) An operator shall establish procedures approved by the Authority for the retention of aircraft tracking data to assist SAR in determining the last known position of the aircraft.

*Note 1. – Refer to PCAR Part 9.1.1.4 for operator responsibilities when using third parties for the conduct of aircraft tracking under PCAR.*

*Note 2. – Operational procedures for monitoring and making position information of a flight in distress available to the appropriate organizations in a timely manner are contained in PANS-OPS, Volume III, Section 10.*

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## 8.3 AIRCRAFT MAINTENANCE REQUIREMENTS

### 8.3.1.1 APPLICABILITY

- (a) This Subpart prescribes the rules governing the inspection of Republic of the Philippines registered civil aircraft operating within or outside Republic of the Philippines.
- (b) Subparts 8.3.1.3 and 8.3.1.4 do not apply to aircraft subject to an approved continuous maintenance program approved by the Authority for an Operator in Part 9.
- (c) This Subpart applies to all aircraft, as designated below, operated as commercial air transport in Republic of the Philippines if the operator has not been designated an Operator by Republic of the Philippines.
- (d) This Subpart applies to all general aviation large, complex aircraft operated in Republic of the Philippines, whether or not the aircraft is registered in Republic of the Philippines.
- (e) Where any aircraft, not registered in Republic of the Philippines and operating under an inspection program approved or accepted by the State of Registry, does not have the equipment required by Republic of the Philippines for operations within Republic of the Philippines; the owner/operator shall ensure that such equipment is installed and inspected in accordance with the requirements of the State of Registry, acceptable to the Authority prior to operation of that aircraft in Republic of the Philippines.
- (f) The owner of an airplane over 5,700 kg maximum certificated take-off mass, or in the case where it is leased, the lessee, shall, as prescribed by the State of Registry, ensure that the information resulting from maintenance and operational experience with respect to continuing airworthiness, is transmitted as required by Subpart 8.3.1.6.

### 8.3.1.2 GENERAL

- (a) The registered owner or operator of an aircraft is responsible for maintaining that aircraft in an airworthy condition, including compliance with all airworthiness directives.
- (b) No person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this Subpart and other applicable regulations, including Part 5.
- (c) No person may operate an aircraft for which a manufacturer's maintenance manual or instructions for continued airworthiness has been issued that contains an airworthiness limitations section unless the mandatory replacement times, inspection intervals and related procedures set forth in operations specifications approved by the Authority under Part 9 or in accordance with an inspection program approved under this Subsection are complied with.
- (d) The owner or operator shall use one of the following inspection programs as appropriate for aircraft and the type operation:
  - (1) Annual inspection;
  - (2) Annual/100 hours inspection;
  - (3) Progressive; or
  - (4) Continuous airworthiness program.
- (e) No aircraft shall have a Maintenance Release signed after inspection unless the replacement times for life-limited parts specified in the aircraft specification-type data sheets are complied with and the airplane, including airframe, power-units, propellers,

rotors, appliances, and survival and emergency equipment, is inspected in accordance with the selected inspection program.

- (f) Each person wishing to establish or change an approved inspection program shall submit the program for approval by the Authority and shall include in writing:
  - (1) Instructions and procedures for conduct of inspection for the particular make and model aircraft, including necessary tests and checks. The instructions shall set forth in detail the parts and areas of the aeronautical products, including survival and emergency equipment required to be inspected; and
  - (2) A schedule for the inspections that shall be performed expressed in terms of time in service, calendar time, number of system operations or any combination of these.
- (g) When an operator changes from one inspection program to another, the operator shall apply the time in service, calendar times, or cycles of operation accumulated under the previous program, in determining when the inspection is due under the new program.

#### **8.3.1.3 ANNUAL INSPECTIONS**

- (a) An annual inspection program may be used for non-complex aircraft with a maximum certificated take-off mass of less than 5,700 kg that are not used in commercial air transport.
- (b) An annual inspection under this paragraph may be performed by an AMT / A&P in accordance with Part 2 or an AMO.
- (c) No person may operate an aircraft unless, within the preceding 12 calendar-months, the aircraft has had:
  - (1) An annual inspection in accordance with Part 5 and has been completed by an AMT / A&P or an AMO.
  - (2) An inspection for the issuance of a Certificate of Airworthiness completed for the Authority in accordance with Part 5.

#### **8.3.1.4 ANNUAL/100 HOURS INSPECTIONS**

- (a) No person may operate a non-complex aircraft with a certificated maximum take-off mass less than 5,700 kg carrying any person (other than a crew member) used in commercial air transport, and no person may give flight instruction for compensation or hire in an aircraft which that person provides, unless:
  - (1) Within the preceding 100 hours of time in service the aircraft has received an annual or a 100-hour inspection, and
  - (2) Been approved for return to service in accordance with Part 5 of these regulations.
- (b) The 100-hour limitation may be exceeded by not more than 10 hours while en route to reach a place where the inspection can be done. The excess time used to reach a place where the inspection can be done must be included in computing the next 100 hours of time in service.
- (c) An annual inspection under this paragraph must be performed, a maintenance release and a return to service signed in accordance with Part 2 at an AMO.
- (d) A 100-hour inspection under this paragraph must be performed, a maintenance release and a return to service signed in accordance with Part 2 at an AMO.

**8.3.1.5 PROGRESSIVE INSPECTIONS**

- (a) A progressive inspection program may be used for aircraft with a maximum certificated take-off mass of less than 5,700 kg.
- (b) Aircraft inspected under a progressive inspection program may be used for aircraft engaged in commercial air transport.
- (c) Progressive inspection. Each registered owner or operator of an aircraft desiring to use a progressive inspection program shall submit a written request to the Authority, and shall provide:
  - (1) An AMO appropriately rated in accordance with Part 6, to conduct the progressive inspection;
  - (2) A current inspection procedures manual available and readily understandable to pilot and maintenance personnel containing, in detail:
    - (i) An explanation of the progressive inspection, including the continuity of inspection responsibility, the making of reports, and the keeping of records and technical reference material;
    - (ii) An inspection schedule, specifying the intervals in hours or days when routine and detailed inspections will be performed and including instructions for exceeding an inspection interval by not more than 10 hours while en-route and for changing an inspection interval because of service experience;
    - (iii) Sample routine and detailed inspection forms and instructions for their use; and
    - (iv) Sample reports and records and instructions for their use;
  - (3) Enough housing and equipment for necessary disassembly and proper inspection of the aircraft; and
  - (4) Appropriate current technical information for the aircraft.
- (d) The frequency and detail of the progressive inspection shall provide for the complete inspection of the aircraft within each 12 calendar-months and be consistent with the current manufacturer's recommendations, field service experience, and the kind of operation in which the aircraft is engaged.
- (e) The progressive inspection schedule shall ensure that the aircraft, at all times, will be airworthy and will conform to all applicable aircraft specifications, type certificate data sheets, airworthiness directives, and other approved data acceptable to the Authority.
- (f) Each owner/operator shall include in the inspection program the name and address of the person responsible for the scheduling of the inspections required by the program and provide a copy of the program to the person performing inspection on the aircraft.
- (g) If the progressive inspection is discontinued, the owner or operator shall immediately notify the Authority, in writing, of the discontinuance.
  - (1) After the discontinuance, the first annual inspection under Part 8 is due within 12 calendar months after the last complete inspection of the aircraft under the progressive inspection.
  - (2) The 100-hour inspection is due within 100 hours after that complete inspection.
  - (3) A complete inspection of the aircraft, for the purpose of determining when the annual and 100-hour inspections are due, requires a detailed inspection of the aircraft and all its components in accordance with the progressive inspection.
  - (4) A routine inspection of the aircraft and a detailed inspection of several components are not considered to be a complete inspection.

**8.3.1.6 CONTINUOUS AIRWORTHINESS MAINTENANCE INSPECTION**

- (a) The registered owner or operator of each large airplane certificated with a maximum take-off mass of over 5,700 kg, turbine-powered multi-engine airplane, and turbine-powered rotorcraft shall select, identify in the aircraft maintenance records, and use one of the following continuous airworthiness maintenance inspection programs for the inspection of the aircraft:
- (1) A current inspection program recommended by the manufacturer;
  - (2) A continuous airworthiness maintenance program for that make and model of aircraft currently approved by the Authority for use by an AOC holder; or
  - (3) Any other inspection program established by the registered owner or operator of that aircraft and approved by the Authority.
- (b) Each owner/operator shall include in the selected inspection program the name and address of the person responsible for the scheduling of the inspections required by the program and provide a copy of the program to the person performing inspection on the aircraft.

*Note: The aircraft manufacturer's inspection program and any other inspection program approved by the Authority will specify who can perform aircraft maintenance, inspections and return of the aircraft to service.*

**8.3.1.7 CHANGES TO AIRCRAFT MAINTENANCE INSPECTION PROGRAM**

- (a) Whenever the Authority finds that revisions to an approved inspection program are necessary for the continued adequacy of the program, the owner or operator shall, after notification by the Authority, make any changes in the program found to be necessary.
- (b) The owner or operator may petition the Authority to reconsider the notice, within 30 days after receiving that notice.
- (c) Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Authority.

**8.3.1.8 REQUIRED MAINTENANCE**

- (a) Each owner or operator of an aircraft shall:
- (1) Have that aircraft inspected as prescribed in Part 8.3 and discrepancies repaired as prescribed in the Performance Rules of Part 5;
  - (2) Repair, replace, remove, or inspect any inoperative instruments or items of equipment at the next required inspection, except when permitted to be deferred under the provisions of a Minimum Equipment List (MEL);
  - (3) Ensure that a placard has been installed on the aircraft when listed discrepancies include in operative instruments or equipment; and
  - (4) Ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service.

**8.3.1.9 MAINTENANCE AND INSPECTION RECORDS RETENTION**

- (a) Except for records maintained by an AOC holder and notwithstanding the requirements of Part 13, each registered owner or operator shall retain the following records for a minimum period of 90 days after the unit to which they refer has been permanently

withdrawn from service for paragraph (2); and the records in paragraph (1) below for a minimum period of one year after the signing of the maintenance release or until the work is repeated or superseded by other work of equivalent scope and detail:

- (1) Records of the maintenance, preventive maintenance, minor modifications, and records of the 100-hour; annual, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft to include-
  - (i) A description (or reference to data acceptable to the Authority) of the work performed,
  - (ii) The date of completion of the work performed; and
  - (iii) The signature and certificate number of the person signing the Maintenance Release; and
  - (iv) As necessary the identification of the person at the AMO approving the aircraft for return to service.
- (2) Records containing the following information-
  - (i) The total time-in-service of the airframe, each engine, each propeller, and each rotor.
  - (ii) The current status of all life-limited aeronautical products;
  - (iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis;
  - (iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.
  - (v) The current status of applicable Airworthiness Directives including, for each, the method of compliance, the Airworthiness Directive number, and revision date. If the Airworthiness Directive involves recurring action, the time and date when the next action is required.
  - (vi) Copies of the forms prescribed by this chapter for each major modification to the airframe and currently installed engines, rotors, propellers, and appliances.
- (b) The records specified in paragraph (a) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold or leased.
- (c) A list of defects shall be retained until the defects are repaired and the aircraft is approved for return to service.
- (d) The owner or operator shall make all maintenance records required by this subsection available for inspection by the Authority.

*Note: Requirements for maintenance records for an AOC holder are detailed in subsection 9.4.1.7.*

#### **8.3.1.10 LEASE OR SALE OF AIRCRAFT-TRANSFER OF MAINTENANCE RECORDS**

- (a) Any owner or operator who sells or leases a Republic of the Philippines registered aircraft shall transfer to the purchaser/lessor, at the time of sale or lease, the records identified in Subparts 8.3.1.8 and 8.3.1.9 of that aircraft, in plain language form or in coded form at the election of the purchaser/lessor, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the Authority.

- (b) The operator of an aircraft shall comply with the requirements of Subpart 8.3.1.9, as applicable, while the aircraft is leased.

## 8.4 FLIGHT CREW REQUIREMENTS

### 8.4.1.1 COMPOSITION OF THE FLIGHT CREW

- (a) The number and composition of the flight crew shall not be less than that specified in the flight manual (for helicopters: operations manual). The flight crew members shall include flight crew members in addition to the minimum numbers specified in the flight manual or other documents associated with the certificate of airworthiness, when necessitated by considerations related to the type of aircraft used, the type of operation involved and the duration of flight between points where flight crew members are changed.
- (b) The flight crew shall include at least one member who holds a valid radio license, issued or rendered valid by the State of Registry, authorizing operation of the type of radio transmitting equipment to be used.
- (c) The flight crew shall include at least one member who holds a flight navigator license in all operations where, as determined by the Authority, navigation necessary for the safe conduct of the flight cannot be adequately accomplished by the pilots from the pilot station.
- (d) A co-pilot (CP) is required for IFR commercial air transport operations, unless the Authority has issued an exemption. This exemption shall be for domestic operations only and airplane weighing less than 5,700 kg or helicopters weighing less than 3,175 kg.
- (e) When a separate flight engineer's station is incorporated in the design of an airplane, the flight crew shall include at least one flight engineer especially assigned to that station, unless the duties associated with that station can be satisfactorily performed by another flight crew member, holding a flight engineer license, without interference with regular duties.

### 8.4.1.2 FLIGHT CREW QUALIFICATIONS

- (a) The PIC shall ensure that the licenses of each flight crew member have been issued or rendered valid by the State of Registry, contain the proper ratings, and that all flight crew members have maintained recent experience and competence.
- (b) No person may operate a civil aircraft in commercial air transport or aerial work unless that person is qualified for the specific operation and in the specific type of aircraft used.
- (c) The operator or owner of the aircraft shall ensure that flight crewmembers engaged in international civil aviation operations speak and understand the English language.
- (d) The PIC of an aircraft equipped with an airborne collision avoidance system (ACAS II) shall ensure that each flight crew member has been appropriately trained to competency in the use of ACAS II equipment and the avoidance of collisions.

### 8.4.1.3 AUTHORIZATION IN LIEU OF A TYPE RATING

- (a) The Authority may authorize a pilot to operate an aircraft requiring a type rating without a type rating for up to 60 days, provided
  - (1) The Authority has determined that an equivalent level of safety can be achieved through the operating limitations on the authorization;
  - (2) The applicant shows that compliance with this subsection is impracticable for the flight or series of flights,

- (3) The operations:
- (i) Involve only a ferry flight, training flight, test flight, or skill test for a pilot license or rating;
  - (ii) Are within Republic of the Philippines, unless, by previous agreement with the Authority, the aircraft is flown to an adjacent contracting State for maintenance,
  - (iii) Are not for compensation or hire unless the compensation or hire involves payment for the use of the aircraft for training or taking a practical test; and
  - (iv) Involve only the carriage of flight crew members considered essential for the flight.
- (4) If the purpose of the authorization provided by this paragraph cannot be accomplished within the time limit of the authorization, the Authority may authorize an additional period of up to 60 days.

#### **8.4.1.4 LICENSES REQUIRED**

- (a) No person may act as PIC or in any other capacity as a required flight crew member of a civil aircraft of:
- (1) Republic of the Philippines registry, unless he or she carries in their personal possession the appropriate and current license for that flight crew position for that type of aircraft and a valid medical certificate.
  - (2) Foreign registry, unless he or she carries in their personal possession a valid and current license for that type of aircraft issued to them by the State in which the aircraft is registered.
- (b) Each operator shall ensure that flight crew members demonstrate the ability to speak and understand the language used for communications as specified in CAR Part 2.

#### **8.4.1.5 FLIGHT CREW: LIMITATIONS ON USE OF SERVICES FOR COMMERCIAL AIR TRANSPORT**

No person may serve as an airman, nor may any Operator use an airman in commercial air transport unless that person is otherwise qualified for the operations for which they are to be used.

*Note: The qualifications for airman engaged in commercial air transport are provided in Subpart 8.10.*

#### **8.4.1.6 RATING REQUIRED FOR IFR OPERATIONS**

- (a) No person may act as PIC of a civil aircraft under IFR or in weather conditions less than the minimums prescribed for VFR flight unless:
- (1) In the case of an aircraft, the pilot holds an instrument rating or an ATP license with an appropriate airplane category, class, and type (if required) rating for the airplane being flown;
  - (2) In the case of helicopter, the pilot holds a helicopter instrument rating or an ATP license for helicopters not limited to VFR operations.

**8.4.1.7 SPECIAL AUTHORIZATION REQUIRED FOR CATEGORY II/III OPERATIONS**

- (a) Except as shown in paragraph (b), no person may act as a pilot crew member of a civil aircraft in a Category II/III operation unless
  - (1) In the case of a PIC, he or she holds a current Category II or III pilot authorization issued by the State of Registry for that type aircraft.
  - (2) In the case of a CP, he or she is authorized by the State of Registry to act as CP in that aircraft in Category II/III operations.
- (b) An authorization is not required for individual pilots of an Operator that has operations specifications approving Category II or III operations.

**8.4.1.8 PILOT LOGBOOKS**

- (a) Each pilot shall show the aeronautical training and experience used to meet the requirements for a license or rating, or recent experience, by a reliable record.
- (b) Each PIC shall carry his or her logbook on all general aviation flights.
- (c) A student pilot shall carry his or her logbook, including the proper flight instructor endorsements, on all solo cross-country flights.

*Note: The acceptable methods of logging experience are outlined in Part 2 - Personnel Licensing.*

**8.4.1.9 PILOT CURRENCY: TAKE-OFF AND LANDINGS, AND CRUISE RELIEF**

- (a) No person may act as PIC or a co-pilot of an aircraft unless, within the preceding 90 days that pilot has:
  - (1) Made three take-offs and landings as the sole manipulator of the flight controls in an aircraft of the same category and class and if a type rating is required, of the same type or in a flight simulation training device approved for the purpose.
  - (2) For a tail-wheel airplane, made the three take-offs and landings in a tail-wheel airplane with each landing to a full stop.
  - (3) For night operations, made the three take-offs and landings required by paragraph (a) (1) above at night.
- (b) A pilot who has not met the recency of experience for take-offs and landings shall satisfactorily complete a requalification curriculum acceptable to the Authority.
- (c) Requirements of paragraphs (a) and (b) above may be satisfied in a flight simulator approved by the Authority.
- (d) No person may act as a cruise relief pilot in a commercial air transport unless within the preceding 90 days, that pilot has either:
  - (1) Operated as PIC, CP or cruise pilot on the same type of aircraft; or
  - (2) Carried out flying skill refresher training including normal, abnormal and emergency procedures specific to cruise flight on the same type of aircraft or in a flight simulator approved for the purpose, and has practiced approach and landing procedures, where the approach and landing procedure practice may be performed as the pilot who is not flying the aircraft.
- (e) When a pilot is flying several variants of the same type of aircraft or different types of aircraft with similar characteristics in terms of operating procedures, systems and

handling, the Authority shall decide under which conditions the requirements of paragraph (a) for each variant or each type of aircraft can be combined.

#### **8.4.1.10 PILOT CURRENCY: IFR OPERATIONS**

- (a) No person may act as a pilot under IFR, nor in IMC, unless he or she has, within the past six calendar months
  - (1) Logged at least six hours of instrument flight time including at least three hours in flight in the category of aircraft: and
  - (2) Completed at least six instrument approaches.
- (b) A pilot who has completed an instrument competency check with an authorized representative of the Authority retains currency for IFR operations for six calendar months following that check.

#### **8.4.1.11 PILOT CURRENCY: GENERAL AVIATION OPERATIONS**

- (a) In addition to the requirements in Subparts 8.4.1.9 and 8.4.1.10:
  - (1) No person may act as PIC of an aircraft type certified for more than one pilot or a turbojet aircraft unless, since the beginning of the past 12 calendar months, he or she has passed a proficiency check in an aircraft with an authorized representative of the Authority.
  - (2) No person may act as PIC of an aircraft type certified for more than one pilot or a turbojet aircraft unless, since the beginning of the past 24 calendar months, he or she has passed a proficiency check in the type aircraft to be operated.
  - (3) No person may act as PIC of an aircraft type certified for a single pilot unless, since the beginning of the 24 calendar months, he or she has passed a proficiency check with an authorized representative of the Authority.
  - (4) No person may act as CP of an aircraft type certified for more than one pilot unless, since the beginning of the 12 calendar months, he or she has logged 3 take-off and landings as the sole manipulator of the controls in the aircraft of the same type.
- (b) The person conducting the proficiency checks shall ensure that each check duplicates the maneuvers of the type rating skill test.

*Note: Subsection 8.4.1.11 does not apply to pilots engaged in commercial air transport operations. Those requirements are outlined in Subpart 8.10.1.21.*

#### **8.4.1.12 PILOT PRIVILEGES AND LIMITATIONS**

A pilot may conduct operations only within the general privileges and limitations of each license as specified in Part 2 of these regulations.

## **8.5 CREW MEMBER DUTIES AND RESPONSIBILITIES**

### **8.5.1.1 AUTHORITY AND RESPONSIBILITY OF THE PIC**

- (a) Pilot-in-command (PIC): Each operator shall designate one pilot to act as PIC for each flight.
- (b) The PIC shall be responsible for the operations and safety of the aircraft and for the safety of all crew members, passengers and cargo on board, when the doors are closed. The PIC shall also be responsible for the operation and safety of the aircraft from the moment the aircraft is ready to move for the purpose of taking off until the moment it finally comes to rest at the end of the flight and the engine(s) used as primary propulsion units are shut down (and in the case of helicopters, rotor blades stopped).
- (c) The PIC of an aircraft shall have final authority as to the operation of the aircraft while he or she is in command.
- (d) The PIC of an aircraft shall, whether manipulating the controls or not, be responsible for the operation of the aircraft in accordance with the rules of the air, except that the PIC may depart from these rules in emergency circumstances that render such departure absolutely necessary in the interests of safety.
- (e) In an emergency during flight, the PIC shall ensure that all persons on board are instructed in such emergency action as may be appropriate to the circumstances.

### **8.5.1.2 COMPLIANCE WITH LOCAL REGULATIONS**

- (a) The PIC shall comply with the relevant laws, regulations and procedures of the States in which the aircraft is operated.
- (b) If an emergency situation which endangers the safety of the aircraft or persons necessitates the taking of action which involves a violation of local regulations or procedures, the PIC shall -
  - (1) Notify the appropriate local authority without delay;
  - (2) Submit a report on any such violation to the appropriate authority of such State, if required by the State in which the incident occurs; and
  - (3) Submit a copy of this report to the State of Registry.
- (c) Each PIC shall submit reports specified in paragraph (b) to the Authority within 10 days in the form prescribed.
- (d) An operator shall ensure that all employees when abroad know that they must comply with the laws, regulations, and procedures of those States in which operations are conducted.
- (e) An operator shall ensure that all pilots are familiar with the laws, regulations, and procedures, pertinent to the performance of their duties, prescribed for the areas to be traversed, the airports to be used and the air navigation facilities relating thereto. The operator shall ensure that other members of the flight crew are familiar with such of these laws, regulations, and procedures as are pertinent to the performance of their respective duties in the operation of the aircraft.

### **8.5.1.3 NEGLIGENT OR RECKLESS OPERATIONS OF THE AIRCRAFT**

No person may operate an aircraft in a negligent or reckless manner so as to endanger life or property of others.

**8.5.1.4 FITNESS OF FLIGHT CREW MEMBERS**

- (a) No person may act as PIC or in any other capacity as a required flight crew member when they are aware of any decrease in their medical fitness which might render them unable to safely exercise the privileges of his or her license.
- (b) The PIC shall be responsible for ensuring that a flight is not:
  - (1) Commenced if any flight crew member is incapacitated from performing duties by any cause such as injury, sickness, fatigue, the effects of alcohol or drugs; or
  - (2) Continued beyond the nearest suitable airport/heliport if a flight crew member's capacity to perform functions is significantly reduced by impairment of faculties from causes such as fatigue, sickness or lack of oxygen.

**8.5.1.5 PROHIBITION ON USE OF PSYCHOACTIVE SUBSTANCES, INCLUDING NARCOTICS, DRUGS OR ALCOHOL**

- (a) No person may act or attempt to act as a crew member of a civil aircraft:
  - (1) Within 8 hours after the consumption of any alcoholic beverage;
  - (2) While under the influence of alcohol; or
  - (3) While using any drug that affects the person's faculties in any way contrary to safety.
- (b) A crew member shall, up to 8 hours before or immediately after acting or attempting to act as a crew member, on the request of a law enforcement officer or the Authority, submit to a test to indicate the presence of alcohol or narcotic drugs in the blood.
- (c) Whenever there is a reasonable basis to believe that a person may not be in compliance with this paragraph and upon the request of the Authority, that person shall furnish the Authority or authorize any clinic, doctor, or other person to release to the Authority, the results of each blood test taken for presence of alcohol or narcotic substances up to 8 hours before or immediately after acting or attempting to act as a crew members.
- (d) Any test information provided to the Authority under the provisions of this section may be used as evidence in any legal proceeding.

**8.5.1.6 FLIGHT CREW MEMBER USE OF SEAT BELTS AND SAFETY HARNESES**

- (a) Each flight crew member shall have his or her seat belts fastened during take-off and landing and all other times when seated at his or her station.
- (b) Safety harness. Any flight crew member occupying a pilot's seat shall keep the safety harness fastened during the take-off and landing phases; all other flight crew members shall keep their safety harnesses fastened during the take-off and landing phases unless the shoulder straps interfere with the performance of their duties, in which case the shoulder straps may be unfastened but the seat belt must remain fastened.

*Note- Safety harness includes shoulder straps and a seat belt which may be used independently.*

- (c) Each flight crew member occupying a station equipped with a shoulder harness shall fasten that harness during take-off and landing, except that the shoulder harness may be unfastened if the flight crew member cannot perform the required duties with the shoulder harness fastened.

- (d) Each occupant of a seat equipped with a combined safety belt and shoulder harness shall have the combined safety belt and shoulder harness properly secured about that occupant during take-off and landing and be able to properly perform assigned duties.
- (e) At each unoccupied seat, the safety belt and shoulder harness, if installed, shall be secured so as not to interfere with crew members in the performance of their duties or with the rapid egress of occupants in an emergency.

#### **8.5.1.7 FLIGHT CREW MEMBERS AT DUTY STATIONS**

- (a) Each required flight crew member shall remain at the assigned duty station during take-off and landing and critical phases of flight.
- (b) Each flight crew member shall remain at his or her station during all phases of flight unless:
  - (1) Absence is necessary for the performance of his or her duties in connection with the operation;
  - (2) Absence is necessary for physiological needs, provided one qualified pilot remains at the controls at all times; or
  - (3) The crew member is taking a rest period and a qualified relief crewmember replaces him or her at the duty station.
    - (i) For the assigned PIC during the en route cruise portion of the flight by a pilot who holds an airline transport pilot license and an appropriate type rating, and who is currently qualified as PIC or CP, and is qualified as PIC of that aircraft during the en route cruise portion of the flight; and
    - (ii) In the case of the assigned CP, by a pilot qualified to act as PIC or Co-pilot of that aircraft during en route operations.
- (c) An operator shall, for each type of aircraft, assign to all flight crew members the necessary functions they are to perform in an emergency or in a situation requiring emergency evacuation. Annual training in accomplishing these functions shall be contained in the operator's training program and shall include instruction in the use of all emergency and life-saving equipment required to be carried, and drills in the emergency evacuation of the aircraft.

#### **8.5.1.8 REQUIRED CREW MEMBER EQUIPMENT**

- (a) Each crew member involved in night operations shall have a flashlight at his or her station, suitable for the type of operation undertaken, as specified by the operator.
- (b) Each pilot crew member shall have at his or her station an aircraft checklist containing at least the pre-take-off, after take-off, before landing and emergency procedures.
- (c) Each pilot crew member shall have at his or her station current and suitable charts to cover the route of the proposed flight and any route along which it is reasonable to expect that the flight may be diverted.
- (d) Each flight crew member assessed as fit to exercise the privileges of a license subject to the use of suitable correcting lenses shall have a spare set of the correcting lenses readily available when performing as a required crew member in commercial air transport.
- (e) Each aircraft shall have at least one copy of current cabin crew safety manual on board. Each cabin crew member shall have at his or her station the safety

directives/procedures-part of cabin crew safety manual for quick review during take-off and landing.

#### **8.5.1.9 COMPLIANCE WITH CHECKLISTS**

The PIC shall ensure that the checklists specified in Subpart 9.3.1.11 are complied with in detail.

#### **8.5.1.10 SEARCH AND RESCUE INFORMATION**

- (a) An operator shall ensure that PIC has available on board the aircraft all the essential information concerning the search and rescue services in the area over which the aircraft will be flown.
- (b) For all flights, the PIC shall have available on board the aircraft essential information concerning the search and rescue services in the areas over which it is intended the aircraft will be flown.

#### **8.5.1.11 PRODUCTION OF AIRCRAFT AND FLIGHT DOCUMENTATION**

The PIC shall, within a reasonable time of being requested to do so by a person authorized by the Authority, produce to that person the documentation required to be carried on the aircraft.

#### **8.5.1.12 LOCKING OF FLIGHT DECK COMPARTMENT DOOR: COMMERCIAL AIR TRANSPORT**

- (a) The PIC shall ensure that the flight deck compartment door (if installed) is locked at all times during passenger-carrying commercial air transport operations, except as necessary to accomplish approved operations or to provide for emergency evacuation.
- (b) No person may operate a passenger carrying airplane having a maximum certificated take-off mass in excess of 45,000 kg or with a passenger capacity greater than 60, unless the flight crew compartment door is closed and locked:
  - (1) From the time all external doors are closed following embarkation; until
  - (2) Any such door is opened for disembarkation; except
  - (3) When necessary to permit access and egress by authorized persons.

#### **8.5.1.13 ADMISSION TO THE FLIGHT DECK: COMMERCIAL AIR TRANSPORT**

- (a) No person may admit any person to the flight deck of an aircraft engaged in commercial air transport operations unless the person being admitted is -
  - (1) An operating crew member;
  - (2) A representative of the authority responsible for certification, licensing or inspection, if this is required for the performance of his or her official duties; or
  - (3) Permitted by and carried out in accordance with instructions contained in the Operations Manual.
- (b) The PIC shall ensure that

- (1) In the interest of safety, admission on the flight deck does not cause distraction and/or interference with the flight's operations; and
- (2) All persons carried on the flight deck are made familiar with the relevant safety procedures.

#### **8.5.1.14 ADMISSION OF INSPECTOR TO THE FLIGHT DECK**

- (a) Whenever, in performing the duties of conducting an inspection, an inspector from the Authority presents [Inspector's Credential Form] to the PIC, the PIC shall give the inspector free and uninterrupted access to the flight deck of the aircraft.

#### **8.5.1.15 DUTIES DURING CRITICAL PHASES OF FLIGHT: COMMERCIAL AIR TRANSPORT**

- (a) No flight crew member may perform any duties during a critical phase of flight except those required for the safe operation of the aircraft.
- (b) No PIC may permit a flight crew member to engage in any activity during a critical phase of flight which could distract or interfere with the performance of their assigned duties.

#### **8.5.1.16 MANIPULATION OF THE CONTROLS: COMMERCIAL AIR TRANSPORT**

- (a) No PIC may allow an unqualified person to manipulate the controls of an aircraft during commercial air transport operations.
- (b) No person may manipulate the controls of an aircraft during commercial air transport operations unless he or she is qualified to perform the applicable crew member functions and is authorized by the Operator.

#### **8.5.1.17 SIMULATED ABNORMAL SITUATIONS IN FLIGHT: COMMERCIAL AIR TRANSPORT**

- (a) No person may cause or engage in simulated abnormal or emergency situations or the simulation of IMC by artificial means during commercial air transport operations.

#### **8.5.1.18 COMPLETION OF THE TECHNICAL LOG: COMMERCIAL AIR TRANSPORT**

- (a) The PIC shall ensure that all portions of the technical log are completed with known or suspected defects in the aircraft before, during and after flight operations, including:
  - (1) The journey logbook; and
  - (2) The aircraft maintenance records section.

#### **8.5.1.19 REPORTING MECHANICAL IRREGULARITIES**

- (a) The PIC shall ensure that all mechanical irregularities occurring during flight time are:
  - (1) For general aviation operations, entered in the aircraft logbook and disposed of in accordance with the MEL or other approved or prescribed procedure.

- (2) For commercial air transport operations and aerial work operations, entered in the aircraft maintenance records section of the technical log of the aircraft at the appropriate points before, during and at the end of that flight time.

#### **8.5.1.20 REPORTING OF FACILITY AND NAVIGATION AID INADEQUACIES**

- (a) Each crew member shall report, without delay, any inadequacy or irregularity of a facility or navigational aid observed in the course of operations to the person responsible for that facility or navigational aid.

#### **8.5.1.21 REPORTING OF HAZARDOUS CONDITIONS**

- (a) The PIC shall report to the appropriate ATC facility, without delay and with enough details to be pertinent to the safety of other aircraft, any hazardous flight conditions encountered en-route, including those associated with meteorological conditions.
  - (1) Those associated with meteorological observations during en-route and climb-out phases of flight;
  - (2) On volcanic activity;
  - (3) Meteorological Observation

*Note.- The procedures for making meteorological observations on board aircraft in flight and for recording and reporting them are contained in ICAO Annex 3, the PANS-ATM (ICAO Doc 4444) and the appropriate Regional Supplementary Procedures (ICAO Doc 7030).*

*Note 2.- The procedures for making special air-reports regarding runway braking action are contained in the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, ICAO Doc 4444), Chapter 4 and Appendix 1, Instructions for air-reporting by voice communication.*

- (i) As of 4 November 2021, the pilot-in-command shall report the runway braking action special air-report (AIREP) when the runway braking action encountered is not as good as reported.

*Note.- The procedures for making special air-reports regarding runway braking action are contained in the PANS-ATM (ICAO Doc 4444), Chapter 4 and Appendix 1.*

- (b) Hazardous flight conditions encountered, other than those associated with meteorological conditions, shall be reported to the appropriate aeronautical station as soon as possible. The reports so rendered shall give such details as may be pertinent to the safety of other aircraft.

#### **8.5.1.22 REPORTING OF INCIDENTS**

- (a) Air traffic incident report. The PIC shall submit, without delay, an air traffic incident report whenever an aircraft in flight has been endangered by:
  - (1) A near collision with another aircraft or object;
  - (2) Faulty air traffic procedures or lack of compliance with applicable procedures by ATC or by the flight crew: or
  - (3) A failure of ATC facilities.

- (b) Birds. In the event a bird constitutes an in-flight hazard or an actual bird strike occurs, the PIC shall, without delay:
  - (1) Inform the appropriate ground station whenever a potential bird hazard is observed; and
  - (2) Submit a written bird strike report after landing.
- (c) Dangerous Goods. The PIC shall inform the appropriate ATC facility, if the situation permits, when an in-flight emergency occurs, involving dangerous goods on board.
- (d) Unlawful Interference. The PIC shall submit a report to the local authorities and to the Authority, without delay, following an act of unlawful interference with the crew members on board an aircraft.
- (e) Laser illumination: the flight crew shall immediately report the incident of laser illumination by radio to the appropriate Air Traffic Control.

#### **8.5.1.23 ACCIDENT NOTIFICATION**

- (a) The PIC shall notify the nearest appropriate authority, by the quickest available means, of any accident involving his or her aircraft that results in serious injury or death of any person, or substantial damage to the aircraft or property.

*Note.- A definition of the term "serious injury" is contained in PCAR Part 13.*
- (b) The PIC shall submit a report to the Authority of any accident which occurred while he or she was responsible for the flight.

#### **8.5.1.24 OPERATION OF FLIGHT DECK VOICE AND FLIGHT DATA RECORDERS**

- (a) The PIC shall ensure that whenever an aircraft has flight recorders installed, those recorders are operationally checked and operated continuously from the instant
  - (1) For a flight data recorder, the aircraft begins its take-off roll until it has completed the landing roll, and
  - (2) For a flight deck voice recorder, the initiation of the pre-start checklist until the end of the securing aircraft checklist.
- (b) The PIC may not permit a flight data recorder or flight deck voice recorder to be disabled, switched off or erased during flight, unless necessary to preserve the data for an accident or incident investigation.
- (c) In event of an accident or incident, the PIC shall act to preserve the recorded data for subsequent investigation.

#### **8.5.1.25 CREW MEMBER OXYGEN: MINIMUM SUPPLY AND USE**

- (a) The PIC shall ensure that all flight crew members, when engaged in performing duties essential to the safe operation of an aircraft in flight, shall use breathing oxygen continuously whenever the circumstances prevail for which its supply has been required in Subpart 8.6.2.13.2.
- (b) All flight crew members of pressurized aircrafts operating above an altitude where the atmospheric pressure is less than 376 hPa shall have available at the flight duty station a quick donning type of oxygen mask which will readily supply oxygen upon demand.
- (c) The PIC shall ensure that breathing oxygen and masks are available to crew members in sufficient quantities for all flights at such altitudes where a lack of oxygen might result in impairment of the faculties of crew members.

- (d) In no case shall the minimum supply of oxygen on board the aircraft be less than that prescribed by the Authority.

*Note: The requirements for oxygen supply and use are prescribed in Part 7, 7.8.12 Required Instruments and Equipment.*

- (e) The PIC shall ensure that all flight crew members, when engaged in performing duties essential to the safe operation of an aircraft in flight, use breathing oxygen continuously at cabin altitudes exceeding 10,000 ft for a period in excess of 30 minutes and whenever the cabin altitude exceeds 13,000 ft.
- (f) One pilot at the controls of a pressurized aircraft in flight shall wear and use an oxygen mask
- (1) For general aviation operations, at flight levels above 350, if there is no other pilot at their duty station: and
  - (2) For commercial air transport operations, at flight levels above 250, if there is no other pilot at their duty station.
- (g) Cabin crew shall be safeguarded so as to ensure reasonable probability of their retaining consciousness during any emergency descent which may be necessary in the event of loss of pressurization and, in addition, they shall have such means of protection as will enable them to administer first aid to passengers during stabilized flight following the emergency. Passengers shall be safeguarded by such devices or operational procedures as will ensure reasonable probability of their surviving the effects of hypoxia in the event of loss of pressurization.

*Note.- It is not envisaged that cabin crew will always be able to provide assistance to passengers during emergency descent procedures which may be required in the event of loss of pressurization.*

#### **8.5.1.26 PORTABLE ELECTRONIC DEVICES**

- (a) No PIC or SCC may permit any person to use, nor may any person use a portable electronic device, including cell-phone, on board an aircraft that may adversely affect the performance of aircraft systems and equipment unless
- (1) For IFR operations other than commercial air transport, the PIC allows such a device prior to its use; or
  - (2) For commercial air transport operations, the Operator makes a determination of acceptable devices and publishes that information in the Operations Manual for the crew members use; and
  - (3) The PIC or SCC informs passengers of the permitted use.

#### **8.5.1.27 CARRIAGE OF DANGEROUS GOODS**

##### **8.5.1.27.1 GENERAL**

- (a) No person shall carry dangerous goods in an aircraft registered in Republic of the Philippines or operated in Republic of the Philippines except:
- (1) With the written permission of the Authority and in accordance with the regulations and/or conditions set by the Authority in granting such permission; and
  - (2) In accordance with the Technical Instructions for the Safe Transport of Dangerous Goods by Air issued by the Council of International Civil Aviation Organization and

with any variations to those instructions that the Authority may from time to time mandate and provide notification of to ICAO.

- (b) Operators wishing to carry dangerous goods in an aircraft to, from or over the territory of Republic of the Philippines must obtain prior written permission from the Director General. The application must include details of Dangerous Goods Training Program.
- (c) The operator shall ensure that all personnel, including third-party personnel, involved in the acceptance, handling, loading and unloading of cargo are informed of the operator's operational approval and limitations with regard to the transport of dangerous goods.
- (d) On shipments to, from, within, or transiting through Republic of the Philippines, a 24-hour emergency response information must be provided for all dangerous goods, except for dangerous goods for which no transport document is required.
- (e) The transport document must include a 24-hour emergency response telephone number (including the area codes and for international number for location outside Republic of the Philippines, the international access code, country and city codes are needed). The telephone number must be monitored at all times by a person who :
  - (1) Has complete knowledge of emergency response and accident information for dangerous goods;
  - (2) Has immediate access to a person who possesses such knowledge and information; and
  - (3) Is knowledgeable of the hazards and characteristics of the dangerous goods being transported.
- (f) Infectious substances other than human blood, human urine and tissue are prohibited from entry to Republic of the Philippines without approval from the Department of Health Authorities and must be transported only on a cargo aircraft. Infectious substances are not allowed in airmail.
- (g) An operator who is involved in a dangerous goods incident and/or accident in the Republic of the Philippines must provide the Authority all the necessary information to allow the Authority take necessary accident mitigation action. A written report must be prepared and sent by the operator (or his authorized representative) to the Authority within 72 hours of the occurrence.
- (h) No person may offer for transport aboard a passenger aircraft, a package or an over-pack with an activity greater than 3.0.
  - (1) No package may be offered for transport aboard a passenger aircraft, a package or an over-pack with an activity greater than 3,000 x A1 or 3,000 x A2 1,000 TBq (27,000 Ci), whichever is less.
  - (2) All type B (U), type B (M), type H (U) type H (M) and fissile package design must be certified by the Philippine Nuclear Research Institute (PNRI). Request for a package design certification and approval should be directed to the appropriate authority of the Philippine (PNRI).

#### **8.5.1.27.2 STATE RESPONSIBILITIES**

- (a) The Authority shall indicate in the operations specification if an operator is approved or is not approved to transport dangerous goods as cargo. When an operator is approved to transport dangerous goods as cargo any limitations should be included.

- (b) An operational approval may be granted for the transport of specific types of dangerous goods only (e.g. dry ice, biological substance, Category B, and dangerous goods in excepted quantities) or COMAT.
- (c) The Supplement to the Technical Instructions contains guidance on a State's responsibilities with respect to operators. This includes additional information to Part 7 of the Technical Instructions on storage and loading, provision of information, inspections, enforcement and CAR Parts 8, 9 and 18 information relevant to the State's responsibilities for dangerous goods.
- (d) Carriage of dangerous goods other than as cargo (e.g. medical flights, search and rescue) are addressed in Part 1, Chapter 1, of the Technical Instructions. The exceptions for the carriage of dangerous goods that are either equipment or for use on board the aircraft during flight are detailed in Part 1, 2.2.1, of the Technical Instructions.

### **8.5.1.27.3 OPERATOR RESPONSIBILITIES**

- (a) An operator's training programme should cover, as a minimum, the aspects of the transport of dangerous goods listed in the Technical Instructions in Table 1-4 for operators holding an approval or Table 1-5 for operators without an approval. Recurrent training must be provided within 24 months of previous training, except as otherwise provided by the Technical Instructions.
- (b) Details of the dangerous goods training programme including the policies and procedures regarding third-party personnel involved in the acceptance, handling, loading and unloading of dangerous goods cargo should be included in the operations manual.
- (c) The Authority requires that operators provide information in the operations manual and/or other appropriate manuals that will enable flight crews, other employees and ground handling agents to carry out their responsibilities with regard to the transport of dangerous goods and that initial training be conducted prior to performing a job function involving dangerous goods as provided in the Technical Instructions.
- (d) Operators should meet and maintain requirements established by the States in which operations are conducted.
- (e) Operators may seek approval to transport, as cargo, specific dangerous goods only, such as dry ice, biological substance, Category B, COMAT and dangerous goods in excepted quantities.
- (f) Attachment 1 to Part S-7, Chapter 7, of the Supplement to the Technical Instructions contains additional guidance and information on requirements regarding operators not approved to transport dangerous goods as cargo and for operators that are approved to transport dangerous goods as cargo.
- (g) All operators should develop and implement a system that ensures they will remain current with regulatory changes and updates. The Technical Instructions contain detailed instructions necessary for the safe transport of dangerous goods by air. These Instructions are issued biennially, becoming effective on 1 January of an odd-numbered year.

#### **8.5.1.27.3.1 OPERATORS WITH NO OPERATIONAL APPROVAL TO TRANSPORT DANGEROUS GOODS AS CARGO ( NO DG CARRY OPERATOR)**

The Authority shall ensure that operators not approved to transport dangerous goods have:

- (a) established a dangerous goods training programme that meets the applicable requirements of the Technical Instructions, Part 1, Chapter 4 and Part 18, as appropriate. Details of the dangerous goods training programme shall be included in the operator's operations manuals;
- (b) established dangerous goods policies and procedures in its operations manual to meet, at a minimum, the requirements of the Technical Instructions and Part 18 to allow operator personnel to:
  - (1) identify and reject undeclared dangerous goods, including COMAT classified as dangerous goods; and
  - (2) report to the appropriate authorities of the State of the Operator and the State in which it occurred any:
    - (i) occasions when undeclared dangerous goods are discovered in cargo or mail; and
    - (ii) dangerous goods accidents and incidents.

#### **8.5.1.27.3.2 OPERATORS TRANSPORTING DANGEROUS GOODS AS CARGO ( DG CARRY OPERATORS)**

The Authority shall approve the transport of dangerous goods and ensure that the operator:

- (a) establishes a dangerous goods training programme that meets the requirements in the Technical Instructions, Part 1, Chapter 4, Table 1-4 and the requirements of Part 18, as appropriate. Details of the dangerous goods training programme operator's shall be included in the operations manuals.
- (b) established dangerous goods policies and procedures in its operations manual to meet, at a minimum, the requirements of the Technical Instructions and Part 18 to enable operator personnel to:
  - (1) identify and reject undeclared or misdeclared dangerous goods, including COMAT classified as dangerous goods;
  - (2) report to the appropriate authorities of the State of the Operator and the State in which it occurred any:
    - (i) occasions when undeclared or misdeclared dangerous goods are discovered in cargo or mail; and
    - (ii) dangerous goods accidents and incidents;
  - (3) report to the appropriate authorities of the State of the Operator and the State of Origin any occasions when dangerous goods are discovered to have been carried:
    - (i) when not loaded, segregated, separated or secured in accordance with the Technical Instructions Part 7, Chapter 2; and
    - (ii) without information having been provided to the pilot-in-command( NOTOC);
  - (4) accept, handle, store, transport, load and unload dangerous goods, including COMAT classified as dangerous goods as cargo on board an aircraft; and
  - (5) provide the pilot-in-command with accurate and legible written or printed information concerning dangerous goods that are to be carried as cargo.

**8.5.1.28 MICROPHONES**

- (a) For AOC holders operating aircraft, a required flight crew member shall use a boom or throat microphone to communicate with another flight crewmember and air traffic service below the transition level or altitude.
- (b) For general aviation operations in an airplane, helicopter or powered lift aircraft, a required flight crew member should use a boom or throat microphone to communicate with another flight crew member and air traffic service below the transition level or altitude.
- (c) For aerial work operations, a required flight crew member should use a boom or throat microphone to communicate with another flight crewmember and air traffic service below the transition level or altitude, as applicable to the mission.

**8.5.1.29 LASER ILLUMINATION AGAINST CIVIL AIRCRAFT**

- (a) No person shall intentionally project a laser beam or direct by a high intensity light at an aircraft which can result in distraction, disruption, disorientation and, in extreme cases, incapacitation, adversely affect the ability of the flight crew to carry out their responsibilities, especially during take-off and landing;
- (b) A person using or planning to use lasers or other directed high intensity lights outdoors that may enter navigable airspace with sufficient power to cause an aviation hazard shall secure the written approval of the Authority within five (5) days from the intended date of use or plan to use laser beam illumination;
- (c) The PIC shall not deliberately operate an aircraft into a laser beam or other high-intensity light unless flight safety is ensured; and
- (d) No laser beam illumination is allowed within ten (10) nautical miles from the center of aerodrome.

**8.6 FLIGHT PLANNING AND SUPERVISION****8.6.1 FLIGHT PLANS****8.6.1.1 SUBMISSION OF A FLIGHT PLAN**

- (a) Prior to operating one of the following, a pilot shall file a VFR or IFR flight plan, as applicable, for
  - (1) Any flight (or portion thereof) to be provided with air traffic control service;
  - (2) Any IFR flight within advisory airspace;
  - (3) Any flight within or into designated areas, or along designated routes, when so required by the appropriate ATC authority to facilitate the provision of flight information, alerting and search and rescue services;
  - (4) Any flight within or into designated areas, or along designated routes, when so required by the appropriate ATC authority to facilitate co-ordination with appropriate military units or with ATC facilities in adjacent states in order to avoid the possible need for interception for the purpose of identification; and
  - (5) Any flight across international borders.
- (b) The PIC shall submit a flight plan before departure or during flight, to the appropriate ATC facility, unless arrangements have been made for submission of repetitive flight plans.
- (c) Unless otherwise prescribed by the appropriate ATC authority, a pilot should submit a flight plan to the appropriate ATC facility
  - (1) At least sixty (60) minutes before departure; or
  - (2) If submitted during flight, at a time which will ensure its receipt by the appropriate ATC facility at least ten (10) minutes before the aircraft is estimated to reach-
    - (i) The intended point of entry into a control area or advisory area; or
    - (ii) The point of crossing an airway or advisory route.

**8.6.1.2 AIR TRAFFIC CONTROL FLIGHT PLAN: COMMERCIAL AIR TRANSPORT**

- (a) No person may take-off an aircraft in commercial air transport if an ATC flight plan has not been filed, except as authorized by the Authority.

**8.6.1.3 CONTENTS OF A FLIGHT PLAN**

- (a) Each person filing an IFR or VFR flight plan shall include in it the following information
  - (1) Aircraft identification;
  - (2) Flight rules and type of flight;
  - (3) Number and type(s) of aircraft and wake turbulence category;
  - (4) Equipment;
  - (5) Departure airport and alternate (if required);
  - (6) Estimated off-block time;
  - (7) Cruising speed(s);
  - (8) Cruising level(s);

- (9) Route to be followed;
  - (10) Destination airport and alternate (if required);
  - (11) Fuel endurance;
  - (12) Total number of persons on board;
  - (13) Emergency and survival equipment; and
  - (14) Other information.
- (b) Whatever the purpose for which it is submitted, a flight plan shall contain information, as applicable, on relevant items up to and including "alternate airport(s)" regarding the whole route or the portion thereof for which the flight plan is submitted. It shall, in addition, contain information, as applicable, on all other items when so prescribed by the appropriate ATS authority or when otherwise deemed necessary by the person submitting the flight plan.

#### **8.6.1.4 PLANNED RECLEARANCE**

- (a) If during flight planning a person determines that there is a possibility, depending on fuel endurance, that a flight may be able to change destinations and still comply with minimum fuel supply planning requirements, that person shall notify the appropriate ATC facility of this possibility when the flight plan is submitted.

*Note: The intent of this provision is to facilitate a new clearance to a revised destination, normally beyond the filed destination airport.*

#### **8.6.1.5 CHANGES TO A FLIGHT PLAN**

- (a) When a change occurs to a flight plan submitted for an IFR flight or a VFR flight operated as a controlled flight. The pilot shall report that change as soon as practicable to the appropriate ATC facility.
- (b) For VFR flights other than those operated as controlled flight, the PIC shall report significant changes to a flight plan as soon as practicable to the appropriate ATC facility.

*Note: Information submitted prior to departure regarding fuel endurance or total number of persons carried on board, if incorrect at time of departure constitutes a significant change and shall be reported.*

#### **8.6.1.6 CLOSING A FLIGHT PLAN**

- (a) The PIC shall make a report of arrival either in person or by radio to the appropriate ATC facility at the earliest possible moment after landing at the destination airport, unless ATC automatically closes a flight plan.
- (b) When a flight plan has been submitted for a portion of a flight, but not the arrival at destination, the pilot shall close that flight plan en route with the appropriate ATC facility.
- (c) When no ATC facility exists at the arrival airport, the pilot shall contact the nearest ATC facility to close the flight plan as soon as practicable after landing and by the quickest means available.
- (d) Pilots shall include the following elements of information in their arrival reports:

- (1) Aircraft identification;
- (2) Departure airport;
- (3) Destination airport (only in the case of a diversionary landing);
- (4) Arrival airport; and
- (5) Time of arrival.

## **8.6.2 FLIGHT PLANNING AND PREPARATION**

### **8.6.2.1 AIRCRAFT AIRWORTHINESS AND SAFETY PRECAUTIONS**

- (a) A flight, or series of flights, shall not be commenced until flight preparation forms have been completed certifying that the PIC is satisfied that:
  - (1) the aircraft is airworthy, duly registered and that appropriate certificates with respect thereto are on board the aircraft;
  - (2) the instruments and equipment prescribed in Part 7 for the particular type of operation to be undertaken, are appropriate, taking in account the expected flight conditions, installed and sufficient for the flight;
  - (3) any necessary maintenance has been performed and a maintenance release, if applicable, has been issued in respect to the aircraft;
  - (4) the mass of the aircraft and center of gravity location are such that the flight can be conducted safely, taking into account the flight conditions expected;
  - (5) any load carried is properly distributed and safely secured;
  - (6) a check has been completed indicating that the operating limitations, contained in the flight manual or its equivalent, can be complied with for the flight to be undertaken; and
  - (7) the Standards of Subpart 8.6.2.16 relating to the operational flight planning have been complied with.
- (b) The PIC shall have sufficient information on climb performance with all engines operating to enable determination of the climb gradient that can be achieved during the departure phase for the existing take-off conditions and intended take-off technique.
- (c) For commercial air transport operations, the PIC shall certify by signing the aircraft technical log that he or she is satisfied that the requirements of paragraph (a) have been met for a particular flight.

### **8.6.2.2 ADEQUACY OF OPERATING FACILITIES**

- (a) An operator shall ensure that a flight will not be commenced unless it has been ascertained by every reasonable means available that the ground and/or water facilities available and directly required on such flight, for the safe operation of the airplane or helicopter and the protection of the passengers, are adequate for the type of operation under which the flight is to be conducted and are adequately operated for this purpose.
- (b) An operator shall ensure that any inadequacy of facilities observed in the course of operations is reported to the authority responsible for them, without undue delay.

- (c) The PIC shall not commence a flight unless it has been ascertained by every reasonable means available that the ground and/or water areas and facilities available and directly required for such flight and for the safe operation of the aircraft are adequate, including communication facilities and navigation aids.
- (d) Subject to their published conditions of use, aerodromes and their facilities shall be kept continuously available for flight operations during their published hours of operations, irrespective of meteorological conditions.
- (e) An operator shall, as part of its safety management system, assess the level of rescue and fire fighting service (RFFS) protection available at any aerodrome intended to be specified in the operational flight plan in order to ensure that an acceptable level of protection is available for the airplane intended to be used.
- (f) Information related to the level of RFFS protection that is deemed acceptable by the operator shall be contained in the operations manual.

*Note 1: "Reasonable means" denotes use, at the point of departure, of information available to the PIC either through official information published by the aeronautical information services or readily obtainable in other sources.*

*Note 2: ICAO Annex 6, Part 1, Attachment I, contains guidance on assessing an acceptable level of RFFS protection at aerodromes.*

*Note 3: It is not intended that this guidance limit or regulate the operation of an aerodrome. The assessment performed by the operator does not in any way affect the RFFS requirements of ICAO Annex 14, Volume I, for aerodromes.*

### 8.6.2.3 WEATHER REPORTS AND FORECASTS

- (a) Before commencing a flight, the PIC shall be familiar with all available meteorological information appropriate to the intended flight.
- (b) The PIC shall include, during preparation for a flight away from the vicinity of the place of departure, and for every flight under the IFR:
  - (1) A study of available current weather reports and forecasts; and
  - (2) The planning of an alternative course of action to provide for the eventuality that the flight cannot be completed as planned, because of weather conditions.

*Note 1. – It is the practice in some States to declare, for flight planning purposes, higher minima for an aerodrome when nominated as an alternate, than for the same aerodrome when planned as that of intended landing.*

*Note 2. – The requirements for flight plans are contained in Annex 2 – Rules of the Air and the procedures relating to flight plans and associated services are contained in the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444).*

*Note 3. – Detailed guidance on the use of the FF-ICE services, including the use of a preliminary flight plan, can be found in the Manual on Flight and Flow – Information for a Collaborative Environment (FF-ICE) (Doc 9965).*

### 8.6.2.4 METEOROLOGICAL LIMITATIONS FOR VFR FLIGHTS

- (a) No person will commence a flight to be conducted in accordance with the VFR unless available current meteorological reports, or a combination of current reports and

forecasts, indicate that the meteorological conditions along the route, or that part of the route to be flown under the VFR, will, at the appropriate time, allow VFR operations.

#### 8.6.2.5 IFR DESTINATION AIRPORT/HELIPORT

- (a) When No person may conduct an IFR flight unless—
- (1) At the time of take-off, the meteorological conditions at the departure aerodrome are at or above the operator's established aerodrome operating minima for that operation; and
  - (2) At the time of take-off or point of in-flight re-planning, current meteorological reports or a combination of current reports and forecasts indicate that the meteorological conditions will be, at the estimated time of use, at or above the operator's established aerodrome operating minima for that operation.

#### 8.6.2.6 DESTINATION ALTERNATE AIRPORT/HELIPORT

##### 8.6.2.6.1 IFR DESTINATION ALTERNATE AIRPORT/HELIPORT

For a flight to be conducted in accordance with the IFR, at least one destination alternate airport/heliport shall be selected and specified in the operational and filed flight plans, and, if applicable, in the preliminary flight plan, unless:

- (a) the duration of the flight from the departure aerodrome, or from the point of in-flight re-planning to the destination aerodrome is such that, taking into account all meteorological conditions and operational information relevant to the flight, at the estimated time of use, a reasonable certainty exists that:
- (1) the approach and landing may be made under VMC, (for helicopters: the weather conditions in Subpart 8.6.2.6.2 prevails); and
  - (2) separate runways are usable at the estimated time of use of the destination aerodrome with at least one runway having an operational instrument approach procedure, in case of helicopter operations, a point of no return (PNR) shall be determined; or
- (b) the aerodrome is isolated. Operations into isolated aerodromes do not require the selection of a destination alternate aerodrome(s) and shall be planned in accordance with 8.6.2.15.1(c) (4) (D);
- (1) for each flight into an isolated aerodrome a point of no return shall be determined; and
  - (2) a flight to be conducted to an isolated aerodrome shall not be continued past the point of no return unless a current assessment of meteorological conditions, traffic, and other operational conditions indicate that a safe landing can be made at the estimated time of use.

*Note 1: Separate runways are two or more runways at the same aerodrome configured such that if one runway is closed, operations to the other runway(s) can be conducted.*

*Note 2: Guidance on planning operations to isolated aerodromes is contained in the Flight Planning and Fuel Management Manual (ICAO Doc 9976).*

- (c) Two destination alternate aerodromes shall be selected and specified in the operational and filed flight plans and, if applicable, in the preliminary flight plan, when, for the destination aerodrome:

- (1) meteorological conditions at the estimated time of use will be below the operator's established aerodrome operating minima for that operation; or meteorological information is not available.
- (d) For a heliport to be selected as a destination alternate, the available information shall indicate that, at the estimated time of use, the conditions will be at or above the heliport operating minima for that operation.
- (e) For helicopters: *For a flight departing to a destination which is forecast to be below the heliport operating minima, two destination alternates should be selected. The first destination alternate should be at or above the heliport operating minima for destination and the second at or above the heliport operating minima for alternate.*

#### **8.6.2.6.2 WHEN NO DESTINATION ALTERNATE AIRPORT/HELIPORT IS REQUIRED**

When no destination alternate airport/heliport is required. A flight to be conducted in accordance with the IFR to an airport/heliport when no alternate airport/heliport is required shall not be commenced unless:

- (a) a standard instrument approach procedure prescribed for the airport/heliport of intended landing by the jurisdictional authorities:
  - (1) For airplanes: Available current meteorological information indicates that the following meteorological conditions will exist from two hours before to two hours after the estimated time of arrival-
    - (i) A cloud base of at least 300 m (1,000 ft) above the minimum associated with the instrument approach procedure; and
    - (ii) Visibility of at least 5.5 km or of 4 km more than the minimum associated with the procedure.
  - (2) For helicopters: Available current meteorological information indicates that the following meteorological conditions will exist from two hours before to two hours after the estimated time of arrival: or from the actual time of departure to two hours after the estimated time of arrival, whichever is the shorter period:
    - (i) a cloud base of at least 120 m (400 ft) above the minimum associated with the instrument approach procedure; and
    - (ii) visibility of at least 1.5 km more than the minimum associated with the procedure.
- (b) The ceiling and visibility requirements of paragraph (a) may be reduced upon approval of the Authority for
  - (1) Helicopters; or
  - (2) Commercial air transport where no suitable destination alternate exists.

#### **8.6.2.6.3 IFR DESTINATION ALTERNATE REQUIREMENT**

- (a) Commercial air transport where the Authority has approved alternate minima as an equivalent level of safety based on the results of a specific safety risk assessment demonstrated by the operator, which contains the following:
  - (1) Capabilities of the operator;
  - (2) Overall capability of the airplane and its systems;
  - (3) Available aerodrome technologies, capabilities and infrastructure;

- (4) Quality and reliability of meteorological information;
- (5) Identified hazards and safety risks associated with each alternate aerodrome variation;
- (6) Specific mitigation measures.

*Note: ICAO Doc 9859, Safety Management Manual, and ICAO Doc 9976, Flight Planning and Fuel Management Manual, contain guidance on performing a safety risk assessment and on determining variations, including examples of variations.*

- (b) To ensure that an adequate margin of safety is observed in determining whether or not an approach and landing can be safely carried out at each alternate aerodrome, the operator shall specify appropriate incremental values, acceptable to the Authority, for height of cloud base and visibility to be added to the operator's established aerodrome operating minima.

*Note: Guidance on the selection of these incremental values is contained in the Flight Planning and Fuel Management Manual (ICAO Doc 9976).*

- (c) The Authority shall approve a margin of time established by the operator for the estimated time of use of an aerodrome.

*Note: Guidance on establishing an appropriate margin of time for the estimated time of use of an aerodrome is contained in the Flight Planning and Fuel Management Manual (ICAO Doc 9976).*

#### **8.6.2.7 IFR ALTERNATE AIRPORT/HELIPORT SELECTION CRITERIA**

- (a) If alternate minima are published, no PIC may designate an alternate airport/heliport in an IFR flight plan unless the current available forecast indicates that the meteorological conditions at that alternate at the ETA will be at or above those published alternate minima for that operation.
- (b) If alternate minima are not published, and if there is no prohibition against using the airport as an IFR planning alternate, each PIC shall ensure that the meteorological conditions at that alternate at the ETA will be at or above:
  - (1) For a precision approach procedure, a ceiling of at least 180 m (600 feet) and visibility of not less than 3 km; or
  - (2) For a non-precision approach procedure, a ceiling of at least 240 m (800 feet) and visibility of not less than 5 km.

#### **8.6.2.8 OFF-SHORE ALTERNATES FOR HELICOPTER OPERATIONS**

- (a) No person may designate an offshore alternate landing site when it is possible to carry enough fuel to have an on-shore alternate landing site.

*Note: The selection of offshore alternates should be exceptional cases, the details of which have been approved by the Authority, and should not include payload enhancement in IMC.*

- (b) Suitable offshore alternates shall be specified subject to the following:
  - (1) The offshore alternates shall be used only after a point of no return (PNR). Prior to PNR onshore alternates shall be used;

- (2) Mechanical reliability of critical control systems and critical components shall be considered and taken into account when determining the suitability of the alternates;
- (3) One engine inoperative performance capability shall be attainable prior to arrival at the alternate;
- (4) To the extent possible, deck availability shall be guaranteed; and
- (5) Weather information must be reliable and accurate.
- (6) For IFR operations, an instrument approach procedure shall be prescribed and available.

*Note 1: Offshore alternates should not be used when it is possible to carry enough fuel to have an onshore alternate. Offshore alternates should not be used in a hostile environment.*

*Note 2: The landing technique specified in the flight manual following control system failure may preclude the selection of certain heli-decks as alternate heliports. The mechanical reliability of critical control systems shall be taken into account when determining the suitability and necessity for an offshore alternate.*

#### **8.6.2.9 TAKE-OFF ALTERNATE AIRPORTS/HELIPORTS: COMMERCIAL AIR TRANSPORT OPERATIONS**

- (a) No person may release or take-off an aircraft without a suitable take-off alternate specified in the flight release if either the meteorological conditions at the airport/heliport of departure are below the operator's established airport/heliport operating landing minima for that operation or if it would not be possible to return to the airport/heliport of departure for other reasons.
- (b) Each operator shall ensure that each take-off alternate specified shall be located within the following flight time from the airport of departure:
  - (1) For aircraft with two engines, one hour of flight time at a one-engine-inoperative cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or
  - (2) For aircraft with three or four power-unit, two hours of flight time at an all-engine operating cruising speed, determined from the aircraft operating manual, calculated in ISA and still-air conditions using the actual take-off mass; or
  - (3) For aircraft engaged in extended diversion time operations (EDTO) where an alternate aerodrome meeting the distance criteria of a) or b) is not available, the first available alternate aerodrome located within the distance of the operator's approved maximum diversion time considering the actual take-off mass.
  - (4) For an aerodrome to be selected as a take-off alternate the available information shall indicate that, at the estimated time of use, the conditions will be at or above the operator's established aerodrome operating minima for that operation.

*Note: All calculations are based on the one-engine-inoperative cruising speed according to the AFM in still air conditions based on the actual take-off mass.*

- (c) Commercial air transport where the Authority has approved alternate minima as an equivalent level of safety based on the results of a specific safety risk assessment demonstrated by the operator, which contains the following:
  - (1) Capabilities of the operator;

- (2) Overall capability of the airplane and its systems;
- (3) Available aerodrome technologies, capabilities and infrastructure;
- (4) Quality and reliability of meteorological information;
- (5) Identified hazards and safety risks associated with each alternate aerodrome variation;
- (6) Specific mitigation measures.

*Note: ICAO Doc 9859, Safety Management Manual, and ICAO Doc 9976, Flight Planning and Fuel Management Manual, contain guidance on performing a safety risk assessment and on determining variations, including examples of variations.*

#### **8.6.2.10 MAXIMUM DISTANCE FROM AN ADEQUATE AIRPORT FOR TWIN-ENGINED AIRPLANES WITHOUT AN EDTO APPROVAL**

- (a) Unless specifically approved by the Authority (EDTO Approval), an Operator shall not operate a two power-units airplane over a route which contains a point further from an adequate airport than, in the case of:
  - (1) Large, turbine engine powered airplanes the distance flown in 60 minutes at the one power-unit inoperative cruise speed determined in accordance with paragraph (b) with either:
    - (i) A maximum approved passenger seating configuration of 20 or more; or
    - (ii) A maximum take-off mass of 45,360 kg or more,
  - (2) Reciprocating engine powered airplanes:
    - (i) The distance flown in 120 minutes at the one power-unit inoperative cruise speed determined in accordance with paragraph (b); or
    - (ii) 300 nautical miles, whichever is less.
- (b) An Operator shall determine a speed for the calculation of the maximum distance to an adequate airport for each two power-unit airplane type or variant operated, not exceeding  $V_{mo}$  based upon the true airspeed that the airplane can maintain with one power-unit inoperative under the following conditions:
  - (1) International Standard Atmosphere;
  - (2) Level flight:
    - (i) For turbine engine powered airplanes:
      - (A) At FL 170; or
      - (B) At the maximum flight level to which the airplane, with one power-unit inoperative, can climb, and maintain, using the gross rate of climb specified in the AFM, whichever is less.
    - (ii) For propeller driven airplanes:
      - (A) At FL 80; or
      - (B) At the maximum flight level to which the airplane, with one power-unit inoperative, can climb, and maintain, using the gross rate of climb specified in the AFM, whichever is less.
  - (3) Maximum continuous thrust or power on the remaining operating power-unit;
  - (4) An airplane mass not less than that resulting from:

- (i) Take-off at sea-level at maximum take-off mass until the time elapsed since take-off is equal to the applicable threshold prescribed in paragraph (a);
  - (ii) All engines climb to the optimum long range cruise altitude until the time elapsed since take-off is equal to the applicable threshold prescribed in subparagraph (a); and
  - (iii) All engines cruise at the long range cruise speed at this altitude until the time elapsed since take-off is equal to the applicable threshold prescribed in paragraph (a).
- (c) An Operator shall ensure that the following data, specific to each type or variant, is included in the Operations Manual:
- (1) The one power-unit inoperative cruise speed determined in accordance with paragraph (b): and
  - (2) The maximum distance from an adequate airport determined in accordance with paragraphs (a) and (b).

*Note: The speeds and altitudes (flight levels) specified above are only intended to be used for establishing the maximum distance from an adequate airport.*

#### **8.6.2.11 REQUIREMENTS FOR EXTENDED DIVERSION TIME OPERATIONS - AIRPLANES [AOC]**

- (a) An AOC holder shall not conduct operations beyond the threshold distance determined in accordance with Subpart 8.6.2.10 unless approved to do so by the Authority.
- (b) In requesting EDTO approval, each AOC holder shall show to the satisfaction of the Authority that:
- (1) For airplanes:
    - (i) For all airplanes,
      - (A) the operator has in place procedures to prevent the aeroplane being dispatched on a route with diversion times beyond the capability of EDTO significant system time limitation, if any indicated in the Airplane Flight Manual (directly or by reference); and
      - (B) the additional fuel required by Subpart 8.6.2.15 shall include the fuel necessary to comply with the EDTO critical fuel scenario as established by the Authority.
    - (ii) For airplanes with two or more turbine engines, the airplanes EDTO certified and has verified the—
      - (A) Reliability of the propulsion system;
      - (B) Airworthiness certification for EDTO of the airplane type; and
      - (C) EDTO maintenance program.
      - (D) Crew training programs; for two power-unit airplanes are consistent with the level of safety required for current extended range of operations with the three and four unit turbine-powered airplanes.

*Note. – Guidance on compliance with the requirements of this provision is the Extended Diversion Time Operations Manual (Doc 10085).*

*Note. – Guidance on the conditions to be used when converting EDTO significant system time limitations to distances and on the consideration of the EDTO system time limitations at dispatch the Extended Diversion Time Operations Manual (Doc 10085).*

- (2) It has conducted a safety risk assessment which demonstrates how an equivalent level of safety will be maintained, taking into account the following:
- (i) Capabilities of the operator;
  - (ii) Overall reliability of the airplane;
  - (iii) Reliability of each time limited system;
  - (iv) Relevant information from the airplane manufacturer; and
  - (v) Specific mitigation measures.

*Note. – Guidance on the specific safety risk assessment is contained in the Extended Diversion Time Operations Manual (Doc 10085).*

- (c) Before conducting an EDTO flight, an AOC holder shall ensure that a suitable EDTO en-route alternate is available, within either the approved diversion time or a diversion time based on MEL generated serviceability status of the airplane whichever is shorter.
- (d) No AOC holder shall commence a flight unless, during the possible period of arrival, the required en-route alternate aerodrome will be available and the available information indicates that conditions at the aerodrome will be at or above the aerodrome operating minima approved for the operation.
- (e) No AOC holder shall conduct operations beyond 60 minutes, from a point on a route to an en-route alternate aerodrome unless it ensures that:
- (1) For all airplanes;
    - (i) En-route alternate aerodromes are identified; and
    - (ii) The most up-to-date information is provided to the flight crew on identified en-route alternate aerodromes, including operational status and meteorological conditions;

*Note. – Guidance on compliance with the requirements of these provisions is contained in the Extended Diversion Time Operations Manual (Doc 10085).*

- (2) For airplanes with two turbine engines, the most up-to-date information provided to the flight crew indicates that conditions at identified en-route alternate aerodromes will be at or above the operator's established aerodrome operating minima for the operation at the estimated time of use.
  - (3) These requirements are incorporated into the operators:
    - (i) operational control and flight dispatch procedures;
    - (ii) operating procedures; and
    - (iii) training programs.
- (f) No AOC Holder shall proceed beyond the threshold time approved by the Authority unless:
- (1) the identified en-route alternate aerodromes have been re-evaluated for availability; and

- (2) the most up to date information indicates that, during the estimated time of use, conditions at those aerodromes will be at or above the operator's established aerodrome operating minima for that operation; or.
- (3) conditions are identified that would preclude a safe approach and landing at that aerodrome during the estimated time of use and an alternative course of action has been determined.

*Note 1: ICAO Annex 6, Part I, Attachment D contains guidance on the requirements of this provision.*

*Note 2: FAA AC 120-42B (as amended), Extended Operations (EDTO and Polar Operations), provides additional guidance.*

*Note 3: Guidance on the establishment of an appropriate threshold time and on specific approval of extended diversion time operations is contained in the Extended Diversion Time Operations Manual (Doc 10085).*

*Note 4: Guidance on the conditions to be used when converting EDTO maximum diversion times to distances is contained in the Extended Diversion Time Operations Manual (Doc 10085).*

- (g) Commercial air transport where the Authority has approved alternate minima as an equivalent level of safety based on the results of a specific safety risk assessment demonstrated by the operator, which contains the following:
  - (1) Capabilities of the operator;
  - (2) Overall capability of the airplane and its systems;
  - (3) Available aerodrome technologies, capabilities and infrastructure;
  - (4) Quality and reliability of meteorological information;
  - (5) Identified hazards and safety risks associated with each alternate aerodrome variation;
  - (6) Specific mitigation measures.

*Note: ICAO Doc 9859, Safety Management Manual, and ICAO Doc 9976, Flight Planning and Fuel Management Manual, contain guidance on performing a safety risk assessment and on determining variations, including examples of variations.*

#### **8.6.2.12 EN ROUTE ALTERNATE AIRPORTS: EDTO OPERATIONS**

- (a) The PIC shall ensure that the required en route alternates for EDTO are selected and specified in filed flight plans, and, if applicable, in the preliminary flight plan in accordance with the EDTO diversion time approved by the Authority.
- (b) No person shall select an aerodrome as an EDTO en-route alternate aerodrome unless the appropriate weather reports or forecasts, or any combination thereof, indicate that during a period commencing 1 hour before and ending 1 hour after the expected time of arrival at the aerodrome, the weather conditions will be at or above the planning minima prescribed in the table below, and in accordance with the operator's EDTO approval.
- (c) The ceiling and visibility requirements for operations conducted in accordance with paragraphs (a) and (b) may be reduced upon approval of the Authority for—
- (d) Commercial air transport where the Authority has approved alternate minima as an equivalent level of safety based on the results of a specific safety risk assessment demonstrated by the operator, which contains the following:

- (1) Capabilities of the operator;
- (2) Overall capability of the airplane and its systems;
- (3) Available aerodrome technologies, capabilities and infrastructure;
- (4) Quality and reliability of meteorological information;
- (5) Identified hazards and safety risks associated with each alternate aerodrome variation;
- (6) Specific mitigation measures.

*Note 1: ICAO Doc 9859, Safety Management Manual, and ICAO Doc 9976, Flight Planning and Fuel Management Manual, provide guidance on performing a safety risk assessment and on determining variations, including examples of variations.*

*Note 2: The forecast weather criteria used in the selection of alternate aerodromes for IFR flight will also be used for the selection of EDTO alternates.*

*Note 3: The forecast weather criteria used in the selection of alternate airports for IFR flight will also be used for the selection of EDTO alternates.*

| Type of approach                          | Planning minima<br>(RVR/visibility required and ceiling, if applicable)                                      |   |
|---|--|---|
|   | ----- Airport with -----   |   |
|   | At least 2 separate approach procedures based on two separate aids serving two separate runways (See note 1) | At least 2 separate approach procedures based on two separate aids serving one runway or, at least one approach procedure based on one aid serving one runway |
| Precision Approach Cat II, III (ILS, MLS) | Precision Approach Cat I Minima  | Non-Precision Approach Minima   |
| Precision Approach Cat I (ILS, MLS)       | Non-Precision Approach Minima  | Circling minima or, if not available, non-precision approach minima plus 60 m(200 ft)/1000m   |
| Non-Precision Approach                    | The lower of non-precision approach minima plus 200 ft/1000m or circling minima                              | The higher of non-precision approach minima plus 60 m (200ft)/1000m, or circling minima   |
| Circling Approach                         | Circling Minima  |   |

*Note 1: Runways on the same airport are considered to be separate runways when they are separate landing surfaces which may overlay or cross such that if one of the runways is blocked, it will not prevent the planned type of operations on the other runway and each of the landing surfaces has a separate approach based on a separate aid.*

**8.6.2.13 FUEL, OIL, AND OXYGEN PLANNING AND CONTINGENCY FACTORS**

**8.6.2.13.1 FUEL AND OIL PLANNING AND CONTINGENCY FACTORS**

- (a) A flight shall not be commenced unless, taking into account both the meteorological conditions and any delays that are expected in flight, the aircraft carries sufficient fuel and oil to ensure that it can safely complete the flight, and, applicable special provisions are complied with, as stated in Subpart 8.6.2.14 or 8.6.2.15. In addition, a reserve shall be carried to provide for contingencies.
- (b) In computing the fuel and oil required in paragraph (a) at least the following shall be considered:

- (1) meteorological conditions forecast;
  - (2) expected ATC routings;
  - (3) anticipated traffic delays;
  - (4) for IFR flights, one instrument approach at the destination, including a missed approach;
  - (5) procedures prescribed in the operations manual for loss of pressurization en route, where applicable;
  - (6) failure of one power-unit en route; and
  - (7) Any other conditions that may delay landing of the aircraft or increase fuel and/or oil consumption.
- (c) Each person computing the required minimum fuel and oil supply shall ensure that the minimum fuel supply calculation includes an additional amount of fuel and oil to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator, equal to that necessary to fly a percentage of the total time for the flight from take-off to destination, as approved by the Authority.
- (d) No PIC may commence a flight to an airport/heliport where no suitable alternate airport/heliport is available because the destination airport/heliport is isolated, without enough reserve fuel for two additional hours' flight at normal cruise consumption, at 1,500 feet above the airport/heliport.
- (e) The Authority may grant specific approval for commercial air transport operations to isolated airports/heliport without regard to consumption requirement of paragraph (d).
- (f) Each operator shall maintain fuel records to enable the Authority to ascertain that, for each flight, the requirements of Subparts 8.6.2.14 and 8.6.2.15 have been complied with. Fuel records shall be retained by the operator for a period of three (3) months.
- (g) Each operator shall maintain oil records to enable the Authority to ascertain that trends for oil consumption are such that an airplane has sufficient oil to complete each flight.
- (h) Fuel and oil records shall be retained by the operator for a period of three months.
- (i) No person may commence a flight unless he or she takes into account the fuel, oil, and oxygen needed to ensure the safe completion of the flight, including any reserves to be carried for contingencies.
- (j) For airplanes in AOC operations, the amount of usable fuel to be carried shall, as a minimum, be based on:
- (1) The following data –
    - (i) Current airplane-specific data derived from a fuel consumption monitoring system, if available; or
    - (ii) If current airplane-specific data are not available, data provided by the airplane manufacturer, an
  - (2) The operating conditions for the planned flight including:
    - (i) Anticipated airplane mass;
    - (ii) Notices to Airmen;
    - (iii) Current meteorological reports or a combination of current reports and forecasts;
    - (iv) ATS procedures, restrictions and anticipated delays; and

- (v) The effects of deferred maintenance items and/or configuration deviations.
- (vi) Any other conditions that may delay the landing of the airplane or increase fuel, oil and/or oxygen consumption.

#### 8.6.2.13.2 OXYGEN PLANNING AND CONTINGENCY FACTORS

- (a) A flight to be operated at flight altitudes at which the atmospheric pressure in personnel compartments will be less than 700 hPa shall not be commenced unless sufficient stored breathing oxygen is carried to supply:
  - (1) all crew members and 10 per cent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 700 hPa and 620 hPa; and
  - (2) the crew and passengers for any period that the atmospheric pressure in compartments occupied by them will be less than 620 hPa.
- (b) A flight to be operated with a pressurized airplane shall not be commenced unless a sufficient quantity of stored breathing oxygen is carried to supply all the crew members and passengers, as is appropriate to the circumstances of the flight being undertaken, in the event of loss of pressurization, for any period that the atmospheric pressure in any compartment occupied by them would be less than 700 hPa. In addition, when an airplane is operated at flight altitudes at which the atmospheric pressure is less than 376 hPa, or which, if operated at flight altitudes at which the atmospheric pressure is more than 376 hPa and cannot descend safely within four minutes to a flight altitude at which the atmospheric pressure is equal to 620 hPa, there shall be no less than a 10-minute supply for the occupants of the passenger compartment.
- (c) The PIC shall ensure that breathing oxygen is available to crew members and passengers in sufficient quantities for all flights at such altitudes where a lack of oxygen might result in impairment of the faculties of crew members or harmfully affect passengers.

*Implementing Standards: also refer to IS: 7.8.12 Oxygen Storage and Dispensing Apparatus.*

*Note.- Approximate altitudes in the Standard Atmosphere corresponding to the values of absolute pressure used in the text are as follows:*

| <i>Absolute Pressure</i> | <i>Meters</i> | <i>Feet</i>  |
|--------------------------|---------------|--------------|
| <i>700 hPa</i>           | <i>3000</i>   | <i>10000</i> |
| <i>620 hPa</i>           | <i>4000</i>   | <i>13000</i> |
| <i>376 hPa</i>           | <i>7600</i>   | <i>25000</i> |

#### 8.6.2.14 MINIMUM FUEL AND OIL SUPPLY FOR VFR FLIGHTS

- (a) For airplanes: No person may commence a flight in an airplane under VFR unless, considering the wind and forecast weather conditions, there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed
  - (1) For turbo-jet aircraft: flights during the day, for at least 30 minutes thereafter; or
  - (2) For Propeller-driven aircraft: flights at night, for at least 45 minutes thereafter; and
  - (3) For international flights, for at least an additional 15% of the total flight time calculated for cruise flight.

(b) For helicopters: The fuel and oil carried in order to comply with Subpart 8.6.2.13.1 shall, in the case of VFR operations, be at least the amount sufficient (considering the wind and forecast weather conditions) to allow the helicopter:

- (1) To fly to the heliport to which the flight is planned;
- (2) To fly thereafter for a period of 20 minutes at best-range speed; and
- (3) To have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator to the satisfaction of the Authority. For international flights, for at least an additional 10% of the total flight time calculated.

### **8.6.2.15 MINIMUM FUEL SUPPLY FOR IFR FLIGHTS**

#### **8.6.2.15.1 COMMERCIAL AIR TRANSPORT: PISTON-ENGINED AIRPLANES**

The fuel and oil carried in order to comply with Subpart 8.6.2.13.1 shall, in the case of piston-engined airplanes, be at least the amount sufficient to allow the airplane:

- (a) When a destination alternate airport is required, either:
  - (1) to fly to the airport to which the flight is planned thence to the most critical (in terms of fuel consumption) alternate airport specified in the operational and ATS flight plans and thereafter for a period of 45 minutes; or
  - (2) to fly to the airport to which the flight is planned, then 15 minutes of holding at 1,500 feet, thence to the most critical (in terms of fuel consumption) alternate airport specified in the operational and ATS flight plans and thereafter for a period of 30 minutes holding at 1,500 feet; or
  - (3) to fly to the alternate airport via any predetermined point and thereafter for 45 minutes, provided that this shall not be less than the amount required to fly to the airport to which the flight is planned and thereafter for:
    - (i) 45 minutes plus 15 per cent of the flight time planned to be spent at the cruising level(s), or
    - (ii) two hours, whichever is less.
- (b) When a destination alternate airport is not required:
  - (1) in terms of Subpart 8.6.2.6.1, to fly to the airport to which the flight is planned and thereafter for a period of 45 minutes; or
  - (2) in terms of Subpart 8.6.2.6.1, to fly to the airport to which the flight is planned and thereafter for:
    - (i) 45 minutes plus 15 per cent of the flight time planned to be spent at the cruising level(s), or
    - (ii) two hours, whichever is less.
- (c) [AOC] Airplanes. No person may commence a flight under IFR, or continue past the point of in-flight re-planning, unless there is enough fuel supply, considering meteorological conditions and any delays that are expected in flight, to include the following:
  - (1) Taxi fuel – which shall be the amount of fuel expected to be consumed before take-off taking into account local conditions at the departure aerodrome and auxiliary power unit (APU) fuel consumption;

- (2) Trip fuel – which shall be the amount of fuel required to enable the airplane to fly from take-off, or the point of in-flight re-planning, until landing at the destination aerodrome taking into account the operating conditions in the data provided by the manufacturer;
- (3) Contingency fuel – which shall be the amount of fuel required to compensate for unforeseen factors. It shall be five percent of the planned trip fuel or of the fuel required from the point of in-flight re-planning based on the consumption rate used to plan the trip fuel, but in any case, shall not be lower than the amount required to fly for five minutes at holding speed at 450 m (1500 ft) above the destination aerodrome in standard conditions;
- (4) Destination alternate fuel – which shall be
  - (i) Where a destination alternate aerodrome is required, the amount of fuel required to enable the airplane to:
    - (A) Perform a missed approach at the destination aerodrome;
    - (B) Climb to the expected cruising altitude;
    - (C) Fly the expecting routing;
    - (D) Descend to the point where the expected approach is initiated; and
    - (E) Conduct the approach and landing at the destination alternate aerodrome;or
  - (ii) Where two destination alternate aerodromes are required, the amount of fuel, as calculated in (4)(i) above, required to enable the airplane to proceed to the destination alternate aerodrome which requires the greater amount of alternate fuel; or
  - (iii) Where a flight is operated without a destination alternate aerodrome, the amount of fuel required to enable the airplane to fly for 15 minutes at holding speed at 450 m (1500 ft) above destination aerodrome elevation in standard conditions; or
  - (iv) Where the aerodrome of intended landing is an isolated aerodrome:
    - (A) For helicopters, the amount of fuel required to fly for 45 minutes plus 15 percent of the flight time planned to be spend at cruising level, including final reserve fuel, or two hours, whichever is less; or
    - (B) For a turbine-engined airplane, the amount of fuel required to fly for two hours at normal cruise consumption above the destination aerodrome, including final reserve fuel;
- (5) Final reserve fuel – which shall be the amount of fuel calculated using the estimated mass on arrival at the destination alternate aerodrome, or the destination aerodrome when no destination alternate aerodrome is required, or a pre-calculated value for each airplane type and variant in the fleet rounded up to an easily recalled figure:
  - (i) For a helicopters, the amount of fuel required to fly for 45 minutes, under speed and altitude conditions specified by the Authority; or
  - (ii) For a turbine-engined airplane, the amount of fuel required to fly for 30 minutes at holding speed at 450 m (1500 ft) above aerodrome elevation in standard conditions;

- (6) Additional fuel – which shall be the supplementary amount of fuel required if the minimum fuel calculated in accordance with trip fuel, contingency fuel, destination alternate fuel and final reserve fuel above is not sufficient to:
- (i) Allow the airplane to descend as necessary and proceed to an alternate aerodrome in the event of engine failure or loss or pressurization, whichever requires the greater amount of fuel based on the assumption that such a failure occurs at the most critical point along the route;
    - (A) To fly for 15 minutes at holding speed at 450 m (1500 ft) above the aerodrome elevation in standard conditions; and
    - (B) Make an approach and landing;
    - (C) Allow an airplane engaged in EDTO to comply with the EDTO critical fuel scenario as established by the Authority;
    - (D) Meet additional requirements not covered above.

*Note: Fuel planning for a failure that occurs at the most critical point along a route may place the airplane in a fuel emergency situation.*

- (7) Discretionary fuel – shall be the extra amount of fuel to be carried at the discretion of the PIC, or
- (d) An airplane shall not take off or continue from the point of in-flight re-planning unless the usable fuel on board meets the requirements in 8.6.2.15.1(c) (2), (4), (5) and (6) if required.
- (e) Notwithstanding the provisions in 8.6.2.15.1(c) (1)–(7) above, the Authority may approve a variation to these requirements provided the operator can demonstrate an equivalent level of safety will be maintained through a safety risk assessment that includes at least the following:
- (1) Flight fuel calculations;
  - (2) Capabilities of the operator to include:
    - (i) A data-driven method that includes a fuel consumption monitoring program; and/or
    - (ii) The advanced use of alternate aerodromes; and
  - (3) Specific mitigation measures.

*Note: ICAO Doc 9976, Flight Planning and Fuel Management Manual, contains guidance on the specific safety risk assessment, fuel consumption monitoring program and the advanced use of alternate aerodromes.*

- (f) The use of fuel after flight commencement for purposes other than originally intended during pre-flight planning shall require a re-analysis and, if applicable, adjustment of the planned operation.

*Note. – Guidance on procedures for in-flight fuel management including re-analysis, adjustment and/or re-planning considerations when a flight begins to consume contingency fuel before take-offs is contained in the Flight Planning and Fuel Management Manual (ICAO Doc 9976).*

#### **8.6.2.15.2 COMMERCIAL AIR TRANSPORT: TURBINE-ENGINED AIRPLANES**

The fuel and oil carried in order to comply with Subpart 8.6.2.13.1 shall, in the case of turbine-engined airplanes, be at least the amount sufficient to allow the airplane:

- (a) When a destination alternate airport is required, either:
- (1) to fly to and execute an instrument approach, and a missed approach, at the airport to which the flight is planned, and thereafter:
    - (i) to fly to the alternate airport specified in the operational and ATS flight plan; and then
    - (ii) to fly for 30 minutes at holding speed at 450 m (1,500 ft) above the alternate airport under standard temperature conditions, and approach and land; and
    - (iii) to have an additional amount of fuel and oil sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator as approved by the Authority, which shall be at least 5% of the total time for the flight from take-off to destination; or
  - (2) to fly to the alternate airport via any predetermined point and thereafter for 30 minutes at 450 m (1,500 ft) above the alternate airport, due provision having been made for an additional amount of fuel sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator as approved by the Authority; provided that fuel shall not be less than the amount of fuel required to fly to the airport to which the flight is planned and thereafter for two hours at normal cruise consumption.
- (b) When a destination alternate airport is not required:
- (1) in terms of Subpart 8.6.2.6.2, to fly to the airport to which the flight is planned and additionally to have an additional amount of fuel and oil, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator as approved by the Authority, which shall be at least 5% of the total time for the flight from take-off to destination; and
  - (2) in terms of Subpart 8.6.2.6.2, to fly to the airport to which the flight is planned and thereafter for a period of two hours at normal cruise consumption.

#### **8.6.2.15.3 GENERAL AVIATION AIRPLANES: IFR FLIGHTS**

At least one destination alternate is available: For a flight to be conducted in accordance with the IFR, at least one destination alternate airport shall be selected and specified in the flight plan, unless:

- (a) the duration of the flight and the meteorological conditions prevailing are such that there is reasonable certainty that, at the estimated time of arrival at the airport of intended landing, and for a reasonable period before and after such time, the approach and landing may be made under VMC; or
- (b) the airport of intended landing is isolated and there is no suitable destination alternate airport.

#### **8.6.2.15.4 HELICOPTERS: IFR FLIGHTS**

The fuel and oil carried in order to comply with Subpart 8.6.2.13 shall, in the case of IFR operations, be at least the amount sufficient to allow the helicopter:

- (a) When a destination alternate airport is not required in terms of Subpart 8.6.2.6 (a), to fly to the heliport to which the flight is planned, and thereafter:
  - (1) to fly 30 minutes at holding speed at 450 m (1,500 ft) above the destination heliport under standard temperature conditions and approach and land; and

- (2) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator to the satisfaction of the Authority.
- (b) When a destination alternate airport is required, to fly to and execute an instrument approach, and a missed approach, at the heliport to which the flight is planned, and thereafter:
  - (1) to fly to the alternate specified in the flight plan; and then
  - (2) to fly 30 minutes at holding speed at 450 m (1,500 ft) above the destination heliport under standard temperature conditions, and approach and land; and
  - (3) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator to the satisfaction of the Authority.
- (c) When no suitable alternate is available, in terms of Subpart 8.6.2.6 (a)(e.g. the destination is isolated), sufficient fuel shall be carried to enable the helicopter to fly to the destination to which the flight is planned and thereafter for a period that will, based on geographic and environmental considerations, enable a safe landing to be made.

#### **8.6.2.15.5 FUEL AND OIL COMPUTATION: ALL OPERATIONS**

For the purpose of this Subpart, the following allowances will be computed when determining fuel and oil requirements:

- (a) Fuel and oil to destination includes fuel and oil for: taxi, departure via the expected departure route, climb to the flight planned altitude, en-route flight, descent to the expected initial approach point, an approach and a landing at the destination airport; and
- (b) Fuel and oil to the alternate airport (if required) includes fuel and oil for: a complete missed approach procedure from the MDA/DA (H), climb to a safe altitude, en-route flight, descent, approach and landing at the alternate airport.

#### **8.6.2.15.6 IN-FLIGHT FUEL MANAGEMENT**

- (a) An operator shall establish policies and procedures, approved by the Authority, to ensure that in-flight fuel checks and fuel management are performed.
- (b) The pilot-in-command shall continually ensure that the amount of usable fuel remaining on board is not less than the fuel required to proceed to an aerodrome where a safe landing can be made with the planned final reserve fuel remaining upon landing.

*Note. The protection of final reserve fuel is intended to ensure a safe landing at any aerodrome when unforeseen occurrences may not permit safe completion of an operation as originally planned. Guidance on flight planning including the circumstances that may require re-analysis, adjustment and/or re-planning of the planned operation before take-off or en-route, is contained in the Flight Planning and Fuel Management Manual (ICAO Doc 9976).*

- (c) The pilot-in-command shall request delay information from ATC when unanticipated circumstances may result in landing at the destination aerodrome with less than the final reserve fuel plus any fuel required to proceed to an alternate aerodrome or the fuel required to operate to an isolated aerodrome.

- (d) The pilot-in-command shall advise ATC of a minimum fuel state by declaring MINIMUM FUEL when, having committed to land at a specific aerodrome, the pilot calculates that any change to the existing clearance to that aerodrome may result in landing with less than planned final reserve fuel.

*Note 1: The declaration of MINIMUM FUEL informs ATC that all planned aerodrome options have been reduced to a specific aerodrome of intended landing and any change to the existing clearance may result in landing with less than planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.*

*Note 2: Guidance on declaring minimum fuel is contained in the Flight Planning and Fuel Management Manual (ICAO Doc 9976)*

- (e) The pilot-in-command shall declare a situation of fuel emergency by broadcasting MAYDAY MAYDAYMAYDAYFUEL, when the calculated usable fuel predicted to be available upon landing at the nearest aerodrome where a safe landing can be made is less than the planned final reserve fuel.

*Note 1: The planned final reserve fuel refers to the value calculated in 8.6.2.15.1(c) (5) (i) or (ii) and is the minimum amount of fuel required upon landing at any aerodrome.*

*Note 2: The words "MAYDAY FUEL" describe the nature of the distress conditions as required in ICAO Annex 10, Volume II, 5.3.2.1, b) 3.*

*Note 3: Guidance on procedures for in-flight fuel management are contained in the Flight Planning and Fuel Management Manual (ICAO Doc 9976).*

#### **8.6.2.16 FLIGHT PLANNING DOCUMENT DISTRIBUTION AND RETENTION: COMMERCIAL AIR TRANSPORT**

- (a) An operational flight plan shall be completed for every intended flight or series of flights. The operational flight plan shall be approved and signed by the PIC and, where applicable, signed by the flight operations officer/flight dispatcher, and a copy shall be lodged with the appropriate authority. The operator shall determine the most efficient means of lodging the operational flight plan. For commercial air transport operations, the PIC shall complete and sign the following flight preparation documents prior to departure:
- (1) An operational flight plan, including NOTAMs and weather pertinent to the flight planning decisions regarding minimum fuel supply, en route performance, and destination and alternate airports.
  - (2) A load manifest; showing the distribution of the load, center of gravity, take-off and landing mass and compliance with maximum operating mass limitations, and performance analysis.
  - (3) An applicable technical log page, if mechanical irregularities were entered after a previous flight, maintenance or inspection functions were performed or a maintenance release was issued at the departure airport/heliport.
- (b) No person may take-off an aircraft in commercial air transport unless all flight release documents, signed by the PIC, are retained and available at the point of departure.
- (c) The PIC shall carry a copy of the documents specified in paragraph (a) on the aircraft to the destination airport/heliport.
- (d) Completed flight preparation documents shall be kept by the Operator for a period of three (3) months.

*Note 1. - These documents are in addition to those specified in Subpart 8.2 for all aircraft operations.*

*Note 2. - The Authority may approve a different retention location where all documents can be available for subsequent review.*

*Note 3. – The requirements for flight plans are contained in Annex 2 – Rules of the Air and the procedures relating to flight plans and associated services are contained in the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444).*

*Note 4. – Detailed guidance on the use of the FF-ICE services, including the use of a preliminary flight plan, can be found in the Manual on Flight and Flow – Information for a Collaborative Environment.*

#### **8.6.2.17 AIRCRAFT LOADING, MASS AND BALANCE**

- (a) No person may operate an aircraft unless all loads carried are properly distributed and safely secured.
- (b) No person may operate an aircraft unless the calculations for the mass of the airplane and centre of gravity location indicate that the flight can be conducted safely, taking into account the flight conditions expected.

*Note: When load masters, load planners or other qualified personnel are provided by the AOC holder in a commercial air transport operation, the PIC may delegate these responsibilities, but shall ascertain that proper loading procedures are followed.*

- (c) For commercial air transport operations, no PIC may commence a flight unless the PIC is satisfied that the loading and mass and balance calculations contained in the load manifest are accurate and comply with the aircraft limitations.

#### **8.6.2.18 MAXIMUM ALLOWABLE MASS TO BE CONSIDERED ON ALL LOAD MANIFESTS**

- (a) The PIC shall ensure that the maximum allowable mass for a flight does not exceed the maximum allowable take-off mass:
  - (1) For the specific runway and conditions existing at the take-off time, and
  - (2) Considering anticipated fuel and oil consumption that allows compliance with applicable en route performance, landing mass, and landing distance limitations for destination and alternate airports.

#### **8.6.2.19 FLIGHT RELEASE REQUIRED: COMMERCIAL AIR TRANSPORT**

- (a) No person may start a flight under a flight following system without specific authority from the person authorized by the Operator to exercise operational control over the flight.
- (b) No person may commence a passenger-carrying flight in commercial air transport for which there is a published schedule, unless a qualified person authorized by the Operator to perform operational control functions has issued a flight release for that specific operation or series of operations.

#### **8.6.2.20 OPERATIONAL FLIGHT PLAN: COMMERCIAL AIR TRANSPORT**

- (a) No person may commence a flight unless the operational flight plan has been signed by the PIC.
- (b) A PIC may sign the operational flight plan only when the PIC and the person authorized by the operator to exercise operational control have determined that the flight can be safely completed.

*Note: The operational flight plan shall include the routing and fuel calculations, with respect to the meteorological and other factors expected, to complete the flight to the destination and all required alternates.*

- (c) The PIC signing the operational flight plan shall have access to the applicable flight planning information for fuel supply, alternate airports, weather reports and forecasts and NOTAMs for the routing and airport.
- (d) No person may continue a flight from an intermediate airport without a new operational flight plan if the aircraft has been on the ground more than six (6) hours.

#### **8.6.2.21 TIME CAPABILITY OF CARGO COMPARTMENT FIRE SUPPRESSION SYSTEM**

- (a) No person may plan a flight if the diversion time to an aerodrome where a safe landing could be made exceeds the cargo compartment fire suppression time capability of the airplane, when one is identified in the relevant airplane documentation, unless the Authority specifies a reduction of the operational safety margin.

*Note 1.- Cargo compartment fire suppression time capabilities will be identified in the relevant airplane documentation when they are to be considered for the operation.*

*Note 2.- Fifteen minutes is an operational safety margin commonly retained for that purpose.*

*Note 3.- Refer to ICAO Annex 6 Part 1 Chapter 4, 4.7 and Attachment B for considerations of time capability of cargo compartment fire suppression systems for airplanes engaged in EDTO.*

### **8.6.3 OPERATIONAL INFORMATION**

#### **8.6.3.1 AIP, AIRAC and AIC**

- (a) No operators shall dispatch a flight unless information contained in the current Aeronautical Information Publication (AIP), Aeronautical Information Regulation and Control (AIRAC) and Aeronautical Information Circular (AIC) has been prepared and disseminated to flight crews and relevant operations personnel.

#### **8.6.3.2 CREW BRIEFINGS**

- (a) Operator shall ensure that crew briefings are established in their standard operating procedures.

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## 8.7 AIRCRAFT OPERATING AND PERFORMANCE LIMITATIONS

### 8.7.1 ALL AIRCRAFT

#### 8.7.1.1 APPLICABILITY

- (a) Each civil aircraft shall be operated in accordance with the comprehensive code of performance established by the Authority and in compliance with the acceptable standards, as prescribed in this Subpart.

#### 8.7.1.2 GENERAL

- (a) No person may operate an aircraft that:
- (1) Exceeds its designed performance limitations for any operation, as established by the State of Registry;
  - (2) Exceeds the operating limitations contained in the aircraft flight manual, or its equivalent; or
  - (3) Exceeds the terms of its certificate of airworthiness.
  - (4) Exceeds the mass limitations, if applicable, imposed by the terms of its noise certification standards, as contained in the applicable part of ICAO Annex 16, Volume I, unless otherwise approved by the Authority.
- (b) The Authority shall ensure that the level of performance specified in 8.7.1.5 shall be met as far as practicable for aeroplanes below 5700 kgs because of the exemption provided for in Article 41 of the Convention.

#### 8.7.1.3 AIRCRAFT PERFORMANCE CALCULATIONS

- (a) Each operator shall ensure that the performance data contained in the AFM/RFM, or other authorized source is used to determine compliance with the appropriate requirements of Subpart 8.7. A flight shall not be commenced unless the performance information provided in the flight manual, supplemented as necessary with other data acceptable to the Authority, indicates that the Standards of Subpart 8.7 can be complied with for the flight to be undertaken.
- (b) In applying the Standards of this Subpart, account shall be taken of all factors that significantly affect the performance of the airplane (including, but not limited to: the mass of the airplane, the operating procedures, the pressure altitude appropriate to the elevation of the airport, the runway slope, the ambient temperature, the wind, and surface conditions of the runway at the expected time of use, i.e. presence of snow, slush, water and/or ice, for landplanes, water surface condition for seaplanes). Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the airplane is being operated.

*Note.- Guidelines for using runway surface condition information on board aircraft in accordance with 2.2.4.4 are contained in the PANS-Aerodromes (ICAO Doc 9981) and in the Aeroplane Performance Manual (ICAO Doc 10064).*

#### 8.7.1.4 GENERAL MASS AND OBSTRUCTION CLEARANCE LIMITATIONS

- (a) No person may take-off an aircraft without ensuring that the maximum allowable mass for a flight does not exceed the maximum allowable take-off or landing mass, or any applicable en route performance or landing distance limitations considering the

- (1) Condition of the take-off and landing areas to be used;
  - (2) Gradient of runway to be used (landplanes only);
  - (3) Pressure altitude;
  - (4) Ambient temperature,
  - (5) Current and forecast winds; and
  - (6) Any known conditions (e.g., atmospheric and aircraft configuration) which may adversely affect aircraft performance, or compliance with noise certification standards.
- (b) No person may take-off an aircraft at a mass that, assuming normal engine operation, cannot safely clear all obstacles during all phases of flight, including all points along the intended en route path or any planned diversions.
- (c) In no case shall the mass at the start of take-off, or at the expected time of landing at the airport of intended landing and at any destination alternate airport, exceed the relevant maximum masses at which compliance has been demonstrated with the applicable noise certification Standards in Annex 16, Volume I, unless otherwise authorized in exceptional circumstances for a certain airport or a runway where there is no noise disturbance problem, by the competent authority of the State in which the airport is situated.
- (d) In no case shall the estimated mass for the expected time of landing at the airport of intended landing and at any destination alternate airport, exceed the maximum landing mass specified in the flight manual for the pressure-altitude appropriate to the elevation of those airports, and if used as a parameter to determine the maximum landing mass, any other local atmospheric condition.

#### **8.7.1.5 APPLICABLE TO AEROPLANES CERTIFICATED IN ACCORDANCE WITH PARTS IIIA AND IIIB OF ICAO ANNEX 8**

- (a) The Standards contained in paragraph (b) to paragraph (l) inclusive are applicable to the large aeroplanes to which Parts IIIA and IIIB of Annex 8 are applicable.

*Note.- The following Standards do not include quantitative specifications comparable to those found in national airworthiness codes. In accordance with 8.7.1.1, they are to be supplemented by national requirements prepared by Contracting States.*

- (b) The level of performance defined by the appropriate parts of the comprehensive and detailed national code referred to in 8.7.1.1 for the aeroplanes designated in paragraph (a) shall be at least substantially equivalent to the overall level embodied in the Standards of this chapter.

*Note.- ICAO Annex 6, Part I, Attachment B contains guidance material which indicates the level of performance intended by the Standards and Recommended Practices of this subpart.*

- (c) An aeroplane shall be operated in compliance with the terms of its certificate of airworthiness and within the approved operating limitations contained in its flight manual.
- (d) The Authority shall take such precautions as are reasonably possible to ensure that the general level of safety contemplated by these provisions is maintained under all expected operating conditions, including those not covered specifically by the provisions of this subpart.

- (e) A flight shall not be commenced unless the performance information provided in the flight manual, supplemented as necessary with other data acceptable to the State of the Operator, indicates that the Standards of paragraphs (f) to (l) can be complied with for the flight to be undertaken.
- (f) Until 3 November 2021, in applying the Standards of this subpart, account shall be taken of all factors that significantly affect the performance of the aeroplane, including but not limited to: the mass of the aeroplane, the operating procedures, the pressure-altitude appropriate to the elevation of the aerodrome, the ambient temperature, the wind, the runway slope, and surface conditions of the runway i.e., presence of snow, slush, water, and/or ice for landplanes, water surface condition for seaplanes. Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.
- (g) As of 4 November 2021, in applying the Standards of this subpart, account shall be taken of all factors that significantly affect the performance of the aeroplane, including but not limited to: the mass of the aeroplane, the operating procedures, the pressure-altitude appropriate to the elevation of the aerodrome, the runway slope, the ambient temperature, the wind, and surface conditions of the runway at the expected time of use, i.e. presence of snow, slush, water, and/or ice for landplanes, water surface condition for seaplanes. Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.

*Note.- Guidelines for using runway surface condition information on board aircraft in accordance with 8.8.1.33 are contained in the Aeroplane Performance Manual (ICAO Doc 10064).*

(h) Mass Limitations

- (1) The mass of the aeroplane at the start of take-off shall not exceed the mass at which paragraph (i) is complied with, or the mass at which paragraphs (j), (k) and (l) are complied with, allowing for expected reductions in mass as the flight proceeds, and for such fuel jettisoning as is envisaged in applying paragraphs (j) and (k) and, in respect of alternate aerodromes, paragraphs (h)(3) and (l).
- (2) In no case shall the mass at the start of take-off exceed the maximum take-off mass specified in the flight manual for the pressure-altitude appropriate to the elevation of the aerodrome, and, if used as a parameter to determine the maximum take-off mass, any other local atmospheric condition.
- (3) In no case shall the estimated mass for the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the maximum landing mass specified in the flight manual for the pressure-altitude appropriate to the elevation of those aerodromes, and if used as a parameter to determine the maximum landing mass, any other local atmospheric condition.
- (4) In no case shall the mass at the start of take-off, or at the expected time of landing at the aerodrome of intended landing and at any destination alternate aerodrome, exceed the relevant maximum masses at which compliance has been demonstrated with the applicable noise certification Standards in ICAO Annex 16, Volume I, unless otherwise authorized in exceptional circumstances for a certain aerodrome or a runway where there is no noise disturbance problem, by the competent authority of the State in which the aerodrome is situated.

## (i) Take-off

- (1) The aeroplane shall be able, in the event of a critical engine failing, or for other reasons, at any point in the take-off, either to discontinue the take-off and stop within the accelerate-stop distance available, or to continue the takeoff and clear all obstacles along the flight path by an adequate vertical or horizontal distance until the aeroplane is in a position to comply with the paragraph (j). When determining the resulting take-off obstacle accountability area, the operating conditions, such as the crosswind component and navigation accuracy, must be taken into account.

*Note.- ICAO Annex 6, Part 1, Attachment B contains guidance on the vertical and horizontal distances that are considered adequate to show compliance with this Standard.*

- (2) In determining the length of the runway available, account shall be taken of the loss, if any, of runway length due to alignment of the aeroplane prior to take-off.

- (j) En route – one engine inoperative. The aeroplane shall be able, in the event of the critical engine becoming inoperative at any point along the route or planned diversions therefrom, to continue the flight to an aerodrome at which the Standard of paragraph (l) can be met, without flying below the minimum flight altitude at any point.
- (k) En route- two engines inoperative. In the case of aeroplanes having three or more engines, on any part of a route where the location of en-route alternate aerodromes and the total duration of the flight are such that the probability of a second engine becoming inoperative must be allowed for if the general level of safety implied by the Standards of this subpart is to be maintained, the aeroplane shall be able, in the event of any two engines becoming inoperative, to continue the flight to an en-route alternate aerodrome and land.
- (l) Landing. The aeroplane shall, at the aerodrome of intended landing and at any alternate aerodrome, after clearing all obstacles in the approach path by a safe margin, be able to land, with assurance that it can come to a stop or, for a seaplane, to a satisfactorily low speed, within the landing distance available. Allowance shall be made for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data.

*Note.- As of 4 November 2021, guidelines on appropriate margins for the “at time of landing distance assessment is contained in the Aeroplane Performance Manual (ICAO Doc 10064).*

**8.7.1.6 OBSTACLE DATA**

- (a) Obstacle data shall be provided to enable the operator to develop procedures to comply with 8.7.1.5 (j).

*Note.- See ICAO Annex 4 and Annex 15, Chapter 5 and Appendix 1 and the ICAO Procedures for Air Navigation Services-Aeronautical Information Management (PANS-AIM), Chapter 5 for methods of presentation of certain obstacle data.*

- (b) The operator shall take account of charting accuracy when assessing compliance with 8.7.1.5 (i).

**8.7.2 AIRCRAFT USED IN COMMERCIAL AIR TRANSPORT****8.7.2.1 APPLICABILITY**

- (a) This Section prescribes aircraft performance and operating limitations for aircraft used in commercial air transport operations, except those aircraft holding a special authority or waiver by the Authority which exempt them from specific operating and performance limitations.

**8.7.2.2 GENERAL**

- (a) Each person operating an aircraft engaged in commercial air transport shall comply with the provisions of Subpart 8.7.2.
- (b) The Authority may authorize, exemptions in accordance with Part 1 of these regulations, from the requirements of Subpart 8.7.2 if special circumstances make a literal observance of a requirement unnecessary for safety.
- (c) Where full compliance with the requirements of Subpart 8.7.2 cannot be shown due to specific design characteristics (e.g., seaplanes, airships, or supersonic aircraft), the operator shall apply approved performance standards that ensure a level of safety not less restrictive than those of relevant requirements of this Subpart.
- (d) Except as provided in Subpart 8.8.4.21, no person may operate a single-engine aircraft used for revenue passenger carrying operations unless that aircraft is continually operated in daylight, VFR, excluding over the top, and over routes and diversions there-from, that do not permit a safe forced landing to be executed in the event of a power-unit failure.
- (e) No person may operate a multiengine aircraft used for revenue passengers carrying operations that is unable to comply with any of the performance limitations of Subparts 8.7.2.4 through 8.7.2.8 unless that aircraft is continually operated
- (1) In daylight,
  - (2) In VFR, excluding over the top operations; and
  - (3) At a mass that will allow it to climb, with the critical engine inoperative, at least 50 feet a minute when operating at the MEAs of the intended route or any planned diversion, or at 5000 feet MSL, whichever is higher.
- (f) Multiengine aircraft that are unable to comply with paragraph (e) (3) are, for the purpose of this Section, considered to be a single engine aircraft and shall comply with the requirements of paragraph (d).

**8.7.2.3 AIRCRAFT PERFORMANCE CALCULATIONS****8.7.2.3.1 AIRCRAFT PERFORMANCE CALCULATIONS: GENERAL**

- (a) No person may take-off an aircraft used in commercial air transport without ensuring that the applicable operating and performance limitations required for this Section can be accurately computed based on the AMF, RFM, or other data source approved by the Authority.
- (b) Each person calculating performance and operating limitations for aircraft used in commercial air transport shall ensure that performance data used to determine compliance with this Section can, during any phase of flight, accurately account for-

- (1) Any reasonably expected adverse operating conditions that may affect aircraft performance;
  - (2) One engine failure for aircraft having two engines, if applicable; and
  - (3) Two engine failure for aircraft having three or more engines, if applicable.
- (c) When calculating the performance and limitation requirements of Subparts 8.7.2.4 to 8.7.2.8, each person performing the calculation shall, for all engines operating and for inoperative engines, accurately account for:
- (1) In all phases of flight-
    - (i) The effect of fuel and oil consumption on aircraft mass;
    - (ii) The effect of fuel consumption on fuel reserves resulting from changes in flight paths, winds, and aircraft configuration;
    - (iii) The effect of fuel jettisoning on aircraft mass and fuel reserves, if applicable and approved;
    - (iv) The effect of any ice protection system, if applicable and weather conditions require its use;
    - (v) Ambient temperatures and winds along intended route and any planned diversion;
    - (vi) Flight paths and minimum altitudes required to remain clear of obstacles.
  - (2) During take-off and landing-
    - (i) The condition of the take-off runway or area to be used. including any contaminates (e.g., water, slush, snow, ice);
    - (ii) The gradient of runway to be used;
    - (iii) The runway length including clearways and stopways, if applicable;
    - (iv) Pressure altitudes at take-off and landing sites;
    - (v) Current ambient temperatures and winds at take-off;
    - (vi) Forecast ambient temperatures and winds at each destination and planned alternate landing site;
    - (vii) The ground handling characteristics (e.g., braking action) of the type of aircraft; and
    - (viii) Landing aids and terrain that may affect the take-off path, landing path, and landing roll.
    - (ix) In determining the length of the runway available, account shall be taken of the loss, if any, of runway length due to alignment of the airplane prior to take-off.

*Note: Where conditions are different from those on which the performance is based, compliance may be determined by interpolation or by computing the effects of changes in the specific variables if the results of the interpolation or computations are substantially as accurate as the results of direct tests.*

*Note: To allow for wind effect, take-off data based on still air may be corrected by taking into account not more than 50 percent of any reported headwind component and not less than 150 percent of any reported tailwind component, and landing data based on.*

**8.7.2.3.2 AIRCRAFT PERFORMANCE: HELICOPTERS**

- (a) In conditions where the safe continuation of flight is not ensured in the event of a critical power unit failure, helicopter operations shall be conducted in a manner that gives appropriate consideration for achieving a safe forced landing.
- (b) Where the State of the Operator permits IMC operations in performance Class 3, such operations shall be conducted in accordance with the provisions of Subpart 8.8.4.22.
- (c) For helicopters for which Part IV of Annex 8 is not applicable because of the exemption provided for in Article 41 of the Convention, the level of performance specified in Subpart 8.7.2.3.3 should be met as far as practicable.
- (d) Where helicopters are operated to or from heliports in a congested hostile environment, the competent authority of the State in which the heliport is situated shall specify the requirements to enable these operations to be conducted in a manner that gives appropriate consideration for the risk associated with a power-unit failure.

**8.7.2.3.3 AIRCRAFT PERFORMANCE: HELICOPTERS CERTIFICATED IN ACCORDANCE WITH PART IV OF ANNEX 8**

- (a) The Standards contained in paragraphs (b) to (f) inclusive below and Subpart 8.7.2.4.2 (a) are applicable to the helicopters to which Part IV of Annex 8 is applicable.
- (b) The level of performance defined by the appropriate parts of the code of performance referred to in Subpart 8.7.1.1 for the helicopters designated in paragraph (a) above shall be consistent with to the overall level embodied in the Standards of this chapter.
- (c) A helicopter shall be operated in compliance with the terms of its certificate of airworthiness and within the approved operating limitations contained in its flight manual.
- (d) The State of the Operator shall take such precautions as are reasonably possible to ensure that the general level of safety contemplated by these provisions is maintained under all expected operating conditions, including those not covered specifically by the provisions of this chapter.
- (e) A flight shall not be commenced unless the performance information provided in the flight manual indicates that the Standards of paragraph (f) below and Subpart 8.7.2.4.2 (a) can be complied with for the flight to be undertaken.
- (f) In applying the Standards of this chapter, account shall be taken of all factors that significantly affect the performance of the helicopter (such as: mass, operating procedures, the pressure altitude appropriate to the elevation of the operating site, temperature, wind and condition of the surface). Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the code of performance in accordance with which the helicopter is being operated.

**8.7.2.4 TAKE-OFF LIMITATIONS****8.7.2.4.1 TAKE-OFF LIMITATIONS: AIRPLANES**

(a) The mass of the airplane at the start of take-off shall not exceed the mass at which paragraph (5) below is complied with, nor the mass at which Subparts 8.7.2.6, 8.7.2.7 and 8.7.2.8 are complied with, allowing for expected reductions in mass as the flight proceeds, and for such fuel jettisoning as is envisaged in applying Subparts 8.7.2.6 and 8.7.2.7 and, in respect of alternate airports, Subparts 8.7.1.4 (d) and 8.7.2.8. No person may take-off an airplane used in commercial air transport, unless the following requirements are met when determining the maximum permitted take-off mass:

- (1) In no case shall the mass at the start of take-off exceed the maximum take-off mass specified in the flight manual for the pressure-altitude appropriate to the elevation of the airport, and, if used as a parameter to determine the maximum take-off mass, any other local atmospheric condition.
- (2) The take-off run shall not be greater than the length of the runway.
- (3) For turbine engine powered airplanes
  - (i) The take-off distance shall not exceed the length of the runway plus the length of any clearway, except that the length of any clearway included in the calculation shall not be greater than 1½ the length of the runway; and
  - (ii) The accelerate-stop distance shall not exceed the length of the runway, plus the length of any stop way, at any time during take-off until reaching V1.
- (4) For reciprocating engine powered airplanes-
  - (i) The accelerate-stop distance shall not exceed the length of the runway at any time during take-off until reaching V1.
- (5) The airplane shall be able, in the event of a critical engine failing, or for other reasons, at any point in the take-off, either to discontinue the take-off and stop within the accelerate-stop distance available, or to continue the take-off and clear all obstacles along the flight path by an adequate vertical or horizontal distance, described in paragraph (6), until the airplane is in a position to comply with Subpart 8.7.2.6. When determining the resulting take-off obstacle accountability area, the operating conditions, such as crosswind component and navigation accuracy, must be taken into account.

*Note. ICAO Annex 6 Part 1, Attachment C contains guidance on the vertical and horizontal distances that are considered adequate to show compliance with this Standard.*

- (6) If the critical power-unit fails at any time after the airplane reaches V1, to continue the takeoff flight path and clear all obstacles either-
  - (i) by a height of at least 9.1m (35ft) vertically for turbine engine powered airplanes or 15.2m (50ft) for reciprocating engine powered airplanes; and
  - (ii) by at least 60m (200 ft) horizontally within the airport boundaries and by at least 90 meters (300 ft) horizontally after passing the boundaries, without banking more than 15 degrees at any point on the take-off flight path.

**8.7.2.4.2 TAKE-OFF LIMITATIONS: HELICOPTERS**

## (a) Mass Limitations

- (1) The mass of the helicopter at the start of take-off shall not exceed the mass at which the code of performance referred to in Subpart 8.7.1.1 is complied with, allowing for expected reductions in mass as the flight proceeds and for such fuel jettisoning as is appropriate.
- (2) In no case shall the mass at the start of take-off exceed the maximum take-off mass specified in the helicopter flight manual taking into account the factors specified in Subpart 8.7.2.3.3 (f).
- (3) In no case shall the estimated mass for the expected time of landing at the destination and at any alternate exceed the maximum landing mass specified in the helicopter flight manual taking into account the factors specified in Subpart 8.7.2.3.3 (f).
- (4) In no case shall the mass at the start of take-off, or at the expected time of landing at the destination and at any alternate, exceed the relevant maximum mass at which compliance has been demonstrated with the applicable noise certification Standards in Annex 16, Volume I, unless otherwise authorized in exceptional circumstances for a certain operating site where there is no noise disturbance problem, by the competent authority of the State in which the operating site is situated.

(b) In developing a code of performance, a risk assessment methodology in accordance with the guidance in Attachment A to Annex 6 part III shall apply. Where a risk assessment methodology is not applied, the standards of Subparts 8.7.2.4.2 (c) shall apply.

## (c) Take-off and Initial Climb Phase

- (1) *Operations in performance Class 1.* The helicopter shall be able, in the event of the failure of the critical power-unit being recognized at or before the take-off decision point, to discontinue take-off and stop within the rejected take-off area available or, in the event of the failure of the critical power-unit being recognized at or after the take-off decision point, to continue the take-off, clearing all obstacles along the flight path by an adequate margin until the helicopter is in a position to comply with Subpart 8.7.2.6 (b)(1).
- (2) *Operations in performance Class 2.* The helicopter shall be able, in the event of the failure of the critical power-unit at any time after reaching DPATO, to continue the take-off, clearing all obstacles along the flight path by an adequate margin until the helicopter is in a position to comply with Subpart 8.7.2.6 (b)(1). Before the DPATO, failure of the critical power-unit may cause the helicopter to force-land; therefore the conditions stated in Subpart 8.7.2.3.2 (a) shall apply.
- (3) *Operations in performance Class 3.* At any point of the flight path, failure of a power-unit will cause the helicopter to force-land; therefore the conditions stated in Subpart 8.7.2.3.2 (a) shall apply.

**8.7.2.5 EN ROUTE LIMITATIONS: ALL POWER UNITS OPERATING**

(a) No person may take off a reciprocating engine powered airplane used in commercial air transport at a mass that does not allow a rate of climb of at least  $6.9 V_{SO}$  (that is, the number of feet per minute obtained by multiplying the airplane's minimum steady flight speed by 6.9) with all engines operating, at an altitude of at least 300m (1,000 ft) above all terrain and obstructions within ten miles of each side of the intended track.

**8.7.2.6 EN ROUTE LIMITATIONS: ONE ENGINE INOPERATIVE**

(a) *Airplane*. No person may take off an airplane used in commercial air transport having two power units unless that airplane can, in the event of the critical engine becoming inoperative at any point along the route, or planned diversion there-from, to continue the flight to a suitable airport or planned diversions there from, to continue the flight to an airport, at which the Standard of Subpart 8.7.2.7 can be met, without flying below the minimum flight altitude at any point, where a landing can be made while allowing:

(1) For reciprocating engine powered airplanes-

- (i) At least a rate of climb of  $0.079 - (0.106/\text{number of engines installed}) V_{SO}^2$  (when  $V_{SO}$  is expressed in knots) at an altitude of 300m (1,000ft) above all terrain and obstructions within 9.3 km (5sm), on each side of the intended track; and
- (ii) A positive slope at an altitude of at least 450m (1,500ft) above the airport where the airplane is assumed to land.

(2) For turbine engine powered transport category airplanes-

- (i) A positive slope at an altitude of at least 300m (1,000ft) above all terrain and obstructions within 9.3km (5sm), on each side of the intended track;
- (ii) A net flight path from cruising altitude to the intended landing airport that allows at least 600 m (2,000 ft) clearance above all terrain and obstructions within 9.3km (5sm), on each side of the intended track: and
- (iii) A positive slope at an altitude of at least 450m (1,500 ft) above the airport where the airplane is assumed to land;

*Note: The climb rate specified in paragraph (a) (1) (i) may be amended to  $0.026 V_{so}^2$  for large transport category aircraft issued a type certificate prior to 1953.*

*Note: The 9.3km (5nm) clearance margin stated in paragraph (a) shall be increased to 18.5 km (10 nm) if navigational accuracy does not meet the 95% containment level.*

(b) Helicopters: No person shall take-off the helicopter used in commercial air transport operation having two engines unless:

- (1) *Operations in performance Classes 1 and 2*. The helicopter shall be able, in the event of the failure of the critical power-unit at any point in the en-route phase, to continue the flight to a site at which the conditions of Subpart 8.7.2.8 (e) (1) for operations in performance Class 1, or the conditions of Subpart 8.7.2.8 (e) (2) for operations in performance Class 2 can be met, without flying below the appropriate minimum flight altitude at any point.
- (2) *Operations in performance Class 3*. The helicopter shall be able, with all power-units operating, to continue along its intended route or planned diversions without flying at any point below the appropriate minimum flight altitude. At any point of the flight path, failure of a power-unit will cause the helicopter to force-land; therefore the conditions stated in Subpart 8.7.2.3.2 (a) shall apply.

**8.7.2.7 EN ROUTE LIMITATIONS: TWO ENGINES INOPERATIVE**

(a) *Airplane*. No person may take-off an airplane used in commercial air transport having three or more engines, on any part of a route where the location of en-route alternate airports and the total duration of the flight are such that the probability of a second engine becoming inoperative must be allowed for if the general level of safety implied by the Standards of this chapter is to be maintained, the airplane shall be able, in the

event of any two engines becoming inoperative, to continue the flight to an en-route alternate airport and land while allowing:

(1) For turbine engine powered airplanes-

- (i) A net flight path (considering the ambient temperatures anticipated along the track) clearing vertically by at least 600 m (2,000 feet) all terrain and obstructions within 9.3 km (5 nautical miles) on each side of the intended track;
- (ii) A positive slope at 450 m (1,500 feet) above the airport of intended landing; and
- (iii) Enough fuel to continue to the airport of intended landing, to arrive at an altitude of at least 450 m (1,500 feet) directly over the airport, and thereafter to fly for 15 minutes at cruise power.

*Note: The consumption of fuel and oil after the engine failure is the same as the consumption that is allowed for in the net flight path data in the AFM.*

(2) For reciprocating engine powered airplanes-

- (i) A rate of climb at  $0.013 V_{so}^2$  feet per minute (that is, the number of feet per minute is obtained by multiplying the number of knots squared by 0.013) at an altitude of 300 m (1,000 ft) above the highest ground or obstruction within 18.6 km (10 nm) on each side of the intended track, or at an altitude of 1,500 m (5,000 ft), whichever is higher; and
- (ii) Enough fuel to continue to the airport of intended landing and to arrive at an altitude of at least 300 m (1,000 ft) directly over that airport.

*Note: When the two engines of the reciprocating airplane are predicted to fail at an altitude above the prescribed minimum altitude, compliance with the prescribed rate of climb need not be shown during the descent from the cruising altitude to the prescribed minimum altitude, if those requirements can be met once the prescribed minimum altitude is reached and assuming descent to be along a net flight path and the rate of descent to be  $0.013 V_{so}^2$  greater than the rate in the approved performance data.*

*Note: If fuel jettisoning is authorized (or planned), the airplane's mass at the point where the two engines fail is considered to be not less than that which would include enough fuel to proceed to an airport and to arrive at an altitude of at least 300 m (1,000 ft) directly over that airport.*

- (b) Helicopters. No person shall take-off a Class 1 or Class 2 helicopter used in commercial air transport having three or more engines unless that helicopter can, in the event of two critical engines failing simultaneously at any point in the en route phase, continue the flight to a suitable landing site.

### 8.7.2.8 LANDING LIMITATIONS

- (a) Airplane: No person may take off an airplane used in commercial operations unless its mass is such on arrival at the airport of intended landing and at any alternate airport, that after clearing all obstacles in the approach path by a safe margin, be able to land, with assurance that it can come to a stop or; for a seaplane, to a satisfactorily low speed, within the landing distance available (Allowance shall be made for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data.), and within:

- (1) For turbine engine powered airplanes, 60 percent of the effective length of each runway.

- (2) For reciprocating engine powered airplanes, 70 percent of the effective length of each runway.

*Note.- Guidance on appropriate margins for the “at time of landing” distance assessment is contained in the Aeroplane Performance Manual (ICAO Doc 10064).*

- (b) For the purpose of determining the allowable landing mass at the destination airport, each person determining the landing limit shall ensure that

- (1) The airplane is landed on the most favorable runway and in the most favorable direction, in still air: or
- (2) The airplane is landed on the most suitable runway considering the probable wind velocity and direction, runway conditions, the ground handling characteristics of the airplane, and considering other conditions such as landing aids and terrain.

*Note: If the runway at the landing destination is reported or forecast to be wet or slippery, the landing distance available shall be at least 115 percent of the required landing distance unless, based on a showing of actual operating landing techniques on wet or slippery runways. A shorter landing distance (but not less than that required by paragraph (a)) has been approved for a specific type and model airplane and this information is included in the AFM.*

- (c) A turbine powered transport category airplane that would be prohibited from taking off because it could not meet the requirements of paragraph (a) (1), may take off if an alternate airport is specified that meets all the requirements of paragraph (a).
- (d) Helicopters: No person may take off a helicopter used in commercial air transport unless, with all engines operating on arrival at the intended destination landing site or any planned alternate landing, it can clear all obstacles on the approach path and can land and stop within the landing distance available.

- (e) Helicopters:

- (1) *Operations in performance Class 1*. In the event of the failure of the critical power-unit being recognized at any point during the approach and landing phase, before the landing decision point, the helicopter shall, at the destination and at any alternate, after clearing all obstacles in the approach path, be able to land and stop within the landing distance available or to perform a balked landing and clear all obstacles in the flight path by an adequate margin equivalent to that specified in Subpart 8.7.2.4.2 (c) (1). In case of the failure occurring after the landing decision point, the helicopter shall be able to land and stop within the landing distance available.
- (2) *Operations in performance Class 2*. In the event of the failure of the critical power-unit before the DPBL, the helicopter shall, at the destination and at any alternate, after clearing all obstacles in the approach path, be able either to land and stop within the landing distance available or to perform a balked landing and clear all obstacles in the flight path by an adequate margin equivalent to that specified in Subpart 8.7.2.3.2 (c) (2). After the DPBL, failure of a power-unit may cause the helicopter to force-land; therefore the conditions stated in Subpart 8.7.2.3.2 (a) shall apply.
- (3) *Operations in performance Class 3*. At any point of the flight path, failure of a power-unit will cause the helicopter to force-land; therefore the conditions stated in Subpart 8.7.2.3.2 (a) shall apply.

**8.8 FLIGHT RULES****8.8.1 ALL OPERATIONS****8.8.1.1 OPERATION OF AIRCRAFT ON THE GROUND**

- (a) No person may taxi an aircraft on the movement area of an airport unless the person at the controls:
- (1) has been authorized by the owner, the lessee, or a designated agent;
  - (2) is fully competent to taxi the aircraft;
  - (3) is qualified to use the radio if radio communications are required; and
  - (4) has received instruction from a competent person in respect of airport layout, and where appropriate, information on routes, signs, marking, lights, ATC signals and instructions, phraseology and procedures, and is able to conform to the operational standards required for safe aircraft movement at the airport.
- (b) For helicopters: No person shall cause a helicopter rotor to be turned under power for the purpose of flight, unless there is a qualified pilot at the controls. The operator shall provide appropriately specific training and procedures to be followed for all personnel, other than qualified pilots, who are likely to carry out the turning of a rotor under power for purposes other than flight.

**8.8.1.2 TAKE-OFF CONDITIONS**

- (a) Before commencing take-off, a PIC shall ensure that
- (1) According to the available information, the weather at the airport and the condition of the runway intended to be used will allow for a safe take-off and departure; and
  - (2) The RVR or visibility in the take-off direction of the aircraft is equal to or better than the applicable minimum.

**8.8.1.3 FLIGHT INTO KNOWN OR EXPECTED ICING**

- (a) A flight to be operated in known or expected icing conditions shall not be commenced unless the aircraft is certificated and equipped to cope with such conditions.
- (b) No person may take-off an aircraft when frost, ice or snow is adhering to the wings, control surfaces, propellers, engine inlets or other critical surfaces of the aircraft which might adversely affect the performance or controllability of the aircraft.
- (c) A flight to be planned or expected to operate in suspected or known ground icing conditions shall not take off unless the aircraft has been inspected for icing and, if necessary, has been given appropriate de-icing/anti-icing treatment. Accumulation of ice or other naturally occurring contaminants shall be removed so that the aeroplane is kept in an airworthy condition prior to take-off.
- (d) For commercial air transport operations, no person may take-off an aircraft when conditions are such that frost, ice or snow may reasonably be expected to adhere to the aircraft, unless the procedures approved for the Operator by the Authority are followed to ensure ground de-icing and anti-icing is accomplished.

**8.8.1.4 ALTIMETER SETTINGS**

- (a) Each person operating an aircraft, except a balloon or glider, shall maintain the cruising altitude or flight level by reference to an altimeter setting.
- (b) The lowest usable flight level is determined by the atmospheric pressure in the area of operation.
- (c) The flight crew shall use the altimeter settings provided by the air traffic control service of State within which the operation is conducted.
- (d) See IS: 8.8.1.4 for the tables to determine the lowest usable flight level.

*Note: In areas of the world where it may not be possible to get an altimeter setting, reference the State's procedures in the AIP-Philippines.*

**8.8.1.5 MINIMUM SAFE ALTITUDES: GENERAL**

- (a) Except when necessary for take-off or landing, no person may operate an aircraft below the following altitudes:
  - (1) *Anywhere.* An altitude allowing, if a power unit fails, continuation of flight or an emergency landing without undue hazard to persons or property on the surface.
  - (2) *Over congested areas.* Over any congested area of a city, town, or settlement, or over any open-air assembly of persons, an altitude of 300 m (1000 feet) above the highest obstacle within a horizontal radius of 600 m (2,000 feet) of the aircraft.
  - (3) *Over other than congested areas.* An altitude of 150 m (500 feet) above the surface, except over open water or sparsely populated areas where the aircraft may not be operated closer than 150 m (500 feet) to any person, vessel, vehicle, or structure.
  - (4) *Helicopters.* Pilots of helicopters are not subject to the proximity restrictions provided they are operated in a manner that is not hazardous to persons and property on the surface. The PIC of a helicopter shall comply with any routes or altitudes for the area that are prescribed for helicopters by the Authority.
  - (5) Altitudes prescribed by ICAO Annex 2: 3.1.2, 4.6 and 5.1.2.

**8.8.1.6 MINIMUM SAFE VFR ALTITUDES**

- (a) No person may operate an airplane during the day, under VFR, at an altitude less than 300 m (1,000 feet) above the surface or within 1,000 feet of any mountain, hill, or other obstruction to flight.
- (b) No person may operate an airplane at night, under VFR, at an altitude less than 300 m (1,000 feet) above the highest obstacle within a horizontal distance of 8 km (5 nm) from the centre of the intended course; or, in designated mountainous areas, less than 600 m (2,000 feet) above the highest obstacle within a horizontal distance of 8 km (5 nm) from the centre of the intended course.

**8.8.1.7 INSTRUMENT APPROACH OPERATING MINIMA**

- (a) No person may operate to or from an airport/heliport using operating minima lower than those which may be established for that airport/heliport by the State in which it is located, unless that State specifically approves that operation, in accordance with the provisions of Implementing Standard: IS: 8.8.1.7.

- (b) Each Operator shall establish airport/heliport-operating minima for each airport/heliport to be used in operation, and shall approve the method of determination of such minima. That minima shall not be lower than any that may be established for such airports by the State of the Aerodrome except when specifically approved by that State.

*Note: This Standard does not require the State of the Aerodrome to establish aerodrome operating minima.*

- (c) The Authority may approve operational credit(s) for operations with advanced aircraft. Such approvals shall not affect the classification of the instrument approach procedure.

*Note 1. – Operational credit includes:*

(1) *for the purposes of an approach ban (PCAR Part 8, Subsection 8.8.4.13, paragraph (c) and (d)), or dispatch considerations, a minimum below the aerodrome operating minima;*

(2) *reducing or satisfying the visibility requirements; or*

(3) *requiring fewer ground facilities as compensated for by airborne capabilities.*

*Note 2. – Guidance on operational credit and how to express the operational credit in the Operations Specifications is contained in the Manual of All-Weather Operations (ICAO Doc 9365).*

*Note 3. – Information regarding a HUD or equivalent displays, including references to RTCA and EUROCAE documents, is contained in the Manual of All-Weather Operations (ICAO Doc 9365).*

- (d) Threshold crossing height for 3D instrument approaches: An operator shall establish operational procedures designed to ensure that an aircraft being used to conduct 3D instrument approach operations crosses the threshold by a safe margin, with the aircraft in the landing configuration and attitude.

- (e) See IS 8.8.1.7 for requirements for Instrument Approach Operating Minima.

- (f) Instrument approach operations shall be classified based on the designed lowest operating minima below which an approach operation shall only be continued with the required visual reference as follows:

(1) Type A: a minimum descent height or decision height at or above 75 m (250 ft); and

(2) Type B: a decision height below 75 m (250 ft). Type B instrument approach operations are categorized as:

(A) Category I (CAT I): a decision height not lower than 60 m (200 ft) and with either a visibility not less than 800 m or a runway visual range not less than 550 m;

(B) Category II (CAT II): a decision height lower than 60 m (200 ft), but not lower than 30 m (100 ft) and a runway visual range not less than 300 m;

(C) Category IIIA (CAT IIIA): a decision height lower than 30 m (100 ft) or no decision height and a runway visual range not less than 175 m;

(D) Category IIIB (CAT IIIB): a decision height lower than 15 m (50 ft), or no decision height and a runway visual range less than 175 m but not less than 50 m; and

(E) Category IIIC (CAT IIIC): no decision height and no runway visual range limitations.

- (g) The operating minima for 2D instrument approach operations using instrument

approach procedures shall be determined by establishing a minimum descent altitude (MDA) or minimum descent height (MDH), minimum visibility and, if necessary, cloud conditions.

- (h) The operating minima for 3D instrument approach operations using instrument approach procedures shall be determined by establishing a decision altitude (DA) or decision height (DH) and the minimum visibility or RVR.

*Note 1: Where decision height (DH) and runway visual range (RVR) fall into different categories of operation, the instrument approach operation would be conducted in accordance with the requirements of the most demanding category (e.g. an operation with a DH in the range of CAT IIIA but with an RVR in the range of CAT IIIB would be considered a CAT IIIB operation or an operation with a DH in the range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation).*

*Note 2: The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In the case of a circling approach operation the required visual reference is the runway environment.*

*Note 3: Guidance on approach classification as it relates to instrument approach operations, procedures, runways and navigation systems is contained in the All Weather Operations Manual (Doc 9365).*

*Note 4: For guidance on applying a continuous descent final approach (CDFA) flight technique on non-precision approach procedures refers to PANS-OPS (Doc 8168), Volume I, Section 1.7.*

- (i) When issuing a specific approval for the operational credit, the Authority shall ensure that:
- (1) the aeroplane meets the appropriate airworthiness certification requirements;
  - (2) the information necessary to support effective crew tasks for the operation is appropriately available to both pilots where the number of flight crew members specified in the operations manual is more than one;
  - (3) the operator has carried out a safety risk assessment of the operations supported by the equipment;
  - (4) the operator has established and documented normal and abnormal procedures and MEL;
  - (5) the operator has established a training programme for the flight crew members and relevant personnel involved in the flight preparation;
  - (6) the operator has established a system for data collection, evaluation and trend monitoring for low visibility operations for which there is an operational credit; and
  - (7) the operator has instituted appropriate procedures in respect of continuing airworthiness (maintenance and repair) practices and programmes.

*Note 1. – Guidance on safety risk assessments is contained in the Safety Management Manual (SMM) (Doc 9859).*

*Note 2. – Guidance on operational approvals is contained in the Manual of All-Weather Operations (Doc 9365).*

- (j) For operations which operational credit with minima above those related to low visibility operations, the operator shall establish criteria for the safe operation of the airplane.

*Note. – Guidance on operational credit for operations with minima above those related to low visibility operations is contained in the Manual of All-Weather Operations (Doc 9365).*

#### **8.8.1.8 CATEGORY II AND III OPERATIONS: GENERAL OPERATING RULES**

- (a) No person may operate a civil aircraft in a Category II or III operation unless:
  - (1) The PIC and CP of the aircraft hold the appropriate authorizations and ratings prescribed in Subpart 2.2.2.
  - (2) Each flight crew member has adequate knowledge of, and familiarity with, the aircraft and the procedures to be used;
  - (3) The instrument panel in front of the pilot who is controlling the aircraft has appropriate instrumentation for the type of flight control guidance system that is being used; and
  - (4) RVR information is provided.
- (b) Unless otherwise authorized by the Authority, no person may operate a civil aircraft in a Category II or Category III operation unless each ground component required for that operation and the related airborne equipment is installed and operating.
- (c) When the approach procedure being used provides for and requires the use of a DH, the authorized DH is the highest of the following:
  - (1) The DH prescribed by the approach procedure.
  - (2) The DH prescribed for the PIC.
  - (3) The DH for which the aircraft is equipped.
- (d) Unless otherwise authorized by the Authority, no pilot operating an aircraft in a Category II or Category III approach that provides and requires use of a DH may continue the approach below the authorized decision height unless the following conditions are met:
  - (1) The aircraft is in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and where that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing.
  - (2) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:
    - (i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.
    - (ii) The threshold.
    - (iii) The threshold markings.
    - (iv) The threshold lights.
    - (v) The touchdown zone or touchdown zone markings.
    - (vi) The touchdown zone lights.

- (e) Unless otherwise authorized by the Authority, each pilot operating an aircraft shall immediately execute an appropriate missed approach whenever, prior to touchdown, the requirements of paragraph (d) of this section are not met.
- (f) No person operating an aircraft using a Category III approach without DH may land that aircraft except in accordance with the provisions of the letter of authorization issued by the Authority.
- (g) No person may conduct Category II or III instrument approaches and landing operations below 800 m visibility unless RVR information is provided.
- (h) Paragraphs (a) through (f) of this section do not apply to operations conducted by Operators issued a certificate under Part 9. No person may operate a civil aircraft in a Category II or Category III operation conducted by an Operator unless the operation is conducted in accordance with that Operator's approved training program and operations specifications.

#### **8.8.1.9 CATEGORY II AND CATEGORY III MANUAL**

- (a) Except as provided in paragraph (c) of this section, no person may operate a civil aircraft in a Category II or a Category III operation unless
  - (1) There is available in the aircraft a current and approved Category II or Category III manual, as appropriate, for that aircraft;
  - (2) The operation is conducted in accordance with the procedures, instructions, and limitations in the appropriate manual; and
  - (3) The instruments and equipment listed in the manual that are required for a particular Category II or Category III operation have been inspected and maintained in accordance with the maintenance program contained in the manual.
- (b) (1) In seeking authorization for Category II or Category III operations, the air operator shall submit for approval company manual and amendment(s) thereof that include the conditions required for the conduct of such approach, including aircraft and aircraft equipment required, the training and qualifications required of maintenance personnel and flight crew members, any specific airworthiness considerations, and any other information related to the conduct of Category II/III operations.
  - (2) Each operator must keep a current copy of each approved manual at its principal base of operations and must make each manual available for inspection upon request by the Authority.
- (c) Paragraphs (a) and (b) do not apply to operations conducted by an Operator issued a certificate under Part 9, which will have approved Category II or III operations included as a part of its operations manual.
- (d) See IS 8.8.1.9 for specific Category II and III manual requirements.

#### **8.8.1.10 AUTHORIZATION FOR EXEMPTION FROM CERTAIN CATEGORY II OPERATIONS**

- (a) The Authority may authorize exemptions from the requirements of Subparts 8.8.1.8 and 8.8.1.9 for the operation of small aircraft in Category II operations if the Authority finds that the proposed operation can be safely conducted.

*Note: Such authorization does not permit operation of the aircraft carrying persons or property for compensation or hire.*

**8.8.1.11 DIVERSION DECISION**

- (a) Except as provided in paragraph (b), the PIC shall land the aircraft at the nearest suitable airport at which a safe landing can be made whenever an engine of an aircraft fails or is shut down to prevent possible damage.
- (b) If not more than one engine of an airplane having three or more engines fails, or its rotation is stopped, the PIC may proceed to an airport if he or she decides that proceeding to that airport is as safe as landing at the nearest suitable airport after considering the:
  - (1) Nature of the malfunction and the possible mechanical difficulties that may occur if flight is continued;
  - (2) Altitude, mass, and usable fuel at the time of engine stoppage;
  - (3) Weather conditions en route and at possible landing points;
  - (4) Air traffic congestion;
  - (5) Kind of terrain; and
  - (6) Familiarity with the airport to be used.

**8.8.1.12 OPERATING NEAR OTHER AIRCRAFT INCLUDING FORMATION FLIGHTS**

- (a) No person may operate an aircraft so close to another aircraft as to create a collision hazard.
- (b) No person may operate an aircraft in formation flight except:
  - (1) By arrangement with the PIC of each aircraft in the formation, and
  - (2) If in controlled airspace, in accordance with conditions prescribed by the appropriate air traffic authority, which includes that:
    - (i) The formation operates as a single aircraft with regard to navigation and position reporting;
    - (ii) Separation between aircraft in the flight shall be the responsibility of the flight leader and the pilots in command of the other aircraft in flight;
    - (iii) Separation between aircraft shall include periods of transition when aircraft are maneuvering to attain their own separation within the formation and during join-up and break-away; and
    - (iv) A distance not exceeding 1 km (0.5 NM) laterally and longitudinally and 30 m (100 ft) vertically from the flight leader shall be maintained by each aircraft.
- (c) No person may operate an aircraft, carrying passengers for hire, in formation flight.

**8.8.1.13 RIGHT-OF-WAY RULES: EXCEPT WATER OPERATIONS**

- (a) *General.*
  - (1) Each pilot shall maintain vigilance so as to see and avoid other aircraft; and
  - (2) When a rule of this subsection gives another aircraft the right-of-way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear and taking into account the effect of aircraft wake turbulence.

- (3) Each pilot who has the right-of-way shall maintain his or her heading and speed but is still responsible for taking such action, including collision avoidance maneuvers based on resolution advisories provided by ACAS equipment, as will best avert collision.
- (b) *In distress*. An aircraft in distress has the right-of-way over all other air traffic.
- (c) *Converging*.
- (1) When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right-of-way.
- (2) If the converging aircraft are of different categories-
- (i) A balloon has the right-of-way over any other category of aircraft;
- (ii) A glider has the right-of-way over an airship, and power driven heavier than air aircraft; and
- (iii) An airship has the right-of-way over a power driven heavier than air aircraft.
- (d) *Towing or Refueling*. An aircraft towing or refueling other aircraft has the right-of-way over all other engine-driven aircraft, except aircraft in distress.
- (e) *Approaching head-on*. When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.
- (f) *Overtaking*. Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.
- (g) *Landing*. Aircraft while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface.
- Note: The PIC may not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach*
- (h) *More than one landing aircraft*. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right-of-way.
- (i) The PIC shall not take advantage of the right of way landing rules in items (g) and (h) in this paragraph to cut in front of another aircraft that is on final approach to land or to overtake that aircraft.
- (j) *Emergency landing*. Aircraft that are compelled to land have the right-of-way over other aircraft.
- (k) *Taking off*. Aircraft taking off have the right-of-way over aircraft taxiing on the maneuvering area of an aerodrome.
- (l) *Surface movement of aircraft*.
- (1) *Approaching head-on*. When aircraft are approaching each other head-on, or approximately so, each pilot of each aircraft shall stop or wherever practicable alter course to the right so as to keep well clear.
- (2) *Converging*. When aircraft are converging on a course, the aircraft to the other's right has the right-of-way.
- (3) *Overtaking*. Each aircraft that is being overtaken has the right-of-way and each pilot of an overtaking aircraft shall keep well clear.
- (m) *Aircraft taxiing on the maneuvering area of an aerodrome*.

- (1) An aircraft taxiing on the maneuvering area shall stop and hold at all runway-holding positions unless otherwise authorized by the aerodrome control tower.
- (2) An aircraft taxiing on the maneuvering area shall stop and hold at all lighted stop bars and may proceed further when the lights are switched off.

*Note: The PIC will not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.*

#### **8.8.1.14 RIGHT-OF-WAY RULES: WATER OPERATIONS**

- (a) General. Each person operating an aircraft on the water shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right-of-way by any rule of this subsection.
- (b) Converging or Crossing. When aircraft, or an aircraft and a vessel, are on crossing courses, the aircraft or vessel to the other's right has the right-of-way.
- (c) Approaching head-on. When aircraft, or an aircraft and a vessel, are approaching head-on, or nearly so, each shall alter its course to the right to keep well clear.
- (d) Overtaking. Each aircraft or vessel that is being overtaken has the right-of-way, and the one overtaking shall alter course to keep well clear.
- (e) Special circumstances. When aircraft, or an aircraft and a vessel, approach so as to involve risk of collision, each aircraft or vessel shall proceed with careful regard to existing circumstances, including the limitations of the respective craft.
- (f) Landing and taking off. When aircraft, on landing or taking off from the water, shall keep well clear of all vessels and avoid impeding their navigation.
- (g) Helicopters: All helicopters on flights over water in a hostile environment in accordance with Subpart 7.8.18 shall be certificated for ditching. Sea state shall be an integral part of ditching information.

#### **8.8.1.15 USE OF AIRCRAFT LIGHTS**

- (a) If an aircraft has red rotating beacon lights, or other lights installed to show that the engine is running, the pilot shall switch those lights on before starting engines and display those lights at all times the engines are running.
- (b) No person may operate an aircraft between the period from sunset to sunrise unless:
  - (1) It has lighted navigation lights; and
  - (2) If anti-collision lights are installed, those lights are lighted.
- (c) No person may park or move an aircraft between the period from sunset to sunrise in, or in a dangerous proximity to, a movement area of an aerodrome, unless the aircraft:
  - (1) Is clearly illuminated;
  - (2) Has lighted navigation lights; or
  - (3) Is in an area that is marked by obstruction lights; or
  - (4) Has light to indicate when the engine is running.
- (d) No person may anchor an aircraft unless that aircraft:
  - (1) Has lighted anchor lights; or
  - (2) Is in an area where anchor lights are not required on vessels.

- (e) No person may operate an aircraft on water during the period from sunset to sunrise unless:
  - (1) It displays lights as required by the International Regulations for Preventing Collisions at Sea (most recent edition); or
  - (2) It shall display lights as similar as possible in characteristics and position to those required by the International Regulations for Preventing Collisions at Sea if it is not practical to display the lights exactly as required.
- (f) A pilot is permitted to switch off or reduce the intensity of any flashing lights fitted to meet the requirements of this paragraph if they do or are likely to:
  - (1) Adversely affect the satisfactory performance of duties; or
  - (2) Subject an outside observer to harmful dazzle.

#### **8.8.1.16 SIMULATED INSTRUMENT FLIGHT**

- (a) No person may operate an aircraft in simulated instrument flight unless
  - (1) That aircraft has fully functioning dual controls, except:
    - (i) In the case of airships, or
    - (ii) In a single engine airplane equipped with a throw-over control wheel in place of fixed, dual controls of the elevator and ailerons.
  - (2) The other control seat is occupied by a safety pilot who holds at least a private pilot license with category and class ratings appropriate to the aircraft being flown, and
  - (3) The safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in the aircraft adequately supplements the vision of the safety pilot.
- (b) No person may engage in simulated instrument flight conditions during commercial air transport operations.

#### **8.8.1.17 IN-FLIGHT SIMULATION OF ABNORMAL SITUATIONS**

- (a) An operator shall ensure that when passengers or cargo are being carried, no emergency or abnormal situations shall be simulated.

#### **8.8.1.18 DROPPING, SPRAYING, TOWING**

- (a) Except under conditions prescribed by the Authority, no pilot may take the following actions
  - (1) Dropping, dusting or spraying from an aircraft,
  - (2) Towing of aircraft or other objects; or
  - (3) Allowing parachute descents.

#### **8.8.1.19 AEROBATIC FLIGHT**

- (a) No person may operate an aircraft in aerobatic flight
  - (1) Over any city, town or settlement:

- (2) Over an open air assembly of persons;
  - (3) Within the lateral boundaries of the surface areas of Class B, C, D or E airspace designated for an airport:
  - (4) Below an altitude of 1,500 feet above the surface; or
  - (5) When the flight visibility is less than 5 km.
  - (6) Unless in compliance with any other conditions prescribed by the Authority.
- (b) No person may operate an aircraft in maneuvers exceeding a bank of 60 degrees or pitch of 30 degrees from level flight attitude unless all occupants of the aircraft are wearing parachutes packed by a qualified parachute riggers, licensed in accordance with Part 2 of these regulations, in the past 12 calendar-months.

#### 8.8.1.20 FLIGHT TEST AREAS

- (a) No person may flight-test an aircraft except over open water, or sparsely populated areas having light traffic.

#### 8.8.1.21 PROHIBITED AREAS AND RESTRICTED AREAS

- (a) No person may operate an aircraft in a prohibited area or in a restricted area. The particulars of which have been duly published, except in accordance with the conditions of the restrictions or by permission of the State over whose territory the areas are established.

#### 8.8.1.22 OPERATIONS IN MNPS OR RVSM AIRSPACE

- (a) No person may operate a civil aircraft of Republic of the Philippines registry in defined portions of airspace where, based on Regional Air Navigation Agreement, minimum navigation performance specifications (MNPS) are prescribed, or in airspace designated as RVSM without a written authorization issued by the Authority.
- (b) No person may operate an aircraft in MNPS or RVSM airspace, except in accordance with the conditions of the procedures and restrictions required for this airspace.
- (c) For flights in designated MNPS airspace: an aircraft shall be provided with navigation equipment which:
- (1) continuously provides indications to the flight crew of adherence to or departure from track to the required degree of accuracy at any point along that track; and
  - (2) has been authorized by the Authority for MNPS operations concerned.

*Note: See CAR Part 7, 7.2.7 for requirements regarding navigation equipment for operations in MNPS airspace.*

- (d) For flights in designated RVSM airspace:

For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, a reduced vertical separation minimum (RVSM) of 300 m (1,000 ft) is applied between FL 290 and FL 410 inclusive, an aircraft:

- (1) shall be provided with equipment which is capable of:
  - (i) indicating to the flight crew the flight level being flown;
  - (ii) automatically maintaining a selected flight level;

- (iii) providing an alert to the flight crew when a deviation occurs from the selected flight level. The threshold for the alert shall not exceed  $\pm 90$  m (300 ft); and
  - (iv) automatically reporting pressure-altitude; and
- (2) shall be authorized by the Authority for operation in the airspace concerned.
- (e) Prior to granting the RVSM approval required in accordance with subparagraph (d)(2) above, an operator shall satisfy the Authority that:
- (1) the vertical navigation performance capability of the aircraft satisfies the requirements specified in Appendix 4 of Annex 6;
  - (2) the operator has instituted appropriate procedures in respect of continued airworthiness (maintenance and repair) practices and programs; and
  - (3) the operator has instituted appropriate flight crew procedures for operations in RVSM airspace.
- (f) The operator shall ensure that, in respect of those aircraft mentioned in subparagraph (d) above, adequate provisions exist for:
- (1) receiving the reports of height-keeping performance issued by the regional monitoring agencies established in accordance with Annex 11: 3.3.4.1; and
  - (2) taking immediate corrective action for individual aircraft, or aircraft type groups, identified in such reports as not complying with the height-keeping requirements for operation in airspace where RVSM is applied.
- (g) The aircraft shall be sufficiently provided with navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment will enable the aircraft to navigate in accordance with RVSM airspace requirements.
- (h) If an aircraft or an operator found to be operating in RVSM airspace without a valid RVSM approval, it shall be liable to penal action.

#### **8.8.1.23 OPERATIONS ON OR IN THE VICINITY OF A CONTROLLED OR AN UNCONTROLLED AIRPORT**

- (a) When approaching to land at an airport without an operating control tower, each pilot of
- (1) An airplane shall make all turns of that airplane to the left; or to the right, if appropriately indicated by the authorities having jurisdiction over that airport;
  - (2) A helicopter shall avoid the flow of airplanes.
- (b) When departing an airport without an operating control tower, each pilot of an aircraft shall comply with any traffic patterns established by the authorities having jurisdiction over that airport.
- (c) Each pilot of an aircraft shall land and take-off into the wind unless safety, the runway configurations, or traffic considerations determine that a different direction is preferable.
- (d) Each pilot operating an aircraft either on or in the vicinity of an airport shall:
- (1) Observe other airport traffic for the purpose of avoiding collision; and
  - (2) Conform with or avoid the pattern of traffic formed by other aircraft in operation.

- (e) Each pilot of an aircraft when operating to, from, or through an aerodrome having an operational control tower shall also comply with the requirements at Part 8.8.2.8.
- (f) See IS: 8.8.2.11 for the appropriate displays of light signals or visual markings.

#### **8.8.1.24 AIRPORT TRAFFIC PATTERN ALTITUDES: TURBOJET, TURBOFAN, OR LARGE AIRCRAFT**

- (a) When arriving at an airport, the PIC of a turbojet, turboprop, or large aircraft shall enter the traffic pattern at least 1,500 ft AGL until further descent is required for landing.
- (b) When departing, the PIC of a turbojet, turboprop, or large aircraft shall climb to 1,500 ft AGL as rapidly as practicable.

#### **8.8.1.25 COMPLIANCE WITH VISUAL AND ELECTRONIC GLIDE SLOPES**

- (a) The PIC of an airplane approaching to land on a runway served by a visual approach slope indicator shall maintain an altitude at or above the glide slope until a lower altitude is necessary for a safe landing.
- (b) The PIC of a turbojet, turboprop, or large airplane approaching to land on a runway served by an ILS shall fly that airplane at or above the glide slope from the point of interception to the middle marker.

#### **8.8.1.26 RESTRICTION OR SUSPENSION OF OPERATIONS: COMMERCIAL AIR TRANSPORT**

- (a) If a PIC or an Operator knows of conditions, including airport and runway conditions that are a hazard to safe operations, that person shall restrict or suspend all commercial air transport operations to such airports and runways as necessary until those conditions are corrected.

#### **8.8.1.27 CONTINUATION OF FLIGHT WHEN DESTINATION AIRPORT IS TEMPORARILY RESTRICTED: COMMERCIAL AIR TRANSPORT**

- (a) No PIC may allow a flight to continue toward any airport of intended landing where commercial air transport operations have been restricted or suspended, unless
  - (1) In the opinion of the PIC, the conditions that are a hazard to safe operations may reasonably be expected to be corrected by the estimated time of arrival; or
  - (2) There is no safer procedure.

#### **8.8.1.28 INTERCEPTION**

- (a) When intercepted by a military or government aircraft, each PIC shall comply with the international standards when interpreting and responding to visual signals and communication as specified in IS: 8.8.1.28.
- (b) No pilot may conduct an international flight unless the procedures and signals relating to interception of aircraft, as specified in IS: 8.8.1.28, are readily available on the flight deck.

#### **8.8.1.29 NOISE ABATEMENT PROCEDURES**

- (a) Each AOC holder shall operate its aircraft in accordance with the noise abatement procedures approved by the Authority.
- (b) Unless otherwise directed by the Authority, the noise abatement procedures specified by an operator for any one aircraft type shall be the same for all airports.  
*Note.- A single procedure may not satisfy the requirements at some aerodromes.*
- (c) Helicopters: An operator shall ensure that take-off and landing procedures take into account the need to minimize the effect of helicopter noise.
- (d) Airplane operating procedures for noise abatement shall comply with the provisions of ICAO PANS-OPS (Doc 8168), Volume I.

#### **8.8.1.30 MINIMUM FLIGHT ALTITUDE**

- (a) An operator shall be permitted to establish minimum flight altitudes for those routes flown for which minimum flight altitudes have not been established by the State flown over or the responsible State, provided they shall not be less than those established by that State, unless specifically approved.
- (b) An operator shall specify the method by which it is intended to determine minimum flight altitudes for operations conducted over routes for which minimum flight altitudes have not been established by the State flown over or the responsible State, and shall include this method in the operations manual. The minimum flight altitudes determined in accordance with the above method shall not be lower than specified in Subparts 8.8.1.5 and 8.8.4.5.
- (c) The method for establishing the minimum flight altitudes shall be approved by the Authority.
- (d) The Authority shall approve such method only after careful consideration of the probable effects of the following factors on the safety of the operation in question:
  - (1) the accuracy and reliability with which the position of the aircraft can be determined;
  - (2) the inaccuracies in the indications of the altimeters used;
  - (3) the characteristics of the terrain (e.g. sudden changes in the elevation);
  - (4) the probability of encountering unfavorable meteorological conditions (e.g. severe turbulence and descending air currents);
  - (5) possible inaccuracies in aeronautical charts; and
  - (6) airspace restrictions.

#### **8.8.1.31 OPERATIONS IN PERFORMANCE-BASED NAVIGATION (PBN) AIRSPACE**

- (a) No operator shall permit, and no pilot shall conduct operations in airspace designated as Performance-based Navigation (PBN) airspace, unless so approved in the operator's Operations Specifications.
- (b) For flights in defined portions of airspace or on routes where a PBN type has been prescribed, an aircraft shall be provided with navigation equipment which will enable it to operate in accordance with the prescribed RNP type(s) and the ATS requirements as specified in Subparts 7.2.7, 7.2.8, 7.2.9 and 7.2.10.
- (c) An operator shall equip the aircraft as prescribed in subparagraph (b) above by incorporating the necessary airworthiness requirements, and submit to the Authority

for approval the company manuals and amendments thereof, including the pre-flight and en-route procedures to be followed for such flights, the training and qualifications required of maintenance personnel, flight operations officers/flight dispatchers, and flight crew members; and such other information necessary in the conduct of operations in PBN designated airspace. On successful demonstration of competency of operations in PBN designated airspace by an operator, the Authority shall authorize such operations.

*Note: See ICAO Doc 9613 for information on the approval process for operations in PBN airspace.*

#### **8.8.1.32 AIRPLANE OPERATING PROCEDURES FOR RATES OF CLIMB AND DESCENT**

- (a) Unless otherwise specified in an air traffic control instruction, to avoid unnecessary airborne collision avoidance system (ACAS II) resolution advisories in aircraft at or approaching adjacent altitudes or flight levels, operators should specify procedures by which an airplane climbing or descending to an assigned altitude or flight level, especially with an autopilot engaged, may do so at a rate less than 8 m/sec or 1500 ft/min (depending on the instrumentation available) throughout the last 300 m (1000 ft) of climb or descent to the assigned level when the pilot is made aware of another aircraft at or approaching an adjacent altitude or flight level.

*Note: Material concerning the development of these procedures is contained in the PANS-OPS (ICAO Doc 8168) Volume I, Part III, Section 3, Chapter 3.*

#### **8.8.1.33 AEROPLANE OPERATING PROCEDURES FOR LANDING PERFORMANCE**

- (a) As of 4 November 2021, an approach to land shall not be continued below 300 m (1000 ft) above aerodrome elevation unless the pilot-in-command is satisfied that, with the runway surface condition information available, the aeroplane performance information indicates that a safe landing can be made.

*Note 1.- The procedures used by aerodromes to assess and report runway surface conditions are contained in the PANS-Aerodromes (Doc 9981) and those for using runway surface condition information on board aircraft are in the Aeroplane Performance Manual (Doc 10064).*

*Note 2.- Guidance on development of aeroplane performance information is contained in the Aeroplane Performance Manual (Doc 10064).*

### **8.8.2 CONTROL OF AIR TRAFFIC**

#### **8.8.2.1 ATC CLEARANCES**

- (a) Each PIC shall obtain an ATC clearance prior to operating a controlled flight, or a portion of a flight as a controlled flight.
- (b) Each PIC shall request an ATC clearance through the submission of a flight plan to an ATC facility, including potential re-clearance in flight.
- (c) Whenever an aircraft has requested a clearance involving priority, each PIC shall submit a report explaining the necessity for such priority, if requested by the appropriate ATC facility.

- (d) No person operating an aircraft on a controlled airport may taxi on the maneuvering area or any runway without clearance from the airport control tower.

#### 8.8.2.2 ADHERENCE TO ATC CLEARANCES

- (a) When an ATC clearance has been obtained, no PIC may deviate from the clearance. Except in an emergency, unless he or she obtains an amended clearance.

*Note: A flight plan may cover only part of a flight, as necessary, to describe that portion of the flight or those maneuvers which are subject to air traffic control. A clearance may cover only part of a current flight plan as indicated in a clearance limit or by reference to specific maneuvers such as taxiing, landing or taking off.*

*Note: Paragraph 8.8.2.2(a) does not prohibit a pilot from canceling an IFR clearance when operating in VMC conditions or canceling a controlled flight clearance when operating in airspace that does not require controlled flight.*

- (b) When operating in airspace requiring controlled flight, no PIC may operate contrary to ATC instructions, except in an emergency.
- (c) Each PIC who deviates from an ATC clearance or instructions in an emergency, shall notify ATC of that deviation as soon as possible.

#### 8.8.2.3 COMMUNICATIONS

- (a) Each person operating an aircraft on a controlled flight shall maintain a continuous listening watch on the appropriate radio frequency of, and establish two-way communication as required with, the appropriate ATC facility.
- (b) Each person operating an aircraft on a controlled flight shall, except when landing at a controlled airport, advise the appropriate ATC facility as soon as it ceases to be subject to ATC service.

*Note: More specific procedures may be prescribed by the appropriate ATC authority in respect of aircraft forming part of airport traffic at a controlled airport.*

*Note: Automatic signaling devices may be used to satisfy the requirement to maintain a continuous listening watch, if authorized by the Authority.*

- (c) All flight crew members required to be on flight deck duty shall communicate through boom or throat microphones below the transition level/altitude.

#### 8.8.2.4 ROUTE TO BE FLOWN

- (a) Unless otherwise authorized or directed by the appropriate ATC facility, the PIC of a controlled flight shall, in so far as practicable
- (1) When on an established ATC route, operate along the defined centre line of that route; or
  - (2) When on any other route, operate directly between the navigation facilities and/or points defining that route.
- (b) The PIC of a controlled flight operating along an ATC route defined by reference to VORs shall change over for primary navigation guidance from the facility behind the aircraft to that ahead of it or as close as operationally feasible to the change-over point where established.

*Note: These requirements do not prohibit maneuvering the aircraft to pass well clear of other air traffic or the maneuvering of the aircraft in VFR conditions to clear the intended flight path both before and during climb or descent.*

#### **8.8.2.5 INADVERTENT CHANGES**

- (a) A PIC shall take the following action in the event that a controlled flight inadvertently deviates from its current flight plan:
- (1) *Deviation from track.* If the aircraft is off track, the PIC shall adjust the heading of the aircraft to regain track as soon as practicable.
  - (2) *Variation in true airspeed.* Each PIC shall inform the appropriate ATC facility if the average true airspeed at cruising level between reporting points varies by plus or minus Mach 0.02 or more, or plus or minus 19 km/h (10kt) true airspeed or more from the current flight plan.
  - (3) *Change in time estimate.* Except where ADS-C is Activated and serviceable in airspace where ADS-C services are provided, if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, changes in excess of 2 minutes from that previously notified to air traffic services, or such other period of time as is prescribed by the appropriate ATS authority or on the basis of regional air navigation, the flight crew shall notify the appropriate air traffic services unit as soon as possible.
- (b) When ADS-C services are provided and ADS-C is activated, the air traffic services unit shall be informed automatically via data link whenever changes occur beyond the threshold values stipulated by the ADS event contract.

#### **8.8.2.6 ATC CLEARANCE: INTENDED CHANGES**

- (a) Requests for flight plan changes shall include the following information:
- (1) *Change of cruising level.* Aircraft identification, requested new cruising level and cruising speed at this level, and revised time estimates, when applicable, at subsequent flight information region boundaries.
  - (2) *Change of route-*
    - (i) *Destination unchanged.* Aircraft identification, flight rules; description of new route of flight including related flight plan data beginning with the position from which requested change of route is to commence; revised time estimates, and any other pertinent information.
    - (ii) *Destination change.* Aircraft identification; flight rules; description of revised route of flight to revised destination airport including related flight plan data, beginning with the position from which requested change of route is to commence; revised time estimates; alternate airport(s); any other pertinent information.

#### **8.8.2.7 POSITION REPORTS**

- (a) Each pilot of a controlled flight shall report to the appropriate ATC facility, as soon as possible, the time and level of passing each designated compulsory reporting point, together with any other required information, unless exempted from this requirement by the appropriate ATC authority.

- (b) Each pilot of a controlled flight shall make position reports in relation to additional points or intervals when requested by the appropriate ATC facility.
- (c) When operating via data link communications providing position information to the appropriate air traffic services unit, each pilot of a controlled flight shall only provide voice position reports when requested by the appropriate ATC facility.

#### **8.8.2.8 OPERATIONS ON OR IN THE VICINITY OF A CONTROLLED AIRPORT**

- (a) No person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way communications are maintained between that aircraft and the control tower.
- (b) On arrival, each PIC shall establish communications required by paragraph (a) prior to 4 nautical miles from the airport when operating from the surface up to and including 2,500 feet.
- (c) On departure, each PIC shall establish communications with the control tower prior to taxi.
- (d) Take-off landing, taxi clearance. No person may, at any airport with an operating control tower, operate an aircraft on a runway or taxiway or take-off or land an aircraft, unless an appropriate clearance has been received by ATC.

*Note: A clearance to -taxi to" the take-off runway is not a clearance to cross or taxi on to that runway. It does authorize the PIC to cross other runways during the taxi to the assigned runway. A clearance to -taxi to" any other point on the airport is a clearance to cross all runways that intersect the taxi route to the assigned point.*

- (e) *Communications failure.* If the radio fails or two-way communication is lost, a PIC may continue a VFR flight operation and land if
  - (1) The weather conditions are at or above basic VFR minimums; and
  - (2) Clearance to land from the ATC tower is given in accordance with the universal light signals and acknowledged by the PIC as contained in IS: 8.8.2.11 (e) and (f) for light signals and acknowledgement.

*Note: During IFR operations, the two-way communications failure procedures in Subpart 8.8.4.19(a) (3) will apply.*

#### **8.8.2.9 UNLAWFUL INTERFERENCE**

- (a) A PIC shall, when and if possible, notify the appropriate ATC facility when an aircraft is being subjected to unlawful interference, including:
  - (1) Any significant circumstances associated with the unlawful interference; and
  - (2) Any deviation from the current flight plan necessitated by the circumstances.
- (b) If an aircraft is subjected to unlawful interference, the PIC shall attempt to land as soon as practicable at the nearest suitable aerodrome or at a dedicated aerodrome assigned by the appropriate authority unless considerations aboard the aircraft dictate otherwise.

#### **8.8.2.10 TIME CHECKS**

- (a) Each PIC shall use Coordinated Universal Time (UTC), expressed in hours and minutes of the 24-hour day beginning at midnight, in flight operations.

- (b) Each PIC shall obtain a time check prior to operating a controlled flight and at such other times during the flight as may be necessary.
- (c) Whenever time is used in the application of data link communications, it shall be accurate to within one second of UTC.

*Note: The time checks above in 8.8.2.10 (a) and (b) are normally obtained from an air traffic services unit unless other arrangements have been made by the operator or by the appropriate ATC authority.*

### 8.8.2.11 UNIVERSAL SIGNALS

- (a) Upon observing or receiving any of the designated universal aviation signals as contained in IS: 8.8.2.11 and IS: 8.8.1.28, each person operating an aircraft shall take such action as may be required by the interpretation of the signal.
- (b) Universal aviation signals shall have only the meanings designated.
- (c) Each person using universal signals in the movement of aircraft shall only use them for the purpose indicated.
- (d) No person may use signals likely to cause confusion with universal aviation signals.

### 8.8.3 VFR FLIGHT RULES AND AIRSPACE DESIGNATION

#### 8.8.3.1 VISUAL METEOROLOGICAL CONDITIONS AND AIRSPACE DESIGNATION

- (a) No person may operate an aircraft under VFR when the flight visibility is less than, or at a distance from the clouds that is less than that prescribed, or the corresponding altitude and class of airspace in the following table:

| Airspace and VMC Minimums* |   |  |   |
|----------------------------|---|--|---|
| Airspace Class             | A*** B C D E  | F G  |   |
|                            |   | Above 900m (3,000ft) MSL or above 300m (1,000ft) above terrain, whichever is higher. | At and below 900m (3,000ft) MSL, or 300m (1,000ft) above terrain, whichever is higher |
| Distance from cloud        | 1,500 m horizontally 300m (1,000 ft) vertically                                   |  | Clear of cloud and in sight of the surface.   |
| Flight visibility          | 8 km at and above 3,050 in (10,000 ft) AMSL<br>5 km below 3,050m (10,000 ft) AMSL |  | 5 km**  |

\* When the height of the transition altitude is lower than 3,050 in (1,000 ft) AMSL, FL 100 should be used in lieu of 10,000ft.

\*\* When so prescribed by the appropriate ATC authority:

Lower flight visibilities to 1,500 m may be permitted for flights operating:

- At speeds that, in the prevailing visibility, will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; or
- In circumstances in which the probability of encounters with other traffic would normally be low, e.g. in areas of low volume traffic and for aerial work at low levels.

Helicopters may be permitted to operate in less than 1,500 m flight visibility, if maneuvered at a speed that will give adequate opportunity to observe other traffic or any obstacles in time to avoid collision.

\*\*\* The VMC minima in Class A airspace are included for guidance to pilots and do not imply acceptance of VFR flights in Class A airspace.

(b) Airspace Classification – Services Provided and Flight Requirements:

| Class | Type of Flight | Separation Provided              | Service Provided  | Radio Communication Requirement | Subject to an ATC Clearance |
|-------|----------------|----------------------------------|---|---------------------------------|-----------------------------|
| A     | IFR only       | All aircraft                     | Air traffic control service   | Continuous two-way              | Yes                         |
| B     | IFR            | All aircraft                     | Air traffic control service   | Continuous two-way              | Yes                         |
|       | VFR            | All aircraft                     | Air traffic control service   | Continuous two-way              | Yes                         |
| C     | IFR            | IFR from IFR, IFR from VFR       | Air traffic control service   | Continuous two-way              | Yes                         |
|       | VFR            | VFR from IFR                     | a. ATC service for separation from IFR, and<br>b. VFR/VFR traffic information (and traffic avoidance advice on request) | Continuous two-way              | Yes                         |
| D     | IFR            | IFR from IFR                     | 1) ATC service, and<br>2) Traffic information about VFR flights (and traffic avoidance advice on request)               | Continuous two-way              | Yes                         |
|       | VFR            | Nil                              | IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)                                       | Continuous two-way              | Yes                         |
| E     | IFR            | IFR from IFR                     | ATC service and, as far as practical, traffic information about VFR flights   | Continuous two-way              | Yes                         |
|       | VFR            | Nil                              | Traffic information as far as practical.  | No                              | No                          |
| F     | IFR            | IFR from IFR as far as practical | Air traffic advisory service and flight information service   | Continuous two-way              | No                          |
|       | VFR            | Nil                              | Flight information service  | No                              | No                          |
| G     | IFR            | Nil                              | Flight information service  | Continuous two-way              | No                          |
|       | VFR            | Nil                              | Flight information service  | No                              | No                          |

(c) Airspace designation in Republic of the Philippines:

- (1) Class A airspace: IFR flights only are permitted. All flights are provided with air traffic control service and are separated from each other.
- (2) Class B airspace: IFR and VFR flights are permitted. All flights are provided with air traffic control service and are separated from each other.
- (3) Class C airspace: IFR and VFR flights are permitted. All flights are provided with air traffic control service and IFR flights are separated from other IFR flights and

from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.

- (4) Class D airspace: IFR and VFR flights are permitted and all flights are provided with air traffic control service. IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights. VFR flights receive traffic information in respect of all other flights.
- (5) Class E airspace: IFR and VFR flights are permitted. IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practicable.
- (6) Class F airspace: IFR and VFR flights are permitted. All participating IFR flights receive an air traffic advisory service and all flights receive flight information service if requested.
- (7) Class G airspace: IFR and VFR flights are permitted and receive flight information service if requested.

(d) Within the Manila FIR, the airspace is divided and classified as follows:

| <b>AIRSPACE</b>   | <b>LEVELS</b>                | <b>CLASSIFICATION</b> |
|---|------------------------------|-----------------------|
| <b>Manila FIR Upper Control Area<br/>(except special use airspace)</b>          | <b>FL 200 – Unlimited</b>    | <b>A</b>              |
| <b>Oceanic Airspace</b>   | <b>FL 65 – Unlimited</b>     | <b>A</b>              |
| <b>ATS Routes and TMA</b>   | <b>Lower limit – FL 200</b>  | <b>E</b>              |
| <b>Control Zones</b>  | <b>Surface – Upper limit</b> | <b>D</b>              |
| <b>Aerodrome Traffic Zones in Airports with Aerodrome Control Service</b>       | <b>Surface – Upper limit</b> | <b>D</b>              |
| <b>Aerodrome Advisory Zones with Airports without Aerodrome Control Service</b> | <b>Surface – Upper limit</b> | <b>F</b>              |
| <b>Uncontrolled Airspace</b>  |                              | <b>G</b>              |

**8.8.3.2 VFR WEATHER MINIMUMS FOR TAKE-OFF AND LANDING**

- (a) No person may land or takeoff an aircraft under VFR from an aerodrome located within a control zone, or enter the aerodrome traffic zone or traffic pattern airspace unless the:
  - (1) Reported ceiling is at least 450 m (1,500 ft); and
  - (2) Reported ground visibility is at least 5 km; or, except when a clearance is obtained from ATC.
- (b) No person may land or takeoff an aircraft or enter the traffic pattern under VFR from an airport located outside a control zone, unless VMC conditions are at or above those indicated in Subpart 8.8.3.1.
- (c) The only exception to the required weather minimums of this subsection is during a Special VFR operation.

**8.8.3.3 SPECIAL VFR OPERATIONS**

- (a) No person may conduct a Special VFR flight operation to enter the traffic pattern, land or takeoff an aircraft under Special VFR from an airport located in Class B, Class C, Class D or Class E airspace unless:
  - (1) Authorized by an ATC clearance, under exceptional circumstances;
  - (2) The aircraft remains clear of clouds; and
  - (3) The flight visibility is at least 5 km.
- (b) No person may conduct a Special VFR flight operation in an aircraft between sunset and sunrise.

**8.8.3.4 VFR CRUISING ALTITUDES**

- (a) Each person operating an aircraft in level cruising flight under VFR at altitudes above 900 m (3,000 ft) from the ground or water, shall maintain a flight level appropriate to the track as specified in the table of cruising levels in IS: 8.8.3.4.
- (b) Paragraph (a) does not apply when otherwise authorized by ATC, when operating in a holding pattern, or during maneuvering in turns.

**8.8.3.5 ATC CLEARANCES FOR VFR FLIGHTS**

- (a) Each pilot of a VFR flight shall obtain and comply with ATC clearances and maintain a listening watch before and during operations
  - (1) Within Classes B, C and D airspace;
  - (2) As part of airport traffic at controlled airports; and
  - (3) Under Special VFR.

**8.8.3.6 VFR FLIGHTS REQUIRING ATC AUTHORIZATION**

- (a) Unless authorized by the appropriate ATC authority, no pilot may operate in VFR flight
  - (1) Above FL 200; or
  - (2) At transonic and supersonic speeds.

- (b) ATC authorization for VFR flights may not be granted in areas where a VSM of only 300m (1,000 ft) is applied above FL 290.
- (c) No person may operate in VFR flight between sunset and sunrise unless:
  - (1) Authorized by the appropriate ATC authority, and
  - (2) Operating in accordance with any conditions prescribed by the Authority.

#### **8.8.3.7 WEATHER DETERIORATION BELOW VMC**

- (a) Each pilot of a VFR flight operated as a controlled flight shall, when he or she finds it is not practical or possible to maintain flight in VMC in accordance with the ATC flight plan
  - (1) Request an amended clearance enabling the aircraft to continue in VMC to its destination or to an alternative airport. or to leave the airspace within which an ATC clearance is required;
  - (2) If no clearance can be obtained. continue to operate in VMC and notify the appropriate ATC facility of the action being taken either to leave the airspace concerned or to land at the nearest suitable airport;
  - (3) Operating within a control zone. request authorization to operate as a special VFR flight; or
  - (4) Request clearance to operate in IFR, if currently rated for IFR operations.

#### **8.8.3.8 CHANGING FROM VFR TO IFR**

- (a) Each pilot operating in VFR who wishes to change to IFR shall
  - (1) If a flight plan was submitted, communicate the necessary changes to be effected to its current flight plan; or
  - (2) Submit a flight plan to the appropriate ATC facility and obtain a clearance prior to proceeding IFR when in controlled airspace.

#### **8.8.3.9 TWO-WAY RADIO COMMUNICATION FAILURE IN VFR**

- (a) If radio failure occurs in VFR while under ATC control, or if VFR conditions are encountered after the failure, each pilot shall:
  - (1) Continue the flight under VFR;
  - (2) Land at the nearest suitable airport: and
  - (3) Report arrival to ATC by the most expeditious means possible.

### **8.8.4 IFR FLIGHT RULES**

#### **8.8.4.1 APPLICABILITY**

- (a) All aircraft operated in accordance with instrument flight procedures shall comply with the IFR, and the airport/heliport instrument approach procedures approved by the State in which the operation will take place.

*Note 1: Information for pilots on flight procedure parameters and operational procedures is contained in ICAO Doc 8168, PANS-OPS, Volume I. Criteria for the construction of visual and instrument flight procedures are contained in ICAO DOC 8186, PANS-OPS, Volume II. Obstacle clearance criteria and procedures used in*

*certain States may differ from PANS-OPS, and knowledge of these differences is important for safety reasons.*

*Note 2: See ICAO Annex 6, Part 1 4.2.8.3 for instrument approach operation classifications.*

- (b) Airplanes: One or more instrument approach procedures designed to support instrument approach operations shall be approved and promulgated by the Authority in which the aerodrome is located to serve each instrument runway or aerodrome utilized for instrument flight operations.
- (c) Helicopters: One or more instrument approach procedures to serve each final approach and take-off area or heliport utilized for instrument flight operations shall be approved and promulgated by the State in which the heliport is located, or by the State which is responsible for the heliport when located outside the territory of any State.

#### **8.8.4.2 IFR IN CONTROLLED AIRSPACE**

- (a) No person may operate an aircraft in controlled airspace under IFR unless that person has
  - (1) Filed an IFR flight plan; and
  - (2) Received an appropriate ATC clearance.

#### **8.8.4.3 IFR FLIGHTS OUTSIDE CONTROLLED AIRSPACE**

- (a) Each PIC of an IFR flight operating outside controlled airspace but within or into areas, or along routes, designated by the appropriate ATC authority, shall maintain a listening watch on the appropriate radio frequency and establish two-way communication, as necessary, with the ATC facility providing flight information service.
- (b) Each PIC of an IFR flight operating outside controlled airspace for which the appropriate ATC authority requires a flight plan, a listening watch on the appropriate radio frequency and establishment of two-way communication, as necessary, with the ATC facility providing flight information service, shall report position as specified for controlled flights.

#### **8.8.4.4 IFR TAKE-OFF MINIMUMS FOR COMMERCIAL AIR TRANSPORT**

- (a) Unless otherwise authorized by the Authority, no pilot operating an aircraft in commercial air transport operations may accept a clearance to take off from a civil airport under IFR unless weather conditions are at or above
  - (1) For aircraft; other than helicopters, having two engines or less: 1,500 m (1 statute mile) visibility.
  - (2) For aircraft having more than two engines: 800 m (1/2 statute mile) visibility.
  - (3) For helicopters: 800 m (1/2 statute mile) visibility.

#### **8.8.4.5 MINIMUM ALTITUDES FOR IFR OPERATIONS**

- (a) Operation *of aircraft at minimum altitudes*. Except when necessary for take-off or landing, no person may operate an aircraft under IFR below

- (1) The applicable minimum altitudes prescribed by the authorities having jurisdiction over the airspace being over-flown; or
  - (2) If no applicable minimum altitude is prescribed by the authorities-
    - (i) Over high terrain or in mountainous areas, at a level which is at least 600m (2,000ft) above the highest obstacle located within 8 km of the estimated position of the aircraft; and
    - (ii) Elsewhere than as specified in paragraph (a), at a level which is at least 300m (1,000ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.
  - (3) If an MEA and a MOCA are prescribed for a particular route or route segment, a person may operate an aircraft below the MEA down to, but not below the MOCA, when within 22 nautical miles of the VOR concerned.
- (b) *Climb for obstacle clearance.*
- (1) If unable to communicate with ATC, each pilot shall climb to a higher minimum IFR altitude immediately after passing the point beyond which that minimum altitude applies
  - (2) If ground obstructions intervene, each pilot shall climb to a point beyond which that higher minimum altitude applies, at or above the applicable MCA.

#### **8.8.4.6 MINIMUM ALTITUDES FOR USE OF AN AUTOPILOT**

- (a) For en route operations, no person may use an autopilot at an altitude above the terrain that is less than 500 feet.
- Note: If the maximum altitude loss specified in the AFM for a malfunction under cruise conditions when multiplied by two is more than 500 feet, then it becomes the controlling minimum altitude for use of the autopilot.*
- (b) For instrument approach operations, no person may use an autopilot at an altitude above the terrain that is less than 50 feet below the MDA or DH.
- Note: If the maximum altitude loss specified in the AFM for a malfunction under approach conditions when multiplied by two is more than 50 feet, then it becomes the controlling minimum altitude for use of the autopilot.*
- (c) For Category II and III approaches, the Authority may approve the use of a flight control guidance system with automatic capability to touchdown.
- Note: For Category I approaches, see Implementing Standards IS: 8.8.4.6.*

#### **8.8.4.7 IFR CRUISING ALTITUDE OR FLIGHT LEVEL IN CONTROLLED AIRSPACE**

- (a) Each person operating an aircraft under IFR in level cruising flight in controlled airspace shall maintain the altitude or flight level assigned that aircraft by ATC.
- (b) If the ATC clearance assigns "VFR conditions on-top," each person shall maintain a VFR cruising altitude in VMC.
- (c) Paragraph (b) above does not apply when otherwise authorized by ATC or specified by the appropriate ATC authority in Aeronautical Information Publications.
- (d) The requirements for VFR cruising altitudes are in Subpart 8.8.3.4.

**8.8.4.8 IFR CRUISING ALTITUDE OR FLIGHT LEVEL IN UNCONTROLLED AIRSPACE**

- (a) Each person operating an aircraft in level cruising flight under IFR, outside of controlled airspace, shall maintain a flight level appropriate to the track as specified in the table of cruising levels in IS: 8.8.3.4 or according to a modified table of cruising levels when so prescribed in accordance with IS: 8.8.3.4 for flight above FL 410.
- (b) A person may deviate from the cruising altitudes specified in paragraph (a) only when:
  - (1) Authorized by ATC for flight at or below 900 m (3,000 ft) above MSL; or
  - (2) When otherwise authorized by ATC.

**8.8.4.9 IFR RADIO COMMUNICATIONS**

- (a) Each PIC of an aircraft operated under IFR in controlled airspace shall have a continuous watch maintained on the appropriate frequency and shall report by radio as soon as possible
  - (1) The time and altitude of passing each designated reporting point, or the reporting points specified by ATC, except that while the aircraft is under radar control, only the passing of those reporting points specifically requested by ATC need be reported;
  - (2) Any un-forecast weather conditions encountered; and
  - (3) Any other information relating to the safety of flight, such as hazardous weather or abnormal radio station indications.

**8.8.4.10 OPERATION UNDER IFR IN CONTROLLED AIRSPACE: MALFUNCTION REPORTS**

- (a) The PIC of each aircraft operated in controlled airspace under IFR shall report as soon as practical to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight.
- (b) In each report specified in paragraph (a), the PIC shall include the
  - (1) Aircraft identification;
  - (2) Equipment affected,
  - (3) Degree to which the capability of the pilot to operate under IFR in the ATC system is impaired; and
  - (4) Nature and extent of assistance desired from ATC.

**8.8.4.11 CONTINUATION OF IFR FLIGHT TOWARD A DESTINATION**

- (a) For commercial air transport operations:

A flight shall not be continued towards the airport/heliport of intended landing, unless the latest available information indicates that at the expected time of arrival, a landing can be affected at that airport/heliport or at least one destination alternate airport/heliport, in compliance with the operating minima established in accordance with Subpart 8.8.1.7 (b).

- (b) For General Aviation operations:

A flight shall not be continued towards the airport/heliport of intended landing unless the latest available meteorological information indicates that conditions at that airport/heliport, or at least one destination alternate airport/heliport, will, at the estimated time of arrival, be at or above the specified airport/heliport operating minima in accordance with Subpart 8.8.1.7 (b).

#### **8.8.4.12 INSTRUMENT APPROACH PROCEDURES AND IFR LANDING MINIMUMS**

- (a) No person may make an instrument approach at an airport/heliport except in accordance with IFR weather minimums and instrument approach procedures established for that airport/heliport set forth by the Authority.
- (b) No AOC holder may make an instrument approach at an airport/heliport except as set forth in the AOC holder's operations specifications.

#### **8.8.4.13 CONTINUATION OF AN INSTRUMENT APPROACH**

- (a) In commercial air transport operations, no pilot may continue an approach past the final approach fix (FAF), or where a FAF is not used, begin the final approach segment of an instrument approach procedure, at any airport/heliport unless:
- (1) A source approved by the Authority issues a weather report for that airport/heliport; and
  - (2) The latest weather report for that airport/heliport reports the visibility or controlling RVR to be equal to or more than the minimums prescribed for that procedure.
- (b) If a pilot begins the final approach segment of an instrument approach procedure and subsequently receives a weather report indicating below-minimum conditions, the pilot may continue the approach to DH or MDA.

*Note: For the purpose of this subsection, the final approach segment begins at the final approach fix or facility prescribed in the instrument approach procedure. When a final approach fix is not prescribed for a procedure that includes a procedure turn, the final approach segment begins at the point where the procedure turn is completed and the aircraft is established inbound toward the airport on the final approach course within the distance prescribed in the procedure.*

- (c) An instrument approach shall not be continued below 300 m (1,000 ft.) above the aerodrome elevation or into the final approach segment unless the reported unless visibility or controlling RVR is at or above the aerodrome operating minima.

*Note: Criteria for the Final Approach Segment is contained in PANS-OPS (Doc 8168), Volume II.*

- (d) If, after entering the final approach segment or after descending below 300 m (1,000 ft.) above the aerodrome elevation, the reported visibility or controlling RVR falls below the specified minimum, the approach may be continued to DA/H or MDA/H. In any case, an airplane shall not continue approach-to-land any aerodrome beyond a point at which the limits of the operating minima specified for that aerodrome would be infringed.

*Note: Controlling RVR means the reported values of one or more RVR reporting locations (touchdown, mid-point and stop-end) used to determine whether operating*

*minima are or are not met. Where RVR is used, the controlling RVR is the touchdown RVR, unless otherwise specified by the Authority.*

- (e) An approach to land shall not be continued below 300 m (1000 ft) above aerodrome elevation unless the pilot-in-command is satisfied that, with the runway surface condition information available, the airplane performance information indicates that a safe landing can be made.

*Note 1. – The procedures used by aerodromes to assess and report runway surface conditions are contained in the PANS-Aerodromes (Doc 9981) and those for using runway surface condition information on board aircraft in the Aeroplane Performance Manual (ICAO Doc 10064).*

*Note 2. – Guidance on development of aeroplane performance information is contained in the Aeroplane Performance Manual (ICAO Doc 10064).*

#### **8.8.4.14 INSTRUMENT APPROACHES TO CIVIL AIRPORTS**

- (a) Each person operating a civil aircraft shall use a standard instrument approach procedure prescribed by the authorities having jurisdiction over the airport, unless otherwise authorized by the Authority.
- (b) Authorized DH or MDA. For the purpose of this section, when the approach procedure being used provides for and requires the use of a DH or MDA the authorized DH or MDA is the highest of the following:
  - (1) The DH or MDA prescribed by the approach procedure.
  - (2) The DH or MDA prescribed for the PIC.
  - (3) The DH or MDA for which the aircraft is equipped.

#### **8.8.4.15 OPERATION BELOW DH OR MDA**

- (a) Where a DH or MDA is applicable, no pilot may operate a civil aircraft at any airport or heliport below the authorized MDA, or continue an approach below the authorized DH unless:
  - (1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers;
  - (2) For commercial air transport operations, a descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;
  - (3) The reported flight visibility is not less than the visibility prescribed in the standard instrument approach being used or the controlling RVR is above the specified minimum; and
  - (4) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot-
    - (i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.
    - (ii) The threshold;
    - (iii) The threshold markings;
    - (iv) Threshold lights;

- (v) The runway end identifier lights;
- (vi) The visual approach slope indicator;
- (vii) The touchdown zone or touchdown zone markings;
- (viii) The touchdown zone lights;
- (ix) The runway or runway markings; or
- (x) The runway lights.

*Note 1: Controlling RVR means the reported values of one or more RVR reporting locations (touchdown, mid-point and stop-end) used to determine whether operating minima are or are not met. Where RVR is used, the controlling RVR is the touchdown RVR, unless otherwise specified by Republic of the Philippines criteria.*

*Note 2: The visual references above do not apply to Category II and III operations. The required visual references under Category II and III operations are stated in the Operator's approved operations specifications or in a special authorization prescribed by the Authority.*

#### **8.8.4.16 LANDING DURING INSTRUMENT METEOROLOGICAL CONDITIONS**

- (a) No pilot operating a civil aircraft may land that aircraft when the flight visibility is less than the visibility prescribed in the standard instrument approach procedure being used.

#### **8.8.4.17 EXECUTION OF A MISSED APPROACH PROCEDURE**

- (a) Each pilot operating a civil aircraft shall immediately execute an appropriate missed approach procedure when either of the following conditions exist:
  - (1) Whenever the required visual reference criteria is not met in the following situations:
    - (i) When the aircraft is being operated below MDA; or
    - (ii) Upon arrival at the missed approach point, including a DH where a DH is specified and its use is required, and at any time after that until touchdown.
  - (2) Whenever an identifiable part of the airport is not distinctly visible to the pilot during a circling maneuver at or above MDA, unless the inability to see an identifiable part of the airport results only from a normal bank of the aircraft during the circling approach.

#### **8.8.4.18 CHANGE FROM IFR FLIGHT TO VFR FLIGHT**

- (a) An pilot electing to change from IFR flight to VFR flight shall notify the appropriate ATC facility specifically that the IFR flight is cancelled and then communicate the changes to be made to his or her current flight plan.
- (b) When a pilot operating under IFR encounters VMC, he or she may not cancel the IFR flight unless it is anticipated, and intended, that the flight will be continued for a reasonable period of time in uninterrupted VMC.

#### **8.8.4.19 TWO-WAY RADIO COMMUNICATIONS FAILURE IN IFR**

- (a) If two-way radio communication failure occurs in IFR conditions, or if continued flight in VFR is judged not feasible, each pilot shall continue the flight according to the following:

- (1) Route-
  - (i) By the route assigned in the last ATC clearance received,
  - (ii) If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance,
  - (iii) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or
  - (iv) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.
- (2) Altitude. At the highest of the following altitudes or flight levels for the route segment being flown-
  - (i) The altitude or flight level assigned in the last ATC clearance received;
  - (ii) The minimum altitude (converted, if appropriate, to minimum flight level for IFR operations); or
  - (iii) The altitude or flight level ATC advised may be expected in a further clearance.
- (3) Leave clearance limit:
  - (i) When the clearance limit is at a fix from which an approach begins, commence descent or descent and approach:
    - (A) As close as possible to the expect-further-clearance time if one has been received; or
    - (B) If one has not been received, as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time en route.
  - (ii) If the clearance limit is not a fix from which an approach begins:
    - (A) Leave the clearance limit at the expect-further-clearance time if one has been received, or if none has been received, upon arrival over the clearance limit;
    - (B) Proceed to a fix from which an approach begins; and
    - (C) Commence descent or descent and approach as close as possible to the ETA as calculated from the filed or amended with ATC estimated time en route.

#### **8.8.4.20 THRESHOLD CROSSING HEIGHT FOR PRECISION APPROACHES**

- (a) An operator shall establish operational procedures designed to ensure that an airplane being used to conduct precision approaches crosses the threshold by a safe margin with the airplane in the landing configuration and attitude.

#### **8.8.4.21 ADDITIONAL REQUIREMENTS FOR OPERATIONS OF HELICOPTERS IN PERFORMANCE CLASS 3 IN IMC, EXCEPT SPECIAL VFR FLIGHTS**

- (a) Operations in performance Class 3 in IMC shall be conducted only over a surface environment acceptable to the competent authority of the State over which the operations are performed.
- (b) In approving operations by helicopters operating in performance Class 3 in IMC, the operator shall ensure that the helicopter is certificated for flight under IFR and that the

overall level of safety intended by the provisions of CAR Parts 5, 8 and 9 is provided by:

- (1) the reliability of the engines;
  - (2) the operator's maintenance procedures, operating practices and crew training programs; and
  - (3) equipment and other requirements provided in accordance with Appendix 2 to Annex 6 Part III.
- (c) Operations of helicopters operating in performance Class 3 in IMC shall have a program for engine trend monitoring and shall utilize the engine and helicopter manufacturers' recommended instruments, systems and operational/maintenance procedures to monitor the engines.
- (d) *In order to minimize the occurrence of mechanical failures, helicopters operating in IMC in performance Class 3 should utilize vibration health monitoring for the tail-rotor drive system.*

#### **8.8.4.22 ADDITIONAL REQUIREMENTS FOR SINGLE PILOT OPERATIONS UNDER THE INSTRUMENT FLIGHT RULES (IFR) OR AT NIGHT**

- (a) An airplane shall not be operated under the IFR or at night by a single pilot unless approved by the Authority.
- (b) An airplane shall not be operated under the IFR or at night by a single pilot unless:
- (1) the flight manual does not require a flight crew of more than one;
  - (2) the airplane is propeller-driven;
  - (3) the maximum approved passenger seating configuration is not more than nine;
  - (4) the maximum certificated take-off mass does not exceed 5,700 kg;
  - (5) the airplane is equipped as described in part 7, Subpart 7.8.11; and
  - (6) the pilot-in-command has satisfied requirements of experience, training, checking and recency described in Subpart 8.10.1.50.

#### **8.8.4.23 ADDITIONAL REQUIREMENTS FOR SINGLE-ENGINE TURBINE POWERED AIRPLANES AT NIGHT AND/OR IN INSTRUMENT METEOROLOGICAL CONDITIONS (IMC)**

- (a) In approving operations by single-engine turbine-powered airplanes at night and/or in IMC the Authority shall ensure that the airworthiness certification of the airplane is appropriate and that the overall level of safety intended by the provisions of Annexes 6 and 8 is provided by:
- (1) the reliability of the turbine engine;
  - (2) the operator's maintenance procedures, operating practices, flight dispatch procedures and crew training programs; and
  - (3) equipment and other requirements provided in accordance with ICAO Annex 6 Part 1, Appendix 3.
- (b) All single-engine turbine-powered airplanes operated at night and/or in IMC shall have an engine trend monitoring system, and those airplanes for which the individual Certificate of Airworthiness is first issued on or after 1 January 2005 shall have an automatic trend monitoring system.

**8.8.4.24 RESTRICTED AND PROHIBITED AREAS**

- (a) No person may operate an aircraft within a restricted area as published in the AIP contrary to the restrictions imposed, or within a prohibited area as published in the AIP, unless that person has the permission of the using or controlling agency, as appropriate.
- (b) Each person conducting, an aircraft operation within a restricted area (approved by the using agency) that creates the same hazards as the operations for which the restricted area was designated may deviate from the rules of this subpart that are not compatible with the operation of the aircraft.

**8.8.4.25 FLIGHT INTO RESTRICTED AIRSPACE (RP-P1)**

- (a) The rule on this section should be strictly adhered to before a flight could commence within the Malacañang (RP-P1).
- (b) Helicopter pilots/operators should first request in writing a PSG clearance addressed to the Commanding, PSG (Attn: OG3) with the following information:
  - (1) Time and date of actual flight;
  - (2) Registration number of aircraft;
  - (3) Type and capacity of aircraft;
  - (4) Name of pilots and crew;
  - (5) Name of all VIP/ passenger(s) on board; and
  - (6) Proposed Flight Plan.
- (c) The PSG clearance shall be submitted to Domestic Flight Operations Briefing Station (DFOBS) as an attachment to the Flight Plan;
- (d) The Flight Plan, together with the PSG clearance, will be presented to the 250th Presidential Airlift Wing Operation Center for RP-P1 airspace limits flight briefing;
- (e) Upon airborne, the pilot shall contact call sign "PAPA ONE" of the Group Operations Center, PSG at 11.5 MHz (primary) or 133.0 MHz (secondary) before entering RP-P1 airspace and observe designated gates of entry within the 2 nautical miles (3.71 km) radius;
- (f) In situations where a VIP passenger has to immediately proceed to Malacañang Park. The pilot should at once contact "PAPA ONE" for clearance informing of a VIP passenger on board and the reason for urgency to proceed to Malacañang Park. The aircraft shall hold on a designated holding area until a clearance is given to proceed. The pilot shall then inform MNL TWR at 118.1 MHz informing that he is flying into RP-P1 and that a clearance has been granted by the PSG before entering RP-P1 airspace. The time of granting such clearance should be specified.
- (g) Accidental intrusions are strictly unauthorized and the pilot should coordinate with "PAPA ONE" at frequency 119.5 MHz for proper instructions:
  - (1) Two (2) days for overfly;
  - (2) Three (3) days for landing at Area III; and
  - (3) Ten (10) days for aerial flights.
- (h) In operation like paradrop, aerial photography, and request for clearance to operate a helipad, strict adherence to PSG SOP 9-99 dated June 12, 1999 is enjoined.

**8.9 PASSENGERS AND PASSENGER HANDLING****8.9.1 ALL PASSENGER CARRYING OPERATIONS****8.9.1.1 UNACCEPTABLE CONDUCT**

- (a) No person on board may interfere with a crew member in the performance of his or her duties.
- (b) Each passenger shall fasten his or her seat belt and keep it fastened while the seat belt sign is lighted.
- (c) No person on board an aircraft shall recklessly or negligently act or omit to act in such a manner as to endanger the aircraft or persons and property therein.
- (d) No person may secrete himself or herself nor secrete cargo on board an aircraft.
- (e) No person may smoke while the no-smoking sign is lighted.
- (f) No person may smoke in any airplane lavatory.
- (g) No person may tamper with, disable or destroy any smoke detector installed in any airplane lavatory.

**8.9.1.2 REFUELING WITH PASSENGERS ON BOARD**

- (a) Airplanes: No PIC may allow an airplane to be refueled when passengers are embarking, on board or disembarking unless:
  - (1) the airplane is properly attended by qualified personnel ready to initiate and direct an evacuation of the airplane by the most practical and expeditious means available; and
  - (2) two-way communication is maintained by the aircraft's intercommunication system or other suitable means between the ground crew supervising the refueling and the qualified personnel on board the aircraft.

*Note 1.- The provisions of 3.4.3.5.1 do not necessarily require the deployment of integral aeroplane stairs or the opening of emergency exits as a prerequisite to refuelling.*

*Note 2.- Provisions concerning aircraft refuelling are contained in Annex 14, Volume I, and guidance on safe refuelling practices is contained in the Airport Services Manual (Doc 9137), Parts 1 and 8.*

*Note 3.- Additional precautions are required when refuelling with fuels other than aviation kerosene or when refuelling results in a mixture of aviation kerosene with other aviation turbine fuels, or when an open line is used.*

- (b) Helicopters: No PIC may allow a helicopter to be refueled when passengers are embarking, on board, disembarking or when the rotor is turning unless:
  - (1) the helicopter is properly attended by qualified personnel ready to initiate and direct an evacuation of the helicopter by the most practical and expeditious means available; and
  - (2) two-way communication is maintained by the helicopter's intercommunication system or other suitable means between the ground crew supervising the refueling and the qualified personnel on board the helicopter.
  - (3) the operator is granted specific authorization by the Authority setting forth the conditions under which such fueling may be carried out.

**8.9.1.3 PASSENGER SEATS, SAFETY BELTS, AND SHOULDER HARNESSSES**

- (a) The PIC shall ensure that each person on onboard occupies an approved seat or berth with their own individual safety belt and shoulder harness (if installed) properly secured about them during take-off and landing.
- (b) Each passenger shall have his or her seatbelt securely fastened at any other time the PIC determines it is necessary for safety.
- (c) A safety belt provided for the occupant of a seat may not be used during take-off and landing by more than one person who has reached his or her second birthday.

*Note: When cabin crew members are required in a commercial air transport operation, the PIC may delegate this responsibility, but shall ascertain that the proper briefing has been conducted prior to take-off.*

- (d) No operator may prohibit a child, if required by the child's parent, guardian, or designated attendant, from occupying a child restraint system furnished by the child's parent, guardian, or designated attendant, provided the child holds a ticket for an approved seat or berth, or such seat or berth is otherwise made available by the operator for the child's use, and the requirements contained in paragraph (e) below are met. This section does not prohibit the operator from providing the child restraint system, or consistent with safe operating practices, determining the most appropriate passenger seat location for the child restraint system.
- (e) Notwithstanding any other requirements of this Part, a child may occupy an approved child restraint system furnished by the operator or one of the persons described in subparagraph (1) below, provided:
  - (1) The child is accompanied by the child's parent or guardian to attend to the safety of the child during the flight.
  - (2) The operator complies with the following requirements:
    - (i) The restraint system must be properly secured to an approved forward facing seat or berth.
    - (ii) The child must be properly secured in the restraint system and must not exceed the specified weight limit for the restraint system; and
    - (iii) The restraint system must bear the appropriate label(s).

**8.9.1.4 PASSENGER BRIEFING**

- (a) The PIC shall ensure that crew members and passengers are made familiar, by means of an oral briefing or by other means, with the location and use of the following items:
  - (1) Seat belts or harnesses, as appropriate;
  - (2) Emergency exits;
  - (3) Life jackets, if carriage of life jackets is prescribed;
  - (4) Oxygen dispensing equipment, if provision of oxygen for the passengers is prescribed; and
  - (5) Other emergency equipment provided for individual use, including passenger emergency briefing cards.
- (b) The PIC shall ensure that all persons on board are aware of the locations and general manner of use of the principal emergency equipment carried for collective use.

*Note: For commercial air transport operations, the briefing shall contain all subjects approved /by the Authority for the specific operations conducted as included in the pertinent Operations Manual.*

*Note: When cabin crew members are required in a commercial air transport operation, the PIC may delegate this responsibility, but shall ascertain that the proper briefing has been conducted prior to take-off.*

- (c) The PIC shall ensure that, during take-off and landing and whenever by reason of turbulence or any emergency occurring during flight, the precaution is considered necessary, all passengers aboard the aircraft shall be secured in their seats by means of the seat belts or harnesses provided.

*Note: When cabin crew members are required in a commercial air transport operation, the PIC may delegate this responsibility, but shall ascertain that the proper briefing has been conducted.*

#### **8.9.1.5 IN-FLIGHT EMERGENCY INSTRUCTION**

- (a) In an emergency during flight, the PIC shall ensure that all persons on board are instructed in such emergency action as may be appropriate to the circumstances.

*Note: When cabin crew members are required in a commercial air transport operation, the PIC may delegate this responsibility, but shall ascertain that the proper briefing has been conducted.*

#### **8.9.1.6 PASSENGER OXYGEN: MINIMUM SUPPLY AND USE**

- (a) The PIC shall ensure that breathing oxygen and masks are available to passengers in sufficient quantities for all flights at such altitudes where a lack of oxygen might harmfully affect passengers.

- (b) The PIC shall ensure that the minimum supply of oxygen prescribed by the Authority is on board the aircraft.

*Note: The requirements for oxygen storage and dispensing apparatus are prescribed in Part 7.*

- (c) The PIC shall require all passengers to use oxygen continuously at cabin pressure altitudes above 13,000 feet.

#### **8.9.1.7 ALCOHOL OR DRUGS**

- (a) No person may permit the boarding or serving of any person who appears to be intoxicated or who demonstrates, by manner or physical indications, that that person is under the influence of drugs (except a medical patient under proper care).

#### **8.9.1.8 RESTRICTION ON SMOKING ON BOARD AIRCRAFT**

- (a) No operator may permit smoking nor may any person smoke on board any part of an aircraft involved in scheduled and non-scheduled international or domestic flights.

### **8.9.2 COMMERCIAL AIR TRANSPORT PASSENGER CARRYING OPERATIONS**

#### **8.9.2.1 PASSENGER COMPLIANCE WITH INSTRUCTIONS**

- (a) Each passenger on a commercial air transport flight shall comply with instructions given by a crew member in compliance with this section.

#### **8.9.2.2 DENIAL OF TRANSPORTATION**

- (a) An Operator may deny transportation because a passenger
  - (1) Refuses to comply with the instructions regarding exit seating restrictions prescribed by the Authority; or
  - (2) Has a handicap that can be physically accommodated only by an exit row seat.

#### **8.9.2.3 CARRIAGE OF PERSONS WITHOUT COMPLIANCE WITH THESE PASSENGER CARRYING REQUIREMENTS**

- (a) The passenger-carrying requirements of paragraph (b) do not apply when carrying
  - (1) A crew member not required for the flight;
  - (2) A representative of the Authority on official duty;
  - (3) A person necessary to the safety or security of cargo or animals; or
  - (4) Any person authorized by the Operator's Operation Manual procedures, as approved by the Authority.
- (b) No person may be carried without compliance to the passenger carrying requirements unless
  - (1) There is an approved seat with an approved seat belt for that person;
  - (2) That seat is located so that the occupant is not in any position to interfere with the flight crew members performing their duties;
  - (3) There is unobstructed access from their seat to the flight deck or a regular or emergency exit;
  - (4) There is a means for notifying that person when smoking is prohibited and when seat belts shall be fastened; and
  - (5) That person has been orally briefed by a crew member on the use of emergency equipment and exits.

#### **8.9.2.4 CABIN CREW MEMBERS AT DUTY STATIONS**

- (a) During taxi, cabin crew members shall remain at their duty stations with safety belts and shoulder harness fastened except to perform duties related to the safety of the aircraft and its occupants.
- (b) Each cabin crew member assigned to emergency evacuation duties shall occupy a seat provided in accordance with Subpart 7.9.1 during take-off and landing and whenever the PIC so directs, with seat belt or, when provided, safety harness fastened.
- (c) During take-off and landing, cabin crew members shall be located as near as practicable to required floor level exits and shall be uniformly distributed throughout the aircraft to provide the most effective egress of passengers in event of an emergency evacuation.
- (d) When passengers are on board a parked aircraft, cabin crew members (or another person qualified in emergency evacuation procedures for the aircraft) will be placed in the following manner:

- (1) If only one qualified person is required, that person shall be located in accordance with the Operator's Operations Manual procedures.
- (2) If more than one qualified person is required, those persons shall be spaced throughout the cabin to provide the most effective assistance for the evacuation in case of an emergency.

#### **8.9.2.5 EVACUATION CAPABILITY**

- (a) The PIC, SCC and other person assigned by the Operator shall ensure that, when passengers are on board the aircraft prior to movement on the surface, at least one floor-level exit provides for egress of passengers through normal or emergency means.

#### **8.9.2.6 ARMING OF AUTOMATIC EMERGENCY EXITS**

- (a) No person may cause an airplane carrying passengers to be moved on the surface, take-off or land unless each automatically deployable emergency evacuation assisting means installed on the aircraft is ready for evacuation.

#### **8.9.2.7 ACCESSIBILITY OF EMERGENCY EXITS AND EQUIPMENT**

- (a) No person may allow carry-on baggage or other items to block access to the emergency exits when the aircraft is moving on the surface, during take-off or landing, or while passengers remain on board.

#### **8.9.2.8 STOPS WHERE PASSENGERS REMAIN ON BOARD**

- (a) At stops where passengers remain on board the aircraft, the PIC, the co-pilot, or both shall ensure that
  - (1) All engines are shut down;
  - (2) At least one floor level exit remains open to provide for the deplaning of passengers; and
  - (3) There is at least one person immediately available who is qualified in the emergency evacuation of the aircraft and who has been identified to the passengers on board as responsible for the passenger safety.
- (b) If Refueling with passengers on board, the PIC or a designated company representative shall ensure that the operator's Operations Manual procedures are followed.

#### **8.9.2.9 PASSENGERS LOADING AND UNLOADING**

- (a) No person may allow passenger loading or unloading of a propeller driven aircraft unless all engines are shut down, unless the aircraft is using a passenger jet-way to load and unload.

#### **8.9.2.10 CARRIAGE OF PERSONS WITH REDUCED MOBILITY**

- (a) No person may allow a person of reduced mobility to occupy seats where their presence could
  - (1) Impede the crew in their duties,

- (2) Obstruct access to emergency equipment; or
- (3) Impede the emergency evacuation of the aircraft.

#### **8.9.2.11 EXIT ROW SEATING**

- (a) No operator shall allow a passenger to sit in an emergency exit row if the PIC or SCC determines that it is likely that the passenger would be unable to understand and perform the functions necessary to open an exit and to exit rapidly.
- (b) No cabin crew member may seat a person in a passenger exit seat if it is likely that the person would be unable to perform one or more of the applicable functions listed below:
  - (1) The person lacks sufficient mobility, strength, or dexterity in both arms and hands, and both legs:
    - (i) To reach upward, sideways, and downward to the location of emergency exit and exit-slide operating mechanisms;
    - (ii) To grasp and push, pull, turn, or otherwise manipulate those mechanisms;
    - (iii) To push, shove, pull, or otherwise open emergency exits;
    - (iv) To lift out, hold, deposit on nearby seats, or maneuver over the seatbacks to the next row objects the size and mass of over-wing window exit doors;
    - (v) To remove obstructions of size and mass similar to over-wing exit doors;
    - (vi) To reach the emergency exit expeditiously;
    - (vii) To maintain balance while removing obstructions;
    - (viii) To exit expeditiously;
    - (ix) To stabilize an escape slide after deployment; or
    - (x) To assist others in getting off an escape slide.
  - (2) The person is less than 15 years of age or lacks the capacity to perform one or more of the applicable functions listed above without the assistance of an adult companion, parent, or other relative.
  - (3) The person lacks the ability to read and understand instructions required by this section and related to emergency evacuation provided by the AOC holder in printed or graphic form or the ability to understand oral crew commands.
  - (4) The person lacks sufficient visual capacity to perform one or more of the above functions without the assistance of visual aids beyond contact lenses or eyeglasses.
  - (5) The person lacks sufficient aural capacity to hear and understand instructions shouted by cabin crew members, without assistance beyond a hearing aid.
  - (6) The person lacks the ability to adequately impart information orally to other passengers.
  - (7) The person has a condition or responsibilities, such as caring for small children, that might prevent the person from performing one or more of the functions listed above; or a condition that might cause the person harm if he or she performs one or more of the functions listed above.

- (c) Determinations as to the suitability of each person permitted to occupy an exit seat shall be made by the cabin crewmembers or other persons designated in the AOC holder's Operations Manual.
- (d) In the event a cabin crewmember determines that a passenger assigned to an exit seat would be unable to perform the emergency exit functions, or if a passenger requests a non-exit seat, the cabin crew member shall expeditiously relocate the passenger to a non-exit seat.
- (e) In the event of full booking in the non-exit seats, and if necessary to accommodate a passenger being relocated from an exit seat, the cabin crew member shall move a passenger who is willing and able to assume the evacuation functions, to an exit seat.
- (f) Each AOC ticket agent shall, before boarding, assign seats consistent with the passenger selection criteria and the emergency exit functions, to the maximum extent feasible.
- (g) Each AOC ticket agent shall make available for inspection by the public at all passenger loading gates and ticket counters at each aerodrome where the AOC holder conducts passenger operations, written procedures established for making determinations in regard to exit row seating.
- (h) Each cabin crew member shall include in his or her passenger briefings a request that a passenger identify himself or herself to allow reseating if he or she:
  - (1) Cannot meet the selection criteria;
  - (2) Has a non-discernible condition that will prevent him or her from performing the evacuation functions;
  - (3) May suffer bodily harm as the result of performing one or more of those functions; or
  - (4) Does not wish to perform emergency exit functions.
- (i) Each cabin crew member shall include in his or her passenger briefings a reference to the passenger information cards and the functions to be performed in an emergency exit.
- (j) Each passenger shall comply with instructions given by a crewmember or other authorized employee of the AOC holder implementing exit seating restrictions.
- (k) No PIC may allow taxi or pushback unless at least one required crewmember has verified that all exit rows and escape paths are unobstructed and that no exit seat is occupied by a person the crew member determines is likely to be unable to perform the applicable evacuation functions.
- (l) The procedures required by this standard will not become effective until final approval is granted by the Authority. Approval will be based solely upon the safety aspects of the AOC holder's procedures. In order to comply with this standard AOC holders shall:
  - (1) Establish procedures that address the requirements of this standard; and
  - (2) Submit their procedures for preliminary review and approval to the Authority.

#### **8.9.2.12 PROHIBITION AGAINST CARRIAGE OF WEAPONS**

- (a) No person may, while on board an aircraft being operated in commercial air transport, carry on or about their person a deadly or dangerous weapon, either concealed or unconcealed.

- (1) An AOC holder may permit a person to transport a weapon, in accordance with the AOC holder's approved security program, if the weapon is unloaded and both the weapon and ammunition are securely stowed in a place inaccessible to any person during the flight.
- (b) Officials or employees of the State, or crew members, who are authorized to carry weapons on board the aircraft on domestic flights, shall do so in accordance with the AOC holder's approved security program.
  - (1) The PIC shall be notified by the AOC holder as to the number of armed persons and the location of their seats.
- (c) The persons identified in paragraph (b) above, may not carry weapons aboard an international flight unless there is a prior agreement between Republic of the Philippines and the State in which the operation will be either conducted or overflown.

#### **8.9.2.13 OXYGEN FOR MEDICAL USE BY PASSENGERS**

- (a) An Operator may allow a passenger to carry and operate equipment for the storage, generation or dispensing of medical oxygen only as prescribed by the Authority.
- (b) No person may smoke, and no crew member may allow any person to smoke within 10 feet of oxygen storage and dispensing equipment carried for the medical use of a passenger.
- (c) No crew member may allow any person to connect or disconnect oxygen dispensing equipment to or from an oxygen cylinder while any other passenger is aboard the aircraft.

#### **8.9.2.14 CARRY-ON BAGGAGE**

- (a) No person may allow the boarding of carry-on baggage in to the passenger cabin unless it is adequately and securely stowed in accordance with the operator's approved Operations Manual procedures.
- (b) No person may allow aircraft passenger entry doors to be closed in preparation for taxi or pushback unless at least one required crew member has verified that each article of baggage has been properly stowed in overhead racks with approved restraining devices or doors or in approved locations aft of the bulkhead.
- (c) No person may allow carry-on baggage to be stowed in a location that would cause that location to be loaded beyond its maximum placard mass limitation.

*Note: The stowage locations shall be capable of restraining the articles in crash impacts severe enough to induce the ultimate inertia forces specified in the emergency landing conditions under which the aircraft was type-certified.*

#### **8.9.2.15 CARRIAGE OF CARGO IN PASSENGER COMPARTMENTS**

- (a) No person may allow the carriage of cargo in the passenger compartment of an airplane except as prescribed by the Authority.
- (b) Cargo may be carried anywhere in the passenger compartment if it is carried in an approved cargo bin that meets the following requirements:
  - (1) The bin must withstand the load factors and emergency landing conditions applicable to the passenger seats of the airplane in which the bin is installed,

- multiplied by a factor of 1.15, using the combined mass of the bin and the maximum mass of cargo that may be carried in the bin.
- (2) The maximum mass of cargo that the bin is approved to carry and any instructions necessary to insure proper mass distribution within the bin must be conspicuously marked on the bin.
  - (3) The bin may not impose any load on the floor or other structure of the airplane that exceeds the load limitations of that structure.
  - (4) The bin must be attached to the seat tracks or to the floor structure of the airplane, and its attachment must withstand the load factors and emergency landing conditions applicable to the passenger seats of the airplane in which the bin is installed, multiplied by either the factor 1.15 or the seat attachment factor specified for the airplane, whichever is greater, using the combined mass of the bin and the maximum mass of cargo that may be carried in the bin.
  - (5) The bin may not be installed in a position that restricts access to or use of any required emergency exit, or of the aisle in the passenger compartment.
  - (6) The bin must be fully enclosed and made of material that is at least flame resistant.
  - (7) Suitable safeguards must be provided within the bin to prevent the cargo from shifting under emergency landing conditions.
  - (8) The bin may not be installed in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passenger is provided.
- (c) Cargo, including carry-on baggage, must not be stowed in toilets.
- (d) Cargo, including carry-on baggage must not be stowed against bulkheads or dividers in passenger compartments that are incapable of restraining articles against movement forwards, sideways or upwards and unless the bulkheads or dividers carry a placard specifying the greatest mass that may be placed there, provided that:
- (1) It is properly secured by a safety belt or other tie-down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.
  - (2) It is packaged or covered to avoid possible injury to occupants.
  - (3) It does not impose any load on seats or in the floor structure that exceeds the load limitation for those components.
  - (4) It is not located in a position that obstructs the access to, or use of, any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment, or is located in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign or placard, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passengers is provided.
- (e) Cargo, including carry-on baggage, may be carried anywhere in the passenger compartment of a small aircraft if it is carried in an approved cargo rack, bin, or compartment installed in or on the aircraft, if it is secured by an approved means, or if it is carried in accordance with each of the following:
- (1) For cargo, it is properly secured by a safety belt or other tie-down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions, or for carry-on baggage, it is restrained so as to prevent its movement during air turbulence.

- (2) It is packaged or covered to avoid possible injury to occupants.
- (3) It does not impose any load on seats or in the floor structure that exceeds the load limitation for those components.
- (4) It is not located in a position that obstructs the access to, or use of, any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment, or is located in a position that obscures any passenger's view of the "seat belt" sign, "no smoking" sign or placard, or any required exit sign, unless an auxiliary sign or other approved means for proper notification of the passengers is provided.
- (5) It is not carried directly above seated occupants.
- (6) It is stowed in compliance with these restrictions during takeoff and landing.
- (7) For cargo-only operations, if the cargo is loaded so that at least one emergency or regular exit is available to provide all occupants of the aircraft a means of unobstructed exit from the airplane if an emergency occurs.

#### **8.9.2.16 PASSENGER INFORMATION SIGNS**

- (a) The PIC shall turn on required passenger information signs during any movement on the surface, for each take-off and each landing, and when otherwise considered to be necessary.

#### **8.9.2.17 REQUIRED PASSENGER BRIEFINGS**

- (a) No person may commence a take-off unless the passengers are briefed prior to take-off in accordance with the Operator's Operation Manual procedures on
  - (1) Smoking limitations and prohibitions;
  - (2) Emergency exit location and use;
  - (3) Use of safety belts;
  - (4) Emergency floatation means location and use;
  - (5) Fire extinguisher location and operation;
  - (6) Placement of seat backs;
  - (7) If flight is above 10,000 feet MSL, the normal and emergency use of oxygen; and
  - (8) The passenger briefing card.
- (b) Immediately before or immediately after turning the seat belt sign off, the PIC or co-pilot shall ensure that the passengers are briefed to keep their seat belts fastened while seated, even when the seat belt sign is off.
- (c) Before each take-off, the PIC or co-pilot shall ensure that any persons of reduced mobility are personally briefed on
  - (1) The route to the most appropriate exit; and
  - (2) The time to begin moving to the exit in event of an emergency.

#### **8.9.2.18 PASSENGER BRIEFING: EXTENDED OVERWATER OPERATIONS**

- (a) No person may commence extended over-water operations unless all passengers have been orally briefed on the location and operations of life preservers, life-rafts and

other flotation means, including a demonstration of the method of donning and inflating a life preserver.

#### **8.9.2.19 PASSENGER SEAT BELTS**

- (a) Each passenger occupying a seat or berth shall fasten his or her safety belt and keep it fastened while the "Fasten Seat Belt" sign is lighted or, in aircraft not equipped with such a sign, whenever instructed by the PIC.
- (b) No passenger safety belt may be used by more than one occupant during take-off and landing.
- (c) At each unoccupied seat, the safety belt and shoulder harness, if installed, shall be secured so as not to interfere with crew members in the performance of their duties or with the rapid egress of occupants in an emergency.

*Note: A person who has not reached his or her second birthday may be held by an adult who is occupying a seat or berth.*

*Note: A berth, such as a multiple lounge or divan seat, may be occupied by two persons provided it is equipped with an approved safety belt for each person and is used during en route flight only.*

#### **8.9.2.20 PASSENGER SEAT BACKS**

- (a) No PIC or co-pilot may allow the take-off or landing of an aircraft unless each passenger seat back is in the upright position.

*Note: Exceptions may only be made in accordance with procedures in the Operator's Operations Manual provided the seat back does not obstruct any passenger's access to the aisle or to any emergency exit.*

#### **8.9.2.21 STOWAGE OF FOOD, BEVERAGE AND PASSENGER SERVICE**

- (a) No PIC or SCC may allow the movement of an aircraft on the surface, take-off or land
  - (1) When any food, beverage or tableware furnished by the Operator is located at any passenger seat; and
  - (2) Unless each food and beverage tray and seat back tray table is in the stowed position.

#### **8.9.2.22 SECURING OF ITEMS OF MASS IN PASSENGER COMPARTMENT**

- (a) No person may allow the take-off or landing of an aircraft unless each item of mass in the passenger cabin is properly secured to prevent it from becoming a hazard during taxi, take-off and landing and during turbulent weather conditions.
- (b) No person may allow an aircraft to move on the surface, take-off or land unless each passenger serving cart is secured in its stowed position.

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**8.10 CREW MEMBER AND FLIGHT OPERATIONS OFFICER QUALIFICATIONS: COMMERCIAL AIR TRANSPORT****8.10.1.1 LIMITATION OF PRIVILEGES OF PILOTS WHO HAVE ATTAINED THEIR 60<sup>TH</sup> BIRTHDAY AND CURTAILMENT OF PRIVILEGES OF PILOTS WHO HAVE ATTAINED THEIR 65<sup>TH</sup> AND 67<sup>TH</sup> BIRTHDAY**

- (a) No person may serve nor may any AOC holder use a person as a required PIC in single pilot operations on aircraft engaged in commercial air transport operations if that person has reached his or her 60th birthday.
- (b) For aircraft engaged in domestic commercial air transport operations requiring more than one pilot as flight crew members, the AOC holder may use one pilot up to age 67 provided that the other pilot is less than age 60.
- (c) For aircraft engaged in international commercial air transport operations requiring more than one pilot as flight crew members, the AOC may use one pilot up to 65 provided that the other pilot is less than age 60.
- (d) Check airmen who have reached their 65th birthday or who do not hold an appropriate medical certificate may continue their check airman functions, but may not serve as or occupy the position of a required pilot flight crew member on an airplane engaged in commercial air transport operations.

**8.10.1.2 USE OF FLIGHT SIMULATION TRAINING DEVICES**

- (a) Each flight simulation training device that is used for flight crew member qualification shall:
  - (1) Be specifically approved by the Authority for:
    - (i) The AOC holder;
    - (ii) The type aircraft, including type variations, for which the training or check is being conducted; and
    - (iii) The particular maneuver, procedure, or crewmember function involved.
  - (2) Maintain the performance, functional, and other characteristics that are required for approval.
  - (3) Be modified to conform with any modification to the airplane being simulated that results in changes to performance, functional, or other characteristics required for approval.
  - (4) Be given a daily functional pre-flight check before use.
  - (5) Have a daily discrepancy log completed by the appropriate instructor or check airman at the end of each, training or check flight.
- (b) The simulation device shall have the same technology for the basic flight instruments (attitude indicator, airspeed, altimeter, and heading reference) as those of the aircraft used by the operator.
  - (1) Operators that have electronic/glass displays shall use simulators that have electronic/glass displays.
  - (2) Operators that have standard instruments shall use simulators that have standard instruments.

**8.10.1.3 APPROVAL OF FLIGHT TRAINING DEVICE FOR CREDIT IN TRAINING AND CHECKING**

- (a) No AOC holder may use a flight simulation training device for training or checking unless that simulator has been specifically approved for the AOC holder in writing by the Authority.
- (b) No AOC holder may use a simulator for credit in training, recency and checking other than that specified in the Authority's approval.

**8.10.1.4 LICENSE REQUIREMENTS FOR PIC**

- (a) No pilot may act as PIC of a of an aircraft, certificated for operation with more than one pilot, in commercial air transportation operations unless he or she holds an Airline Transport Pilot License with applicable category, class and type rating for that aircraft.
- (b) No pilot may act as PIC of an aircraft, certificated for operation for one pilot, in commercial air transportation operations unless he or she holds a Commercial Pilot License or an Airline Transport Pilot License with applicable category, class and type rating for that aircraft.
- (c) If instrument privileges are to be exercised, the PIC shall hold an Instrument Rating.

**8.10.1.5 LICENSE REQUIREMENTS FOR CO-PILOT AND CRUISE RELIEF PILOT**

- (a) Co-pilot: No pilot may act as co-pilot of an aircraft in commercial air transport operations unless he or she holds either a Commercial Pilot License/IR or an Airline Transport Pilot License, each with applicable category, class and type ratings for the aircraft operated, and has completed all training to serve as CP.
- (b) Cruise relief pilot: No pilot may act as a cruise relief pilot of an aircraft in commercial air transport operations unless he or she:
  - (1) holds an ATPL (for relieving the PIC) with applicable category, class and type ratings for the aircraft operated, and:
    - (i) has completed all training to serve as PIC with the exception of initial operating experience; or
    - (ii) has completed required training to serve as PIC above FL200, with the exception of initial operating experience, and is fully qualified to serve as CP; or
  - (2) holds at least a CPL/IR (for relieving the CP only) with applicable category, class and type ratings for the aircraft operated, and has completed required training to serve as co-pilot above FL200.

**8.10.1.6 FE LICENSE REQUIREMENTS**

- (a) No person may act as the flight engineer of an aircraft unless he or she holds a flight engineer license with the appropriate class rating.
- (b) The Operator shall ensure that, on all flights requiring a flight engineer crew member, there is assigned at least one other flight crew member qualified to perform the FE duties in the event the FE becomes incapacitated.

**8.10.1.7 PERSONS QUALIFIED TO FLIGHT RELEASE**

- (a) No person may act as a flight operations officer in releasing a scheduled passenger-carrying commercial air transport operation unless that person:
  - (1) Holds a flight operations officer license or an ATP license; and
  - (2) Is currently qualified with the Operator for the operation and type of aircraft used.
- (b) When the Authority requires that a flight operations officer/flight dispatcher, employed in conjunction with an approved method of control and supervision of flight operations, be licensed, that flight operations officer/flight dispatcher shall be licensed in accordance with the provisions of Part 2 of these Regulations.
- (c) In accepting proof of qualifications other than the option of holding of a flight operations officer/flight dispatcher license, the Authority, in accordance with the approved method of control and supervision of flight operations, shall require that, as a minimum, such persons meet the requirements specified in Part 2 of these Regulations for the flight operations officer/flight dispatcher license.
- (d) A flight operations officer/flight dispatcher shall not be assigned to duty unless that person has:
  - (1) satisfactorily completed an operator-specific training course that addresses all the specific components of its approved method of control and supervision of flight operations specified in Subpart 9.3.1.23 and IS: 9.3.1.23;
  - (2) made within the preceding 12 months, at least a one-way qualification flight in the flight crew compartment of an airplane over any area for which that individual is authorized to exercise flight supervision. The flight should include landings at as many airports as practicable;
  - (3) demonstrated to the operator a knowledge of:
    - (i) the contents of the operations manual described in Subpart 9.3.1.2;
    - (ii) the radio equipment in the airplanes used; and
    - (iii) the navigation equipment in the airplanes used;
  - (4) demonstrated to the operator a knowledge of the following details concerning operations for which the officer is responsible and areas in which that individual is authorized to exercise flight supervision:
    - (i) the seasonal meteorological conditions and the sources of meteorological information;
    - (ii) the effects of meteorological conditions on radio reception in the airplanes used;
    - (iii) the peculiarities and limitations of each navigation system which is used by the operation; and
    - (iv) the airplane loading instructions;
  - (5) demonstrated to the operator knowledge and skills related to human performance relevant to dispatch duties; and
  - (6) demonstrated to the operator the ability to perform the duties specified in Subpart 8.12.1.4.
- (e) A flight operations officer/flight dispatcher assigned to duty shall maintain complete familiarization with all features of the operation which are pertinent to such duties, including knowledge and skills related to human performance.

- (f) A flight operations officer/flight dispatcher shall not be assigned to duty after 12 consecutive months of absence from such duty, unless the provisions of paragraph (c) are met.

### 8.10.1.8 TRAINING PROGRAMS

#### 8.10.1.8.1 APPLICABILITY AND TERMS USED

- (a) This Subpart prescribes the requirements applicable to each operator for establishing and maintaining a training program for crew members, flight dispatchers, and other operations personnel, and for the approval and use of training devices in the conduct of the program.
- (b) For the purpose of this Subpart, aircraft groups are as follows-
- (1) Group I: Propeller driven, including-
    - (i) Reciprocating powered; and
    - (ii) Turbo-propeller powered.
  - (2) Group II: Turbojet powered.
- (c) For the purpose of this Subpart, the following terms and definitions apply-
- (1) *Initial training*. The training required for:
    - (i) Pilots and flight engineers, who have not previously qualified on a particular type of aircraft or who have not served in the same capacity on a specific type of aircraft for the period of time as follows:
      - (A) Longer than 12 months from the expiration date of any required proficiency check in that aircraft for pilots and flight engineers having equal to or fewer than 5,000 hours flight time;
      - (B) Longer than 18 months from the expiration date of any required proficiency check in that aircraft for pilots and flight engineers having greater than 5,000 but fewer than 10,000 hours flight time; or
      - (C) Longer than 24 months from the expiration date of any required proficiency check in that aircraft for pilots and flight engineers having equal to or greater than 10,000 hours flight time;

Note: Pilot flight time excludes time acquired in any other crew position.
    - (ii) Cabin crew members, who have not previously qualified on a particular type of aircraft or have not served on a specific type of aircraft for longer than 24 months from the date of the last flight; and
    - (iii) Flight dispatchers, who have not qualified and dispatched another aircraft of that group or have not served in the same capacity for longer than 24 months from the date of the last period of duty.
  - (2) *Re-qualification training*. The training required for crewmembers and dispatchers who have exceeded any recurrent training period required by this chapter but have not exceeded the periods of time specified in sub-paragraph (1)(i) to (iii) of this section.
  - (3) *Upgrade training*. The training required for crew members who have qualified and served as CP or flight engineer on a particular aircraft type, before they serve as PIC or CP, as applicable, on that aircraft type. Also, the training required for a cabin

crew member before serving in a more senior capacity on board any aircraft.

- (4) *Differences training*. The training required for crew members and flight dispatchers who have qualified and served on a particular type aircraft, when the Authority finds differences training is necessary before a crew member serves in the same capacity on a particular variation of that aircraft.
- (5) *Check Airman*. A check airman is a person authorized as a CAA-designated check pilot, check flight engineer, or check flight navigator who is permitted to conduct flight checks or instruction on aircraft subject to the provisions specified in his/her authorization.
- (6) *Cross Crew Qualification (CCQ) training*. The training required for flight crew members qualifying on another type of aircraft type or variant with the same or essentially the same cockpit configuration. Due to aircraft type commonality and by defining the differences between the base and variant aircraft, some of these training courses are shorter than a full transition syllabus.
- (7) *Cross cockpit training*. The training required for crewmembers to occupy a pilot seat they do not normally occupy when engaged in flying operations.
- (8) *Downgrade training*. The training required for flight crew members who have qualified and serve as PIC or CP on a particular aircraft type, before they may serve as CP or flight engineer, respectively, on that aircraft type.
- (9) *Mixed Fleet Flying*. The operation of a base aircraft and variant(s) of the same type, common type, related type or a different type by one or more flight crew members, between training or checking events.
  - (i) Base aircraft: An operator designated aircraft or group of aircraft used as a reference to compare differences with other aircraft within an operator's fleet.
  - (ii) Variant: An aircraft or group of aircraft with the same characteristics that have pertinent differences from the base aircraft. Pertinent differences are those which require different or additional flight crew knowledge, skills, and/or abilities that affect flight safety.
- (10) *Program hours*. The hours of training prescribed in this chapter which may be reduced by the Assistant Secretary upon a showing by the certificate holder that circumstances justify a lesser amount.
- (11) *Rater or evaluator*. A cabin crew member in the employ of an air operator authorized by that operator to perform training and/or checks on cabin crew members.
- (12) *In-flight*. Refers to maneuvers, procedures, or functions that must be conducted in the aircraft.

#### **8.10.1.8.2 MIXED FLEET FLYING AND CROSS-CREW QUALIFICATION TRAINING**

##### **(a) Mixed Fleet Flying (MFF) Operation.**

- (1) An operator must have a cross crew qualification (CCQ) or a similar training program approved by the Authority which must contain specific training requirements to ensure crew members are properly trained, remain current, proficient and qualified in all variants and/or types of aircraft flown before commencing the MFF operation.
- (2) The maximum number of aircraft types on which a pilot may qualify is two.

- (b) Cross crew qualification (CCQ) training.
- (1) Approval of cross crew qualification training is subject to the following conditions:
    - (i) Following completion of the initial training and checking on both aircraft, subsequent training and checking shall be alternated between the two aircraft;
    - (ii) Approval of a CCQ training program shall be based on a combination of cockpit similarities, the size/weight of the aircraft and the engine type and configuration of the aircraft;
    - (iii) Recent experience as required by Subpart 8.4.1.9 will be satisfied if the take-offs and landings total 3 on either of the aircraft or a combination of the two aircraft; and
    - (iv) A minimum of 3 months and 150 hours experience on the base aircraft is required before the crewmember commences a qualification course on the variant aircraft.
  - (2) Cross crew qualification training for crew members must consist of at least the following elements:
    - (i) Designation for each pilot of the initial aircraft trained and qualified to fly on (base aircraft) and the aircraft on which he is to be qualified (variant aircraft);
    - (ii) Initial ground and flight training programs for the base aircraft and subsequent qualification on the variant aircraft;
    - (iii) Recurrent ground and flight training programs for both aircraft; and
    - (iv) Upgrade ground and flight training programs for both aircraft.

#### **8.10.1.8.3 FLIGHT CREW MEMBER TRAINING PROGRAMS**

An operator shall establish and maintain a ground and flight training program, approved by the Authority, which ensures that all flight crew members are adequately trained to perform their assigned duties. The training program shall:

- (a) Include ground and flight training facilities and properly qualified instructors as determined by the Authority;
- (b) Consist of ground and flight training in the type(s) of aircraft on which the flight crew member serves;
- (c) Include proper flight crew coordination and training in all types of emergency and abnormal situations or procedures caused by power plant, (for helicopters: transmission and rotor), airframe or systems malfunctions, fire or other abnormalities, and, for airplanes, in upset prevention and recovery.
- (d) Include training in knowledge and skills related to visual and instrument flight procedures for the intended area of operation, human performance including threat and error management and in the transport of dangerous goods and, where applicable, procedures specific to environment in which the aircraft is to be operated;
- (e) Ensure that all flight crew members know the functions for which they are responsible and the relation of these functions to the functions of other crew members, particularly in regard to abnormal or emergency procedures; and
- (f) Be given on a recurrent basis, as determined by the Authority and shall include an assessment of competence.

**8.10.1.9 COMPANY PROCEDURES INDOCTRINATION**

- (a) No person may serve nor may any Operator use a person as a crew member or flight operations officer/flight dispatcher unless that person has completed the company procedures indoctrination curriculum approved by the Authority, which shall include a complete review of Operations Manual procedures pertinent to the crew member or flight operation officer's duties and responsibilities.
- (b) The Operator should provide a minimum of 40 program hours of instructions for company procedures indoctrination training unless a reduction is determined appropriate by the Authority.
- (c) The knowledge area topics to be covered are contained in IS: 8.10.1.9.

**8.10.1.10 INITIAL DANGEROUS GOODS TRAINING**

- (a) No person may serve nor may any Operator use a person involved in the preparation or transport of dangerous goods or as a crew member unless he or she has completed the appropriate initial dangerous goods curriculum approved by the Authority.
- (b) Specific course curriculum requirements are contained in IS: 8.10.1.10.

**8.10.1.11 INITIAL SECURITY TRAINING**

- (a) No person may serve nor may any Operator use operational personnel unless they have completed the initial security curriculum approved by the Authority.

**8.10.1.12 INITIAL CREW RESOURCE MANAGEMENT**

- (a) No person may serve nor may any Operator use a person as a flight operations officer or crew member unless that person has completed the initial CRM curriculum approved by the Authority.
- (b) Course curriculum requirements are contained in IS: 8.10.1.12.

**8.10.1.13 INITIAL EMERGENCY EQUIPMENT DRILLS**

- (a) No person may serve nor may any Operator use a person as a crew member unless that person has completed the appropriate initial emergency equipment curriculum and drills for the crew member position approved by the Authority for the emergency equipment available on the aircraft to be operated.
- (b) Course curriculum requirements are contained in IS: 8.10.1.13.

**8.10.1.14 INITIAL AIRCRAFT GROUND TRAINING**

- (a) (1) No person may serve nor may any operator use a person as a crew member or flight operations officer/flight dispatcher unless he or she has completed the initial ground training approved by the Authority for the aircraft type.
- (2) An operator shall establish and maintain a training program, approved by the Authority, to be completed by all persons before being assigned as a crew member. Each crew member and flight operations officer/flight dispatcher shall complete a recurrent training program annually.

- (b) Initial aircraft ground training for flight crew members shall include the pertinent portions of the operations manuals relating to aircraft-specific performance, mass and balance, operational policies, systems, limitations, normal, abnormal and emergency procedures on the aircraft type to be used. Specific course curriculum requirements for flight crew members are contained in IS: 8.10.1.14(b).

*Note: The Operator may have separate initial aircraft ground training curricula of varying lengths and subject emphasis which recognize the experience levels of flight crew members approved by the Authority.*

- (c) (1) For cabin crew members, initial and re-qualification aircraft ground training shall include the pertinent portions of the operations manuals relating to aircraft-specific configuration, equipment, normal and emergency procedures for the aircraft types within the fleet. Specific course curriculum requirements, for cabin crew members, are contained in IS: 8.10.1.14(c1).
- (2) For check cabin crew members, initial and re-qualification ground training shall include checking of cabin crew members on the pertinent portions of the operations manuals relating to aircraft-specific configuration, equipment, normal and emergency procedures for the aircraft types within the fleet. Specific course curriculum requirements for check cabin crew member are contained in IS: 8.10.1.14(c2).
- (d) For flight operations officers/flight dispatchers, aircraft initial ground training shall include the pertinent portions of the operations manuals relating to aircraft-specific flight preparation procedures, performance, mass and balance, systems, limitations for the aircraft types within the fleet. Specific course curriculum requirements, for flight operations officers/flight dispatchers, are contained in IS: 8.10.1.14(d).

#### **8.10.1.15 INITIAL AIRCRAFT FLIGHT TRAINING**

- (a) No person may serve nor may any operator use a person as a flight crew member unless he or she has completed the initial flight training approved by the Authority for the aircraft type.
- (b) Initial flight training shall focus on the maneuvering and safe operation of the aircraft in accordance with operator's normal, abnormal and emergency procedures and, for airplanes, include upset prevention training as specified in IS 2.3.3.3 APPENDIX C.
- (c) An operator may have separate initial flight training curricula which recognize the experience levels of flight crew members approved by the Authority.
- (d) Specific flight curriculum requirements are contained in IS: 8.10.1.15.

#### **8.10.1.16 INITIAL SPECIALIZED OPERATIONS TRAINING**

- (a) No person may serve nor may any Operator use a person as a flight crew member unless he or she has completed the appropriate initial specialized operations training curriculum approved by the Authority.
- (b) Specialized operations for which initial training curricula shall be developed include
- (1) Low minimums operations. including low visibility take-offs and Category II and III operations;
  - (2) Extended range operations;
  - (3) Specialized navigation;
  - (4) PIC right seat qualification;

- (5) RVSM; and
- (6) PBN/RNP.
- (c) See IS: 8.10.1.16 for specific initial specialized operations training curriculum.

#### **8.10.1.17 AIRCRAFT DIFFERENCES**

- (a) No person may serve nor may any Operator use a person as a flight operations officer/flight dispatcher or crew member on an aircraft of a type for which a differences curriculum is included in the Operator's approved training program, unless that person has satisfactorily completed that curriculum, with respect to both the crew member position and the particular variant of that aircraft.
- (b) Differences training for crew members and flight operations officers/flight dispatchers must consist of at least the following as applicable to their assigned duties and responsibilities-
  - (1) Instruction in each appropriate subject or part thereof required for initial ground training in the aircraft unless the Authority finds that particular subjects are not necessary.
  - (2) Flight training in each appropriate maneuver or procedure required for initial flight training in the aircraft unless the Authority finds that particular maneuvers or procedures are not necessary.
  - (3) The number of program hours of ground and flight training determined by the Authority to be necessary for the aircraft, the operation, and the crew member or flight dispatcher involved.
  - (4) Differences training for all variations of a particular type aircraft may be included in initial, re-qualification, upgrade, and recurrent training for the aircraft.
- (c) See IS: 8.10.1.17 for general listing of subjects to be covered in aircraft differences training.

*Note: See ICAO Doc 9379, Manual of Procedures for the Establishment of a State's Personnel Licensing System, for guidance of a general nature on cross-crew qualification, mixed-fleet flying and cross-credit. See ICAO Doc 9376, Preparation of an Operations Manual, for guidance material to design flight crew training programs.*

#### **8.10.1.18 RESERVED.**

#### **8.10.1.19 INTRODUCTION OF NEW EQUIPMENT OR PROCEDURES**

- (a) No person may serve nor may any Operator use a person as a flight crew member when that service would require expertise in the use of new equipment or procedures for which a curriculum is included in the Operator's approved training program, unless that person has satisfactorily completed that curriculum, with respect to both the crew member position and the particular variant of that aircraft.

*Note: See ICAO Doc 9379, Manual of Procedures for the Establishment of a State's Personnel Licensing System, for guidance of a general nature on cross-crew qualification, mixed-fleet flying and cross-credit. See ICAO Doc 9376, Preparation of an Operations Manual, for guidance material to design flight crew training programs.*

**8.10.1.20 AIRCRAFT AND INSTRUMENT PROFICIENCY CHECKS**

- (a) No person may serve nor may any operator use a person as a pilot flight crew member unless, that person has passed the proficiency check(s) as prescribed in paragraphs (b) and (c) below in the make, and model aircraft on which their services are required.
- (b) An operator shall ensure that piloting technique and the ability to execute emergency procedures is checked in such a way as to demonstrate the pilot's competence on each type or variant of type of aircraft. Where the operation may be conducted under IFR, an operator shall ensure that the pilot's competence to comply with such rules is demonstrated to either a check pilot of the operator or to a representative of the Authority. A pilot may complete both these requirements simultaneously in a specific aircraft type.
- (c) Such checks shall be performed twice within any period of one (1) year. Any two (2) such checks which are similar and which occur within a period of four (4) consecutive months shall not alone satisfy this requirement.
- (d) When an operator schedules flight crew on several variants of the same type of aircraft or with similar characteristics in terms of operating procedures, upset prevention and recovery, systems and handling, the Authority shall decide under which conditions the requirements of paragraphs (b) and (c) above for each variant or each type of aircraft can be combined.
- (e) See IS: 8.10.1.20 for specific operation and procedures pertaining to the proficiency checks.

**8.10.1.21 RE-ESTABLISHING RECENT EXPERIENCE: FLIGHT CREW**

- (a) Pilots:
  - (1) In addition to meeting all applicable training and checking requirements, a required pilot flight crew member who, in the preceding 90 days has not made at least three (3) take-offs and landings in the type aircraft in which that person is to serve, shall, under the supervision of a check airman, re-establish recent experience as follows:
    - (i) Make at least three (3) take-offs and landings in the aircraft in which that person is to serve or in a qualified simulator.
    - (ii) Make at least one (1) take-off with a simulated failure of the most critical power unit, one landing from the minimum ILS authorized for the Operator, and one (1) landing to a full stop.
  - (2) When using a simulator to accomplish any of the take-off and landing training requirements necessary to re-establish recent experience, each required flight crew member position shall be occupied by an appropriately qualified person and the simulator shall be operated as if in a normal in-flight environment without use of the repositioning features of the simulator.
  - (3) A check airman who observes the take-offs and landings of a pilot flight crew member shall certify that the person being observed is proficient and qualified to perform flight duty in operations and may require any additional maneuvers that are determined necessary to make this certifying statement.
- (b) Flight Engineers: A flight engineer who in the preceding 6 months has not flown 50 hours flight time with an Operator as flight engineer in the appropriate class of airplane shall re-establish recent experience by taking a proficiency check.

**8.10.1.22 PAIRING OF LOW EXPERIENCE CREW MEMBERS**

- (a) If a CP has fewer than 100 hours of flight time in the type aircraft being flown in commercial air transport, and the PIC is not an appropriately qualified check pilot, the PIC shall make all takeoffs and landings in situations designated as critical by the Authority in IS: 8.10.1.22.
- (b) No PIC or CP may conduct operations for a type aircraft in commercial air transport unless either pilot has at least 75 hours of line operating flight time, either as PIC or CP.
- (c) The Authority may, upon application by the operator, authorize an exemption from number of hours from paragraph (b) by an appropriate amendment to the operations specifications in any of the circumstances identified in IS: 8.10.1.22.

**8.10.1.23 FLIGHT ENGINEER AND FLIGHT NAVIGATOR PROFICIENCY CHECKS**

- (a) No person may serve nor may any Operator use a person as a flight engineer or a flight navigator on an aircraft unless within the preceding 12 calendar months he or she has a proficiency check in accordance with the requirements prescribed by the Authority for the skill test in Part 2.
- (b) See IS: 8.10.1.21 for specific procedures used in proficiency checks.

**8.10.1.24 RECENT EXPERIENCE, COMPETENCY CHECKS AND OPERATION ON MORE THAN ONE TYPE OF AIRCRAFT: CABIN CREW MEMBERS****8.10.1.24.1 RECENT EXPERIENCE: CABIN CREW MEMBERS**

- (a) No operator may use any person nor may any person serve as a required cabin crew member on a particular aircraft type unless within the preceding 12 calendar months that person has flown as a crew member on that type of aircraft.
- (b) Cabin crew members who are qualified and have served as a crew member on another type aircraft may serve as a crew member on the aircraft for which recent experience has lapsed upon undergoing a competence check on that type aircraft.
- (c) A cabin crew member who has not flown in any aircraft in which he/she is qualified within the preceding 6 calendar months must re-establish recent experience as follows:
  - (1) Undergo refresher training in any one aircraft of the type aircraft that he/she is to serve on; And
  - (2) Satisfactorily complete a competence check on one of the types of aircraft flown.

**8.10.1.24.2 COMPETENCY CHECKS: CABIN CREW MEMBERS**

- (a) No person may serve nor may any operator use a person as a required cabin crew unless, since the beginning of the 12th calendar month before that service, that person passed in the flight competency check, prescribed by the Authority in IS: 8.10.1.24 performing the emergency and other duties appropriate to that person's assignment. A competence check is required:
  - (1) On each type of aircraft following completion of initial training;
  - (2) On at least one type of aircraft following completion of upgrade training;
  - (3) On each type of aircraft as part of re-qualification training;

- (4) Within the preceding 12 calendar months as part of recurrent training; and
  - (5) To be conducted in a cycle, covering each type of aircraft qualified on.
- (b) Cabin Crew Certificate: An AOC holder shall ensure the following:
- (1) Each cabin crew is issued with a Cabin Crew Certificate, acceptable to the Authority;
  - (2) On completion of the competence check as described in paragraph (a) above, the evaluator completes the Cabin Crew Certificate;
  - (3) Each cabin crew carries the Cabin Crew Certificate whenever he/she is on duty; and
  - (4) The cabin crew presents the Cabin Crew Certificate to an authorized inspector, when asked for inspection.

#### **8.10.1.24.3 OPERATION ON MORE THAN ONE TYPE OF AIRCRAFT: CABIN CREW MEMBERS**

- (a) An operator shall ensure that each cabin crew member does not operate on more than four (4) aircraft types except that, with the approval of the Authority, the cabin crew member may operate on five (5) aircraft types, provided that safety equipment and emergency procedures for at least two of the types are similar.
- (b) For the purpose of sub-paragraph (a) above, variants of an aircraft type are considered to be different types if they are not similar in all the following aspects:
  - (1) Emergency exit operation;
  - (2) Location and type of safety equipment; and
  - (3) Emergency procedures.
- (c) An operator shall ensure that a cabin crew member operating more than one type complies with all the applicable requirements prescribed in this Subpart for each type unless the Authority has approved the use of credit(s) related to the training, checking and recent experience requirements.

#### **8.10.1.25 COMPETENCY CHECKS: FLIGHT OPERATIONS OFFICERS**

- (a) No person may serve nor may any operator use a person as a flight operations officer unless, since the beginning of the 12th calendar month before that service, that person has passed the competency check, prescribed by the Authority, for the skill test in Part 2, performing the flight preparation and subsequent duties appropriate to that person's assignment.
- (b) See IS: 8.10.1.25 for specific procedures used in flight operation officer competency checks.

#### **8.10.1.26 SUPERVISED LINE FLYING: PILOTS**

- (a) Each pilot initially qualifying as PIC shall complete a minimum of 10 flights performing the duties of a PIC under the supervision of a check airman.
- (b) Each PIC transitioning to a new aircraft type shall complete a minimum of 5 flights performing the duties of a PIC under the supervision of a check airman.

- (c) Each pilot qualifying for duties other than PIC shall complete a minimum of 5 flights performing those duties under the supervision of a check airman.
- (d) During the time that a qualifying PIC is acquiring operating experience, a check pilot who is also serving as the PIC shall occupy a pilot station.
- (e) In the case of a transitioning PIC, the check pilot serving as PIC may occupy the observer's seat if the transitioning pilot has made at least two take-offs and landings in the type aircraft used, and has satisfactorily demonstrated to the check pilot that he is qualified to perform the duties of a PIC for that type of aircraft.

#### **8.10.1.27 SUPERVISED LINE FLYING: FLIGHT ENGINEERS**

- (a) Each person qualifying as a flight engineer for each aircraft class (piston-engine; turbo propeller powered, or turbojet powered) shall perform those functions for a minimum of five (5) flights under the supervision of a designated Flight Engineer Examiner/Check Examiner.

#### **8.10.1.28 SUPERVISED LINE EXPERIENCE: CABIN CREW MEMBERS**

- (a) Each person qualifying as a cabin crew member shall perform those functions on the aircraft, for a minimum of two (2) flights that must include at least five hours flown, under the supervision of a cabin crew supervisor before qualifying as a required crew member.
- (b) The supervised line experience as stated in paragraph (a) above is not required for a cabin crew member who has previously acquired such experience on any large passenger carrying aircraft of the same group, if the operator shows that the cabin crew member has received sufficient ground training for the aircraft in which the cabin crew member is to serve.

*Note: While qualifying, this person may not be a required crew member.*

#### **8.10.1.29 LINE OBSERVATIONS: FLIGHT OPERATIONS OFFICERS**

- (a) No person may serve nor may any operator use a person as a flight operations officer unless, since the beginning of the 12th calendar month before that service, that person has observed, on the flight deck, the conduct of two (2) complete flights, comprising at least five (5) total hours, over routes representative of those for which that person is assigned duties.

#### **8.10.1.30 ROUTE AND AREA CHECKS: PILOT QUALIFICATION**

##### **8.10.1.30.1 ROUTE AND AREA CHECKS: AIRPLANE PILOT QUALIFICATION**

- (a) No person may serve nor may any operator use a person as a pilot unless, within the preceding 12 calendar months, that person has passed a route check in which he or she satisfactorily performed their assigned duties in one of the types of airplanes they are to fly.
- (b) An operator shall not utilize a pilot as pilot-in-command of an airplane on a route or route segment for which that pilot is not currently qualified until such pilot has complied with paragraphs (c) and (d) below.
- (c) Each such pilot shall demonstrate to the operator an adequate knowledge of:

- (1) the route to be flown, and the aerodromes which are to be used. This shall include knowledge of:
  - (i) the terrain and minimum safe altitudes;
  - (ii) the environmental factors related to the prevention of aeroplane upsets.
    - (A) the seasonal meteorological conditions
    - (B) the relevant environment hazards, such as:
      - (AA) Clear Air Turbulence (CAT);
      - (BB) Intertropical Convergence Zone (ITCZ);
      - (CC) Thunderstorms;
      - (DD) Microbursts;
      - (EE) Wind Shear;
      - (FF) Icing;
      - (GG) Mountain Waves;
      - (HH) Wake Turbulence at high altitude;
      - (II) Temperature changes at high altitude;
  - (iii) the available mitigating procedures for the relevant hazards in (1) (ii) related to the specific route;
  - (iv) the meteorological, communication and air traffic facilities, services and procedures;
  - (v) the search and rescue procedures; and
  - (vi) the navigational facilities and procedures, including any long-range navigation procedures, associated with the route along which the flight is to take place;
    - (A) for the more complex areas or routes, in-flight familiarization as a pilot-in-command/commander or co-pilot under supervision, observer, or familiarization in a flight simulation training device (FSTD) using a database appropriate to the route concerned.
- (2) procedures applicable to flight paths over heavily populated areas and areas of high air traffic density, obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures, and applicable operating minima; and

*Note.— That portion of the demonstration relating to arrival, departure, holding and instrument approach procedures may be accomplished in an appropriate training device which is adequate for this purpose.*

- (3) Notices to airmen.
- (d) A PIC shall have made an actual approach into each aerodrome of landing on the route, accompanied by a pilot who is qualified for the aerodrome, as a member of the flight crew or as an observer on the flight deck, unless:
  - (1) the approach to the aerodrome is not over difficult terrain and the instrument approach procedures and aids available are similar to those with which the pilot is familiar, and a margin to be approved by the Authority is added to the normal operating minima, or there is reasonable certainty that approach and landing can be made in visual meteorological conditions; or

- (2) the descent from the initial approach altitude can be made by day in visual meteorological conditions; or
  - (3) the operator qualifies the pilot-in-command to land at the aerodrome concerned by means of an adequate pictorial presentation; or
  - (4) the aerodrome concerned is adjacent to another aerodrome at which the pilot-in-command is currently qualified to land.
- (e) The operator shall maintain a record, sufficient to satisfy the authority of the qualification of the pilot and of the manner in which such qualification has been achieved.
- (f) An operator shall not continue to utilize a pilot as a pilot-in-command on a route or within an area specified by the operator and approved by the Authority unless, within the preceding 12 months, that pilot has made at least one trip as a pilot member of the flight crew, or as a check pilot, or as an observer in the flight crew compartment:
- (1) within that specified area; and
  - (2) if appropriate, on any route where procedures associated with that route or with any aerodromes intended to be used for take-off or landing require the application of special skills or knowledge.
- (g) In the event that more than 12 months elapse in which a pilot-in-command has not made such a trip on a route in close proximity and over similar terrain, within such a specified area, route or aerodrome, and has not practiced such procedures in a training device which is adequate for this purpose, prior to again serving as a pilot-in-command within that area or on that route, that pilot must re-qualify in accordance with paragraphs (c) and (d).
- (h) No person may perform PIC duties over a designated special operational area that requires a special navigation system or procedures or in EDTO operations unless their competency with the system and procedures has been demonstrated to the Operator within the past 12 calendar months.

#### **8.10.1.30.2 OPERATIONAL QUALIFICATIONS: HELICOPTER PIC**

- (a) An operator shall not utilize a pilot as PIC of a helicopter on an operation for which that pilot is not currently qualified until such pilot has complied with paragraphs (b) and (c) below.
- (b) Each such pilot shall demonstrate to the operator an adequate knowledge of:
- (1) the operation to be flown. This shall include knowledge of:
    - (i) the terrain and minimum safe altitudes;
    - (ii) the seasonal meteorological conditions;
    - (iii) the meteorological, communication and air traffic facilities, services and procedures;
    - (iv) the search and rescue procedures; and
    - (v) the navigation facilities and procedures associated with the route or area in which the flight is to take place; and
  - (2) procedures applicable to flight paths over heavily populated areas and areas of high air traffic density, obstructions, physical layout, lighting, approach aids and arrival, departure, holding and instrument approach procedures, and applicable operating minima; and

- (3) Notices to airmen.
- (c) A PIC shall have made a flight, representative of the operation with which the pilot is to be engaged which must include a landing at a representative heliport, as a member of the flight crew and accompanied by a pilot who is qualified for the operation.
- (d) An operator shall not continue to utilize a pilot as a PIC on an operation unless, within the preceding 12 months, the pilot has made at least one representative flight as a pilot member of the flight crew, or as a check pilot, or as an observer on the flight deck. In the event that more than 12 months elapse in which a pilot has not made such a representative flight, prior to again serving as a pilot-in-command on that operation, that pilot must re-qualify in accordance with paragraph (b) and (c) above.

#### **8.10.1.31 PIC LOW MINIMUMS AUTHORIZATION**

- (a) Until a PIC has 15 flights performing PIC duties in the aircraft type (which included 5 approaches to landing using Category I or II procedures); he or she may not plan for or initiate an instrument approach when the ceiling is less than 100 m (300 feet) and the visibility less than 1.5 km (one statute mile).
- (b) Until a PIC has 20 flights performing PIC duties in the aircraft type (which included 5 approaches and landings using Category III procedures), he or she may not plan for or initiate an approach when the ceiling is less than 30 m (100 feet) or the visibility is less than 350 m (1,200 ft) RVR.

#### **8.10.1.32 DESIGNATED SPECIAL AIRPORTS AND HELIPORTS: PIC QUALIFICATION**

- (a) The Authority may determine that certain airports, due to items such as surrounding terrain, obstructions, or complex approach or departure procedures, are special aerodromes requiring special airport/heliport qualifications and that certain areas or routes, or both, require a special type of navigation qualifications.
- (b) No person may serve nor may any operator use a person as PIC for operations at designated special airports and heliports unless within the preceding 12 calendar months:
  - (1) The PIC has been qualified by the operator through a pictorial means acceptable to the Authority for that airport/heliport; or
  - (2) The PIC or the assigned CP has made a take-off and landing at that airport/heliport while serving as a flight crew member for the operator.
- (c) If the 12 months qualification period required in paragraph (b) has expired, the PIC must re-qualify in accordance with the requirements in paragraph (b).
- (d) Designated special airport and heliport limitations are not applicable if the operation will occur:
  - (1) During daylight hours;
  - (2) When the visibility is at least 5 km (3 miles); and
  - (3) When the ceiling at that airport is at least 300 m (1,000 feet) above the lowest initial approach altitude prescribed for an instrument approach procedure.

#### **8.10.1.33 RECURRENT TRAINING: FLIGHT CREW MEMBERS**

- (a) No person may serve nor may any operator use a person as a flight crew member unless within the preceding 12 calendar months that person has completed the recurrent ground and flight training curricula approved by with the Authority.
- (b) The recurrent ground training shall include training on
  - (1) Aircraft systems and limitations and normal; abnormal and emergency procedures;
  - (2) Emergency equipment and drills;
  - (3) Crew resource management;
  - (4) Recognition of and transportation of dangerous goods, and review the dangerous goods regulation and examination, as approved by the Authority; and
  - (5) Security training.
  - (6) For airplanes, upset prevention and recovery training.
- (c) The recurrent flight training curriculum shall include:
  - (1) Maneuvering and safe operation of the aircraft in accordance with Operator's normal. abnormal and emergency procedures;
  - (2) Maneuvers and procedures necessary for avoidance of in-flight hazards; and
  - (3) For authorized pilots, at least one low visibility take-off to the lowest applicable minimum LVTO and two approaches to the lowest approved minimums for the operator, one of which is to be a missed approach.
  - (4) Upset prevention and recovery training as specified in IS 2.3.3.3 Appendix C, including:
    - (i) upset prevention training. Consisting of ground training and flight training in an FSTD or an airplane, such training should include:
      - (A) for the conversion training course, upset prevention elements; and
      - (B) for the recurrent training program, upset prevention elements at least every 12 calendar months, such that all the elements are covered over a period not exceeding 3 years.
    - (ii) upset recovery training. This training should:
      - (A) consist of ground training and flight training in an FFS qualified for the training task;
      - (B) be completed from each seat in which a pilot's duties require him/her to operate;
      - (C) include the recovery exercise, such that all the exercises are covered over a period not exceeding 3 years.
- (d) The requirement for recurrent flight training in a particular type of aircraft shall be considered fulfilled by:
  - (1) the use, to the extent deemed feasible by the Authority, of flight simulation training devices approved for that purpose; or
  - (2) the completion within the appropriate period of the proficiency check required by Subpart 8.10.1.20 in that type of aircraft.
- (e) Satisfactory completion of a proficiency check with the operator for the type aircraft and operation to be conducted may be used in lieu of recurrent flight training.
- (f) Detailed recurrent training requirements are contained in IS: 8.10.1.33.

**8.10.1.34 RECURRENT TRAINING: CABIN CREW**

- (a) No person may serve nor may any operator use a person as a cabin crew unless within the preceding 12 calendar months that person has completed the recurrent training program approved by the Authority relevant to the type(s) and/or variant(s) of aircraft and operations to which he or she is assigned.
- (b) The recurrent ground training shall include training on:
- (1) Aircraft-specific configuration, equipment and procedures;
  - (2) Emergency and first aid equipment and drills;
  - (3) Crew resource management;
  - (4) Recognition or transportation of dangerous goods; and
  - (5) Security training.
- (c) Each Operator shall establish and maintain a training program, approved by the Authority, to be completed by all persons before being assigned as a cabin crew member. Cabin crew members shall complete a recurrent training program annually. This training programs shall ensure that each person is:
- (1) Competent to execute those safety duties and functions which the cabin crew member is assigned to perform in the event of an emergency or in a situation requiring emergency evacuation;
  - (2) Drilled and capable in the use of emergency and life-saving equipment required to be carried, such as life jackets, life rafts, evacuation slides, emergency exits, portable fire extinguishers, oxygen equipment, first-aid and universal precaution kits, automated external defibrillators;
  - (3) When serving on airplanes operated above 3,000 m (10,000 ft), knowledgeable as regards the effect of lack of oxygen and, in the case of pressurized airplanes, as regards physiological phenomena accompanying a loss of pressurization;
  - (4) Aware of other crew members' assignments and functions in the event of an emergency so far as is necessary for the fulfillment of the cabin crew member's own duties;
  - (5) Aware of the types of dangerous goods which may, and may not, be carried in a passenger cabin; and
  - (6) Knowledgeable about human performance as related to passenger cabin safety duties including flight crew-cabin crew coordination.
- Note 1: Requirements for the training of cabin crew members in the transport of dangerous goods are included in the Dangerous Goods Training Program contained in ICAO Annex 18 – The Safe Transport of Dangerous Goods by Air and the Technical Instruction for the Safe Transport of Dangerous Goods by Air (ICAO Doc 9284).*
- Note 2: For more information on Dangerous Goods operational requirements, see Chapter 14 of Annex 6 Part 1.*
- Note 3: Guidance material to design training program to develop knowledge and skill in human performance can be found in the Cabin Crew Safety Training Manual (ICAO Doc 10002).*
- (d) A required cabin crew member who, due to a period of inactivity, has not met the recurrent training requirements in paragraphs (a) through (c) shall complete the initial Operator training program and competency check.

- (e) Specific recurrent training program requirements for cabin crew members are contained in IS: 8.10.1.34.

#### **8.10.1.35 RECURRENT TRAINING: FLIGHT OPERATIONS OFFICERS**

- (a) No person may serve nor may any operator use a person as a flight operations officer unless within the preceding 12 calendar-months that person has completed the recurrent ground curricula approved by the Authority relevant to the type(s) and/or variant(s) of aircraft and positions to which he or she is assigned.
- (b) Specific requirements for flight operations officers recurrent training are contained in IS: 8.10.1.35.
- (c) A required flight operations officer who, due to a period of inactivity, has not met the recurrent training requirements in paragraphs (a) through (b) shall complete the initial Operator training program and competency check.

#### **8.10.1.36 FLIGHT INSTRUCTOR QUALIFICATIONS**

- (a) No AOC holder may use a person nor may any person serve as a flight instructor in an established training program unless, with respect to the aircraft type involved, that person:
  - (1) Holds the airman licenses and rating required to serve as a PIC, a flight engineer, or a flight navigator, as applicable;
  - (2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training and differences training, that are required to serve as a PIC, flight engineer, or flight navigator, as applicable;
  - (3) For airplanes, has successfully completed instructor training for UPRT, approved by the Authority.
  - (4) Has satisfactorily completed the applicable initial or transitional training requirements and the Authority-observed in-flight competency check; and
  - (5) Holds the appropriate medical certificate for service as a required crew member.
- (b) Flight Instructor - Flight Simulation Training Device: Additional requirements. No person may serve nor may any Operator use a person as a Flight Instructor - Flight Simulation Training Device, unless, since the beginning of the 12th calendar month before that service, that person has:
  - (1) Flown at least 5 flights as a required crew member for the type of aircraft involved; or
  - (2) Observed, on the flight deck, the conduct of 2 complete flights in the aircraft type to which the person is assigned.

#### **8.10.1.37 INSTRUCTOR TRAINING**

- (a) No person may serve nor may any AOC holder employ a person as an instructor for flight crew, cabin crew, or dangerous goods, unless he or she has completed the curricula approved by the Authority for those functions for which they are to serve.
- (b) See IS: 8.10.1.37 for specific training program requirements for instructor.

#### **8.10.1.38 PERSONNEL APPROVED TO CONDUCT CHECKS**

- (a) The Authority may approve the following AOC holder personnel to conduct checks, provided they meet the requirements for the designated responsibilities. Such

personnel may be approved to conduct checks on either aircraft or simulator, or both, as applicable, for checking of flight crew.

- (1) Check pilot;
- (2) Check cabin crew member; and

*Note: The term “check cabin crew” is recognized as valid and acceptable for use when referring to the role or responsibilities of an examiner.*

- (3) Check FOO.
- (b) The authorized duties of check personnel shall be to:
- (1) Conduct initial and recurrent proficiency checks for flight crew and competency checks for cabin crew and FOOs;
  - (2) Certify as satisfactory, the knowledge and proficiency of the flight crew, and the knowledge and competency of the cabin crew and FOOs; and
  - (3) For all check personnel, supervise operating experience (OE).
- (c) No person may serve nor may any AOC holder employ a person as a check personnel under the AOC holder’s crew member checking and standardization program in Subpart 9.3.1.9 unless that person has:
- (1) been identified by name and function and approved in writing by the Authority; and
  - (2) successfully completed the AOC holder’s curricula approved by the Authority for those functions for which he or she is to serve.
- (d) Once designated, no person may serve nor may any Operator use a person as a check airman for any flight check unless that person has demonstrated, initially and at least biennially to an Authority inspector, the ability to conduct a check for which he or she is designated.
- (e) For the purpose of this Part:
- (1) A check airman (aircraft) is a person who is qualified, and permitted to conduct flight checks or instruction in an aircraft, or in a flight simulator, or in a flight simulation training device for a particular type of aircraft.
  - (2) A check airman (simulator) is a person who is qualified to conduct flight checks or flight instruction, but only in a flight simulator or in a flight simulation training device for a particular type of aircraft.
  - (3) Check airmen (aircraft) and check airmen (simulator) are those airmen who perform training and checking functions for a training program approved by the Authority.

#### **8.10.1.39 CHECK PERSONNEL QUALIFICATIONS**

(a) Check Personnel for Flight Crew.

- (1) No operator may employ a person, nor may any person serve as a check airman in an established training program, with respect to the aircraft type involved, unless that person:
  - (i) Holds the airman licenses and ratings required to serve as a PIC, a flight engineer, or a flight navigator, as applicable, in operations under Part 9;
  - (ii) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training and differences training, that are required to serve

as a PIC, flight engineer, or flight navigator, as applicable, in operations under Part 9;

(iii) Has satisfactorily completed the appropriate proficiency, competency and recent experience checks that are required to serve as a PIC, flight engineer, or flight navigator, as applicable, in operations under Part 9;

(iv) Has satisfactorily completed the applicable initial or transitional training requirements, including in-flight training, and the Authority-observed in-flight competency check;

(v) Holds at least an appropriate medical certificate if serving as a required flight crew member;

(vi) Has satisfied the recent experience requirements for his/her airman qualification; and

(vii) Has been approved by the Authority for the check airman duties involved.

(b) Check Personnel for Cabin Crew.

(1) No AOC holder may employ a person nor may any person serve as a check cabin crew member in an established cabin crew training program unless, with respect to the aircraft type or position involved, that person:

(i) Holds the qualification required to serve as a cabin crew member;

(ii) Has satisfactorily completed the appropriate training phases for the aircraft and position involved, including recurrent training and differences training, that are required to serve as a cabin crew member;

(iii) Has satisfactorily completed the appropriate competency and recency of experience checks that are required to serve as a cabin crew member;

(iv) Has satisfactorily completed the applicable initial or transitional training requirements and the Authority-observed competency check.

(c) Check Airman - Flight Simulation Training Device: No person may serve nor may any operator use a person as a check airman - Flight Simulation Training Device, in an established training program, with respect to the aircraft type involved, unless that person:

(1) Holds the airman licenses and ratings, except medical certificate, required to serve as a PIC, a flight engineer, or a flight navigator, as applicable, in operations under Part 9;

(2) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training and differences training, that are required to serve as a PIC, flight engineer, or flight navigator, as applicable, in operations under Part 9;

(3) Has satisfactorily completed the appropriate proficiency or competency checks that are required to serve as a PIC, flight engineer, or flight navigator, as applicable, in operations under Part 9;

(4) Has satisfactorily completed the applicable training requirements;

(5) Has been approved by the Authority for the check airman duties involved; and

(6) Since the beginning of the 12th calendar month before that service, that person has:

(i) Flown at least 5 flights as a required crew member for the type of aircraft involved; or

- (ii) Observed, on the flight deck, the conduct of 2 complete flights in the aircraft type to which the person is assigned.
- (d) Completion of the requirements in paragraphs (a) (2), (3) and (4), or (b) (2), (3) and (4) of this section, as applicable, shall be entered in the individual's training record maintained by the certificate holder.
- (e) Check airmen who have reached their 65th birthday or who do not hold an appropriate medical certificate may function as check airmen, but may not serve as pilot flight crew members, in operations under Part 9.
- (f) The flight segments or line-observation program required in sub-paragraph (b)(6) of this Subpart are considered to be completed in the month required if completed in the calendar month before or in the calendar month after the month in which it is due.

#### **8.10.1.40 CHECK PERSONNEL TRAINING**

- (a) No person may serve nor may any AOC holder employ a person for checks unless that person has completed the curricula approved by the Authority for those functions for which that person is to serve.
- (b) See IS: 8.10.1.40 for specific training program requirements for check personnel.

#### **8.10.1.41 MINIMUM QUALIFICATION FOR A FLIGHT OPERATIONS OFFICER INSTRUCTOR**

- (a) To be qualified to train and evaluate flight operations officers, a trainer must:
  - (1) have passed a flight operations officer's course in a duly recognized training organization;
  - (2) hold a valid flight operations officer's license and ground instructor's authorization issued by CAAP;
  - (3) present proof of currency, continued competency and proficiency to be able to renew the above licenses and authorization.
- (b) Experience Requirement
  - (1) The applicant for a ground instructor for flight operations officer/flight dispatcher license shall have gained a total of two and half (2 ½) years, in continuous or aggregate period, as duly licensed flight operations officer/flight dispatch.

#### **8.10.1.42 RESERVED**

#### **8.10.1.43 MONITORING TRAINING AND CHECKING ACTIVITIES**

- (a) To enable adequate supervision of its training and checking activities, the Operator shall forward to the Authority at least 24 hours before the scheduled activity the dates, report times and report location of all:
  - (1) Training for which a curriculum is approved in the Operator's training program; and
  - (2) Proficiency, competence and line checks.
- (b) Failure to provide the information required by paragraph (a) may invalidate the training or check and the Authority may require that it be repeated for observation purposes.

**8.10.1.44 TERMINATION OF A PROFICIENCY, COMPETENCE OR LINE CHECK**

- (a) If it is necessary to terminate a check for any reason, the operator may not use the crew member or flight operations officer in commercial air transport operations until the completion of a satisfactory recheck.

**8.10.1.45 RECORDING OF CREW MEMBER QUALIFICATIONS**

- (a) The operator shall maintain a record, sufficient to satisfy the Authority of the qualification of each crew member and flight operations officer, and of the manner in which such qualification has been achieved, as required by this Part.
- (b) A pilot may complete the curricula required by this Part concurrently or intermixed with other required curricula, but completion of each of these curricula shall be recorded separately.

**8.10.1.46 RESERVED****8.10.1.47 ELIGIBILITY PERIOD**

- (a) Crew members who are required to take a proficiency check, a test or competency check, or recurrent training to maintain qualification for commercial air transport operations may complete those requirements at any time during the eligibility period.
- (b) The eligibility period is defined as the three (3) calendar month period including the month-prior, the month-due, and the month-after any due date specified by this subsection.
- (c) Completion of the requirement at any time during the period shall be considered as completed in the month-due for calculation of the next due date.

**8.10.1.48 REDUCTIONS IN REQUIREMENTS**

- (a) The Authority may authorize reductions in, or waive, certain portions of the training requirements of this Subpart, taking into account the previous experience of the crew members.
- (b) Any Operator request for reduction or waiver shall be made in writing and outline the basis under which the request is made.
- (c) If the request was for a specific crew member, the correspondence from the Authority authorizing the reduction and the basis for it shall be filed in the record the operator maintains for that crew member.
- (d) A person who progresses successfully through flight training, is recommended by their instructor or a check airman, and successfully completes the appropriate flight check for a check airman, or is permitted by the Authority, to complete a course in less than program time, need not complete the program hours of flight training for the particular aircraft. Whenever the Authority finds that 20 percent of the flight checks given at a particular training base during the previous 6 months are unsuccessful, this method of approval will not be used by the Operator at that base until the Authority finds that the effectiveness of the flight training there has improved.

**8.10.1.49 RECORDS OF COSMIC RADIATION**

- (a) For each flight of an airplane above 15,000 m (49,000 ft), each Operator shall maintain records so that the total cosmic radiation dose received by each crew member over a period of 12 consecutive months can be determined.

#### **8.10.1.50 SINGLE PILOT OPERATIONS UNDER IFR OR AT NIGHT**

The requirements of experience, recency and training applicable to single pilot operations intended to be carried out under the IFR or at night shall be as under. The PIC shall:

- (a) for operations under the IFR or at night, have accumulated at least 50 hours flight time on the class of aircraft, of which at least 10 hours shall be as PIC;
- (b) for operations under the IFR, have accumulated at least 25 hours flight time under the IFR on the class of aircraft, which may form part of the 50 hours flight time in paragraph (a);
- (c) for operations at night, have accumulated at least 15 hours flight time at night, which may form part of the 50 hours flight time in paragraph (a);
- (d) for operations under the IFR, have acquired recent experience as a pilot engaged in a single pilot operation under the IFR of:
  - (1) at least five IFR flight, including three instrument approaches carried out during the preceding 90 days on the class of airplane in the single pilot role; or
  - (2) an IFR instrument approach check carried out on such an airplane during the preceding 90 days;
- (e) for operations at night, have made at least three take-offs and landings at night on the class of airplane in the single pilot role in the preceding 90 days; and
- (f) have successfully completed training programs that include, in addition to the requirements of Subpart 8.10.1.8, passenger briefing with respect to emergency evacuation, autopilot management, and the use of simplified in-flight documentation.
- (g) The initial and recurrent flight training and proficiency checks indicated in Subparts 8.10.1.8 and 8.10.1.20 shall be performed by the PIC in the single pilot role on the class of aircraft in an environment representative of the operation.

## **8.11 FATIGUE MANAGEMENT FOR FLIGHT TIME, FLIGHT DUTY PERIODS, DUTY PERIODS AND REST PERIODS: COMMERCIAL AIR TRANSPORT**

### **8.11.1.1 APPLICABILITY**

- (a) This Subpart is applicable to the flight time, flight duty periods and rest periods of crew members and flight operations officers/flight dispatchers engaged in commercial air transport flight operations.
- (b) Each operator shall formulate rules to limit flight time, flight duty periods, duty periods and rest periods for all its crew members. These rules shall also make provision for adequate rest periods and shall be such as to ensure that fatigue occurring either in a flight or successive flights or accumulated over a period of time due to these and other tasks does not endanger the safety of a flight. These rules shall be in accordance with the regulations established by the Authority, or approved by the Authority, and included in the operations manual.

*Note: Guidance on the establishments of limitations is given in ICAO Annex 6, Part 1 Attachment A.*

- (c) This subpart is applicable to the management of fatigue-related safety risks of crew members and flight operations officers/flight dispatchers engaged in commercial air transport flight operations.
- (d) For the purpose of managing fatigue, the Operator shall establish regulations specifying the limitations applicable to flight time, flight duty periods, duty periods and rest periods for flight and cabin crew members. These regulations shall be based upon scientific principles and knowledge, where available, with the aim of ensuring that the flight and cabin crew members are performing at an adequate level of alertness.

*Note: Guidance for the development of prescriptive fatigue management regulations is given in ICAO Annex 6 Part 1, Attachment A.*

### **8.11.1.2 MANAGING FATIGUE-RELATED SAFETY RISKS**

- (a) For the purpose of managing fatigue-related safety risks, an AOC holder shall establish either:
  - (1) flight time, flight duty period, duty period and rest period limitations that are within the prescriptive fatigue management regulations in Subpart 8.12; or
  - (2) a Fatigue Risk Management System (FRMS) in compliance with Subsection 8.11.1.2(e); or
  - (3) a FRMS in compliance with Subpart 8.11.1.2(e) for part of its operations and the requirements of Subpart 8.12 for the remainder of its operations.
- (b) Where the operator adopts prescriptive fatigue management regulations for part or all of its operations, the Authority may approve, in exceptional circumstances, variations to these regulations on the basis of a risk assessment provided by the operator. Approved variations shall provide a level of safety equivalent to, or better than that achieved through the prescriptive fatigue management regulations.
- (c) The Authority shall approve an operator's FRMS before it may take the place of any or all of the prescriptive fatigue management regulations. An approved FRMS shall provide a level of safety equivalent to, or better than, the prescriptive fatigue management regulations.

(d) Operators using an FRMS must adhere to the following provisions of the FRMS approval process that allows the Authority to ensure that the approved FRMS meets the requirements of Subpart 8.11.1.2(c).

(1) Establish maximum values for flight times and/or flight duty period(s) and duty period(s), and minimum values for rest periods that shall be based upon scientific principles and knowledge, subject to safety assurance processes

*Note: ICAO Doc 9966, Fatigue Risk Management Systems Manual, provides a definition for Safety Assurance Processes.*

(2) Adhere to Authority mandates to decrease maximum values and increase in minimum values in the event that the operator's data indicates these values are too high to too low, respectively; and

(3) Provide justification to the Authority for any increase in maximum values or decrease in minimum values based on accumulated FRMS experience and fatigue-related data before such changes will be approved by the Authority.

(e) Operators implementing an FRMS to manage fatigue-related safety risks shall, as a minimum:

(1) Incorporate scientific principles and knowledge within the FRMS;

(2) Identify fatigue-related safety hazards and the resulting risks on an ongoing basis;

(3) Ensure that the remedial actions, necessary to effectively mitigate the risks associated with the hazards, are implemented promptly;

(4) Provide for continuous monitoring and regular assessment of the mitigation of fatigue risks achieved by such actions; and

(5) Provide for continuous improvement to the overall performance of the FRMS.

*Note. – Provisions on the protection of safety data, safety information and related sources are contained in Appendix 3 to ICAO Annex 19.*

### 8.11.1.3 DUTY AND REST PERIODS: ALL CREW MEMBERS

(a) With respect to duty periods:

(1) Persons are considered to be on duty if they are performing any scheduled or unscheduled tasks on behalf of the Operator.

(2) No Operator may schedule:

(i) A flight crew member for more than 14 hours of duty, except as prescribed by the Authority.

(ii) A cabin crew member for more than 14 consecutive hours of duty, except as prescribed by the Authority.

(iii) A flight operations officer/aircraft dispatcher for more than 10 consecutive hours of duty, except as prescribed by the Authority. (See 8.11.1.11).

(b) With respect to rest periods:

(1) The minimum rest period for flight crew members and flight operations officer/dispatcher is considered to be 8 consecutive hours, unless otherwise prescribed by the Authority.

(2) The minimum rest period for cabin crew members shall be 9 consecutive hours, unless otherwise prescribed by the Authority.

- (3) The operator shall relieve the flight crew member, cabin crew or flight operations officer/flight dispatcher from all duties for 24 consecutive hours during any 7 consecutive day period.
- (4) Time spent in deadhead transportation, that an operator requires of a flight crew member and provides to transport the crew member to an airport/heliport at which he/she is to serve on a flight as a crew member, or from an airport/heliport at which he/she was relieved from duty to return to his/her home station, is not considered part of a rest period.
- (5) No operator may assign, nor may any person:
  - (i) Perform duties in commercial air transportation unless that person has had at least the minimum rest period applicable to those duties as prescribed by the Authority, or
  - (ii) Accept an assignment to any duty with the operator during any required rest period.

#### **8.11.1.4 DUTY ALOFT: FLIGHT CREW MEMBERS**

- (a) The Authority will consider all time spent on an aircraft as an assigned flight crew member or relief flight crew member, whether resting or performing tasks to be duty aloft.
- (b) The Authority will consider a flight crew member to be on continuous duty aloft unless the flight crew member receives a rest period of 8 consecutive hours on the ground.
- (c) Each operator shall provide adequate sleeping quarters, including a berth, on the aircraft whenever a flight crew member is scheduled to be aloft for more than 12 hours during any 24 consecutive hours.

#### **8.11.1.5 COMPLIANCE WITH SCHEDULING REQUIREMENTS: ALL CREW MEMBERS**

- (a) The Authority will consider a person in compliance with prescribed duty time requirements, if that person exceeds applicable requirements, during an emergency or adverse situations beyond the control of the operator.

#### **8.11.1.6 SPECIAL FLIGHT DUTY SCHEMES: ALL CREW MEMBERS**

- (a) The Authority may approve a special flight duty scheme for an operator.
- (b) An operator may elect to apply the flight crew member flight duty and rest requirements to the cabin crew members.

#### **8.11.1.7 FLIGHT TIME, FLIGHT DUTY, DUTY AND REST PERIODS RECORDS**

- (a) Each AOC holder shall maintain records for each crew member and flight operations officer/flight dispatcher of flight time, flight duty periods, duty periods, and rest periods.

#### **8.11.1.8 FLIGHT TIME, DUTY AND REST PERIODS: FLIGHT CREW MEMBERS**

- (a) Except as provided in paragraph (b) of this section, no operator shall assign any flight crew member to a duty period exceeding:

- (1) 14 hours in any 24 consecutive hours for aircraft certificated for two flight crew members.
  - (2) 16 hours in any 24 consecutive hours for aircraft certificated for three flight crew members.
- (b) No person may schedule any flight crew member and no flight crew member may accept an assignment as a required crew member for more than 7 flights in commercial air transportation during any period of 18 consecutive hours, whichever comes first.
- (c) The duty period for flight crew members during any 24 consecutive hours may be extended by the addition of flight crew members as follows, provided the additional crew member is qualified to act in his respective crew position. For the purposes of computing weekly, quarterly and yearly flight time requirements, all flight crew members participating in an extended duty period shall log all the flight time accumulated during that flight or flights:
- (1) For aircraft certificated for two flight crew members:
    - (i) An extension to 18 hours is permitted by the addition of one pilot and is contingent upon the availability and use of a flight relief facility seat or bunk (and for charter flights a restriction of 8 hours flight deck duty time per pilot); and
    - (ii) An extension to 22 hours is permitted by the addition of two pilots and is contingent upon the availability and use of a flight relief facility bunk (and for charter flights a restriction of 8 hours flight deck duty time per pilot).
  - (2) For aircraft certificated for three flight crew members:
    - (i) An extension to 18 hours is permitted if the basic crew is augmented by one pilot and an additional flight crew member and is contingent upon the availability and use of a flight relief facility seat or bunk (and for charter flights a restriction of 12 hours flight deck duty time per flight crew member); and
    - (ii) An extension to 22 hours is permitted if the basic crew is augmented by one pilot and an additional flight crew member and is contingent upon the availability and use of a flight relief facility bunk (and for charter flights a restriction of 12 hours flight deck duty time per flight crew member).
- (d) A flight crew member shall receive at least 24 consecutive hours free from flight duty following 3 consecutive flight-deck duty-time periods that exceed 12 consecutive hours unless the flight crew member has received at least 24 consecutive hours free from flight duty between each of these flight duty periods.
- (e) If a flight crew member is required to deadhead for more than 4 hours prior to beginning a duty assignment, one half of all the time spent in deadhead transportation must be treated as duty time for the purposes of complying with duty time limitations, unless he is given at least 10 hours of rest on the ground before being assigned to duty.
- (f) If a flight crew member is required to deadhead after the completion of a duty period, that flight crew member shall be given an additional rest period at least equal to one-half the time spent traveling that is in excess of the flight crew member's maximum duty period.
- (g) A flight crew member is not considered to be scheduled for flight time in excess of flight time and duty period requirements if the flights to which he is assigned are scheduled and normally terminate within the requirements, but due to circumstances beyond the control of the air carrier (such as adverse weather conditions, diversions, aircraft mechanical delays, air traffic control delays or other unforeseen operational circumstances) are not at the time of departure expected to reach the destination within

the scheduled time under this provision, a maximum extension to the flight time and flight duty period requirements of 3 hours for international operations and 2 hours for domestic operations is permitted provided:

- (1) The PIC, after consultation with other crew members, considers it is safe to do so;
  - (2) The PIC notifies the operator of the length of and the reason for the extension; and
  - (3) The operator immediately reports the extension to the Authority, records the details of the extension, and maintains this record until the next audit by the Authority is completed.
- (h) Any rest period required under Subparts 8.11.1.9 and 8.11.1.10 may be reduced by the amount of time delayed as a result of an unforeseen operational circumstance if the flight crew member is provided a subsequent rest period of at least a period of time equal to the reduced rest period. The subsequent rest period must be scheduled to begin no later than 24 hours after the completion of the reduced rest period and must occur between the completion of the scheduled flight duty period and the commencement of the subsequent duty period.
- (i) No pilot that is employed as a pilot by a scheduled or non-scheduled operator may do any other commercial or general aviation flying if the total of such flying will exceed any flight time requirements of this Subpart. Each pilot must report the flying times accumulated in all flying to any and all operators employing him.
- (j) For the purposes of determining flight time and flight duty period requirements and rest periods requirements, flights involving any combination of domestic and international flying are deemed to be international flights.
- (k) Each operator shall establish and maintain a means for recording and tracking each crew member's flight and duty time and rest periods so as to not exceed any requirements established in Subpart 8.11.

#### **8.11.1.9 FLIGHT CREW FLIGHT TIME, DUTY AND REST PERIODS: SCHEDULED AND NONSCHEDULED DOMESTIC COMMERCIAL AIR TRANSPORT OPERATIONS**

- (a) This Subpart prescribes flight time, duty and rest period requirements for flight crew members on scheduled and non-scheduled domestic commercial air transport operations.

##### **8.11.1.9.1 FLIGHT TIME, DUTY AND REST PERIODS: FLIGHT CREW MEMBERS**

- (a) No scheduled and non-scheduled domestic operator may schedule any flight crew member and no flight crew member may accept an assignment for flight time in scheduled air transportation or in other commercial flying if that crew member's total flight time in all commercial flying will exceed:
- (1) 1,000 hours in any calendar year;
  - (2) 100 hours in any calendar month;
  - (3) 30 hours in any 7 consecutive days; or
  - (4) 8 hours between required rest periods.
- (b) Except as provided in paragraph (c) of this Section, no scheduled or non-scheduled domestic operator may schedule a flight crew member and no flight crew member may accept an assignment for flight time during any 24 consecutive hours preceding the

scheduled completion of any flight segment without a scheduled rest period during that 24 hours of at least the following:

- (1) 9 consecutive hours of rest for 8 hours or less of flight time.
  - (2) 10 consecutive hours of rest for more than 8 hours up to including 9 hours of flight time.
  - (3) 11 consecutive hours of rest for 9 or more hours of flight time.
- (c) An operator may schedule a flight crew member for less than the rest required in paragraph (b) of this Section or may reduce a scheduled rest under the following conditions:
- (1) A rest required under paragraph (b)(1) of this section may be scheduled for or reduced to a minimum of 8 hours if the flight crew member is given a rest period of at least 10 hours that must begin no later than 24 hours after the commencement of the reduced rest period.
  - (2) A rest required under paragraph (b)(2) of this section may be scheduled for or reduced to a minimum of 8 hours if the flight crew member is given a rest period of at least 11 hours that must begin no later than 24 hours after the commencement of the reduced rest period.
  - (3) No air operator may assign, nor may any flight crew member perform any flight time with the operator unless the flight crew member has had at least the minimum rest required under this Subpart.

#### **8.11.1.10 FLIGHT CREW FLIGHT TIME, DUTY AND REST PERIODS: SCHEDULED AND NONSCHEDULED INTERNATIONAL COMMERCIAL AIR TRANSPORT OPERATIONS**

- (a) This Subpart prescribes flight time, duty and rest period requirements for flight crew members on scheduled and non-scheduled international commercial air transport operations.

##### **8.11.1.10.1 FLIGHT TIME, DUTY AND REST PERIODS: AIRCRAFT TYPE CERTIFICATED FOR TWO PILOTS**

- (a) No scheduled or any non-scheduled international operator may schedule any flight crew member and no flight crew member may accept an assignment for flight time in commercial flying if that flight crew member's total flight time in all flying will exceed:
- (1) 32 hours in any 7 consecutive days;
  - (2) 100 hours in any calendar month; or
  - (3) 1,000 hours in any calendar year.
- (b) A flight crew member may be scheduled to fly in an aircraft that has a crew of two pilots for 8 hours or less during any 24 consecutive hours without a rest period during these 8 hours.
- (c) A flight crew member shall be given a rest period at the end of the scheduled hours of flight duty. This rest period must be twice the number of hours flown since the preceding rest period or 8 hours, whichever is greater. The operator shall relieve that flight crew member of all duty with it during that rest period.

**8.11.1.10.2 FLIGHT TIME, DUTY AND REST PERIODS: AIRCRAFT TYPE CERTIFICATED FOR TWO PILOTS AND ONE OTHER FLIGHT CREW MEMBER**

- (a) No scheduled and non-scheduled international operator may schedule any flight crew member and no flight crew member may accept an assignment for flight time in commercial flying if that flight crew member's total flight time in all flying will exceed:
  - (1) 12 hours during any 24 consecutive hours;
  - (2) 120 hours during any 30 consecutive days;
  - (3) 300 hours during any 90 consecutive days; or
  - (4) 1,000 hours during any calendar year.
- (b) A rest period of twice the number of hours flown since the last rest period or 12 hours, whichever is greater, shall be scheduled following any flight segment.
- (c) If a flight crew member has flown 20 or more hours during any 48 consecutive hours or 24 or more hours during any 72 consecutive hours, he must be given at least 18 hours of rest before being assigned to any duty with the operator.

**8.11.1.10.3 FLIGHT TIME, DUTY AND REST PERIODS: AUGMENTED CREW MEMBERS**

- (a) No scheduled and non-scheduled international operator may schedule any flight crew member who is part of an augmented crew and no flight crew member may accept an assignment for flight time that exceeds:
  - (1) 350 hours during any 90 consecutive days; or
  - (2) 1,000 hours during any calendar year.
- (b) A rest period of at least 24 hours shall be scheduled for flight crew members following a flight requiring an augmented crew. Notwithstanding Subpart 8.11.1.8 (h), no flight crew member may commence a flight duty assignment unless the flight crew member has been given 12 consecutive hours of undisturbed rest following a flight requiring an augmented crew.

**8.11.1.10.4 FLIGHT TIME, DUTY AND REST PERIODS: PILOTS NOT REGULARLY ASSIGNED**

- (a) Except as provided in paragraphs (b) through (e) of this section, a pilot who is not regularly assigned as a flight crew member for an entire calendar month under Subparts 8.11.1.10.2 or 8.11.1.10.3 may not fly more than 100 hours in any calendar month.
- (b) The monthly flight time requirements for a pilot who is scheduled for duty aloft for more than 20 hours in two-pilot crew members in any calendar month, whose assignment in such a crew is interrupted more than once in that month by assignment to an augmented crew, are those set forth in Subpart 8.11.1.10.1 except sub-paragraph (a)(1).
- (c) Except for a pilot covered by paragraph (b) of this section, the monthly and quarterly flight time requirements for a pilot who is scheduled for duty aloft for more than 20 hours in any calendar month in an aircraft type certificated for two pilots and one other flight crew member, or whose assignment in such a crew is interrupted more than once in that calendar month by assignment to an augmented crew, are those set forth in Subpart 8.11.1.10.2.

- (d) The 90 day flight time requirements, for a pilot to whom paragraphs (b) and (c) of this section do not apply and who is scheduled for duty aloft for a total of not more than 20 hours within any calendar month in two-pilot crew members (with or without additional pilots), are those set forth in Subpart 8.11.1.10.3.
- (e) The monthly and quarterly flight time requirements for a pilot assigned to each of two-pilot, three-pilot, and four pilot or more crew members in a given calendar month, and who is not subject to paragraph (b), (c), or (d) of this section, are those set forth in Subpart 8.11.1.10.2.

#### **8.11.1.10.5 FLIGHT TIME, DUTY AND REST PERIODS: OTHER COMMERCIAL FLYING**

- (a) No pilot that is employed as a pilot by a scheduled or non-scheduled international operator may do any other commercial flying if that commercial flying plus his flying in air transportation will exceed any flight time requirements in this Subpart.

#### **8.11.1.11 FLIGHT OPERATIONS OFFICER/FLIGHT DISPATCHERS DUTY TIME AND REST PERIODS REQUIREMENTS: SCHEDULED INTERNATIONAL AND SCHEDULED DOMESTIC OPERATORS**

- (a) Each scheduled international and scheduled domestic operator shall establish the daily duty period for a flight operations officer/flight dispatcher so that it begins at a time that allows him to become thoroughly familiar with existing and anticipated weather conditions along the route before he/she dispatches any aircraft. He/she shall remain on duty until each aircraft dispatched by him/her has completed its flight, or has gone beyond his jurisdiction, or until he/she is relieved by another qualified flight operations officer/flight dispatcher.
- (b) Except in cases where circumstances or emergency conditions beyond the control of the operator require otherwise:
  - (1) No scheduled international or scheduled domestic operator may schedule a flight operations officer/flight dispatcher for more than 10 consecutive hours of duty;
  - (2) If a flight operations officer/flight dispatcher is scheduled for more than 10 hours of duty in 24 consecutive hours, the operator shall provide him/her a rest period of at least eight hours at or before the end of 10 hours of duty.
- (c) Notwithstanding paragraphs (a) and (b) of this section, a scheduled international operator may, if authorized by the Authority, schedule an flight operations officer/flight dispatcher at a duty station outside of the Philippines, for more than 10 consecutive hours of duty in a 24-hour period if that flight operations officer/flight dispatcher is relieved of all duty with the operator for at least eight hours during each 24-hour period.

#### **8.11.1.12 CABIN CREW DUTY TIME AND REST PERIODS REQUIREMENTS: SCHEDULED AND NON-SCHEDULED INTERNATIONAL AND DOMESTIC OPERATORS**

An operator conducting domestic or international operations may assign a cabin crew member to a duty period only when the applicable duty period and rest requirements of this Subpart are met.

- (a) Except as provided in paragraphs (d), (e), and (f) of this section, no operator may assign a cabin crew member to a scheduled duty period of more than 14 hours.

- (b) Except as provided in paragraph (c) of this section, a cabin crew member scheduled to a duty period of 14 hours or less as provided under paragraph (a) of this section, must be given a scheduled rest period of at least 9 consecutive hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.
- (c) The rest period required under paragraph (b) of this section may be scheduled or reduced to 8 consecutive hours if the cabin crew member is provided a subsequent rest period of at least 10 consecutive hours. This subsequent rest period must be scheduled to begin no later than 24 hours after the beginning of the reduced rest period and must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.
- (d) An operator conducting domestic or international operations may assign a cabin crew member to a scheduled duty period of more than 14 hours, but no more than 16 hours, if the certificate holder has assigned to the flight or flights in that duty period at least one cabin crew member in addition to the minimum cabin crew member complement required for the flight or flights in that duty period under the operator's operations specifications.
- (e) An operator conducting international operations may assign a cabin crew member to a scheduled duty period of more than 16 hours but no more than 18 hours, if the operator has assigned to the flight or flights in that duty period at least two cabin crew members in addition to the minimum cabin crew member complement required for the flight or flights in that duty period under the operator's operations specifications and a flight relief facility seat is on board the aircraft.
- (f) An operator conducting international operations may assign a cabin crew member to a scheduled duty period of more than 18 hours, but no more than 22 hours, if the scheduled duty period includes one or more international flights and if the operator has assigned to the flight or flights in that duty period at least three cabin crew members in addition to the minimum cabin crew member complement required for the flight or flights in that duty period under the operator's operations specifications and flight relief facility bunks are on board the aircraft.
- (g) Except as provided in paragraph (j) of this section, a cabin crew member scheduled to a duty period of more than 14 hours but no more than 16 hours, as provided in paragraph (d) of this section, must be given a scheduled rest period of at least 12 hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.
- (h) Except as provided in paragraph (j) of this section, a cabin crew member scheduled to a duty period of more than 16 hours but no more than 18 hours, as provided in paragraph (e) of this section, must be given a scheduled rest period of at least 14 hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.
- (i) Except as provided in paragraph (j) of this section, a cabin crew member scheduled to a duty period of more than 18 hours but no more than 22 hours, as provided in paragraph (f) of this section, must be given a scheduled rest period of at least 24 hours. This rest period must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.
- (j) The rest period required under paragraph (g), (h) and (i) of this section may be reduced by the amount of time delayed as a result of an unforeseen operational circumstances if the cabin crew member is provided a subsequent rest period of at least a period of time equal to the reduced rest period. The subsequent rest period must be scheduled to begin no later than 24 hours after the completion of the reduced rest period and

must occur between the completion of the scheduled duty period and the commencement of the subsequent duty period.

- (k) No operator conducting domestic or international operations may assign a cabin crew member to any duty period with the operator unless the cabin crew member has had at least the minimum rest required under this section.
- (l) No operator conducting domestic or international operations may assign a cabin crew member to perform any duty with the operator during any required rest period.
- (m) Time spent in transportation that an operator conducting domestic or international operations requires of a cabin crew member and provides to transport the cabin crew member to an airport at which that cabin crew member is to serve on a flight as a crew member, or from an airport at which the cabin crew member was relieved from duty to return to the cabin crew member's home station, is not considered part of a rest period.
- (n) If a cabin crew member is required to deadhead for more than 4 hours prior to beginning a duty assignment, one half of all the time spent in deadhead transportation must be treated as duty time for the purposes of complying with duty time requirements, unless he/she is given at least 10 hours of rest on the ground before being assigned to duty.
- (o) Each operator conducting domestic or international operations must relieve each cabin crew member engaged in air transportation and each commercial operator must relieve each cabin crew member engaged in air commerce from all further duty for at least 24 consecutive hours during any 7 consecutive calendar days.
- (p) A cabin crew member is not considered to be scheduled for duty in excess of duty period requirements if the flights to which the cabin crew member is assigned are scheduled and normally terminate within the requirements but due to circumstances beyond the control of the operator conducting domestic or international operations (such as adverse weather conditions, diversions, air traffic control delays, aircraft mechanical delays, or other unforeseen operational circumstances) are not at the time of departure expected to reach their destination within the scheduled time.
- (q) No scheduled or non-scheduled international or domestic operator may schedule any cabin crew, and no cabin crew may accept an assignment for flight time in scheduled air transportation or in other commercial flying if that cabin crew's total flight time in all commercial flying will exceed:
  - (1) 1,000 hours in any calendar year; or
  - (2) 100 hours in any calendar month.

**8.12 FLIGHT RELEASE: COMMERCIAL AIR TRANSPORT****8.12.1.1 APPLICABILITY**

- (a) This Subpart is applicable to an operator and the person designated by the operator to issue a flight release.

**8.12.1.2 QUALIFIED PERSONS REQUIRED FOR OPERATIONAL CONTROL FUNCTIONS**

- (a) An operator or a designated representative shall have responsibility for operational control. Responsibility for operational control shall be delegated by an operator only to the PIC and to a flight operations officer/flight dispatcher, if the operator's approved method of control and supervision of flight operations requires the use of flight operations officer/flight dispatcher personnel.
- (b) For passenger-carrying flights conducted on a published schedule, a licensed and qualified flight operations officer or equivalently qualified person shall be on-duty at an operations base to perform the operational control functions.
- (c) For all other flights, Director of Operations and PIC are the qualified person exercising operational control responsibilities, and shall be available for consultation prior to, during and immediately following the flight operation.
- (1) The Director of Operations may delegate the functions for initiating, continuation, diversion and termination of a flight to other employees. However, the Director of Operations shall retain full responsibility for these functions.
- (d) For all flights, the PIC shares in the responsibility for operational control of the aircraft and has the situational authority to make decisions regarding operational control issues in-flight.
- (1) Where a decision of the PIC differs from that recommended, the person making the recommendation shall make a record of the associated facts.

**8.12.1.3 FUNCTIONS ASSOCIATED WITH OPERATIONAL CONTROL**

- (a) The person exercising responsibility for operational control for an operator shall-
- (1) Authorize the specific flight operation;
  - (2) Ensure that only those operations authorized by the AOC operations specifications are conducted;
  - (3) Ensure that an airworthy aircraft properly equipped for the flight is available;
  - (4) Specify the conditions under which a flight may be dispatched or released (weather minimums, flight planning, aircraft loading, and fuel requirements);
  - (5) Ensure that qualified personnel and adequate facilities are available to support and conduct the flight;
  - (6) Ensure that crew members are in compliance with the flight and duty time requirements when departing on a flight;
  - (7) Provide the PIC and other personnel who perform operational control functions with access to the necessary information for the safe conduct of a flight (such as weather, NOTAMS and aerodrome analysis);
  - (8) Ensure that proper flight planning and preparation is made;
  - (9) Ensure that flight locating and flight following procedures are followed;

- (10) Ensure that each flight has complied with the conditions specified for release before it is allowed to depart;
- (11) Ensure that when the conditions specified for a release cannot be met, the flight is either cancelled, delayed, re-routed, or diverted;
- (12) For all flights, ensure the monitoring of the progress of the flight and the provision of information that may be necessary to safety; and
- (13) Operational instructions involving a change in the filed or current flight plan, shall when practicable, be coordinated with the appropriate ATS unit before transmission to the aircraft.

*Note 1: See also ICAO Doc 9376, Preparation of an Operations Manual, Chapters 7 and 8.*

*Note 2: When the above coordination has not been possible, operational instructions do not relieve a pilot of the responsibility for obtaining an appropriate clearance from an ATS unit, if applicable, before making a change in flight plan.*

#### 8.12.1.4 OPERATIONAL CONTROL DUTIES

- (a) A flight operations officer/flight dispatcher in conjunction with a method of control and supervision of flight operations in accordance with Subpart 9.1.1.6 (c) shall:
  - (1) Assist the PIC in flight preparation and provide the relevant information required;
  - (2) Assist the PIC in preparing the operational flight plan and the flight plans to be filed;
  - (3) When applicable, assist the pilot-in-command in preparing the preliminary flight plan, and submit it to a unit designated by the appropriate ATS authority;
  - (4) Sign, when applicable, and file the flight plan to a unit designated by the appropriate ATS authority;
  - (5) Sign the dispatch copy of the flight release and file the ATS flight plan with the appropriate ATS unit;
  - (6) Furnish the PIC while in flight, by appropriate means, with information which may be necessary for the safe conduct of the flight; and
  - (7) Notify the appropriate ATS unit when the position of the airplane cannot be determined by an aircraft tracking capability, and attempts to establish communication are unsuccessful.

*Note 1. – The requirements for flight plans are contained in Annex 2 – Rules of the Air and the procedures relating to flight plans and associated services are contained in the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444).*

*Note 2. – Detailed guidance on the use of the FF-ICE services, including the use of a preliminary flight plan, can be found in the Manual on Flight and Flow – Information for a Collaborative Environment (FF-ICE) (Doc 9965).*
- (b) A qualified person performing the operational control duties shall avoid taking any action that would conflict with the procedures established by:
  - (1) ATC;
  - (2) The meteorological service;
  - (3) The communications service; or
  - (4) The operator.

- (c) In the event of an emergency, flight operations officer/flight dispatcher shall:
- (1) Initiate the applicable procedures contained in the operator's operations manual while avoiding taking any action that would conflict with the ATC procedures; and
  - (2) Convey safety related information to the PIC that may be necessary for the safe conduct of the flight, including information related to any amendment to the flight plan that becomes necessary in the course of the flight.
- (d) If an emergency situation which endangers the safety of the aircraft or persons becomes first known to the flight operations officer/flight dispatcher, action by that person in accordance with (b) above shall include, where necessary, notification to the appropriate authorities of the nature of the situation without delay, and request for assistance if required.

*Note: See also ICAO Doc 9376, Preparation of an Operations Manual, Chapters 7 and 8.*

#### **8.12.1.5 CONTENTS OF A FLIGHT RELEASE/OPERATIONAL FLIGHT PLAN**

- (a) The flight release/operational flight plan must contain at least the following information concerning each flight:
- (1) Company or organization name.
  - (2) Make, model, and registration number of the aircraft being used.
  - (3) Flight or trip number, and date of flight.
  - (4) Name of each flight crew member, cabin crew member, and PIC.
  - (5) Departure airport/heliport, destination airports/heliports, alternate airports/heliports, and route.
  - (6) Minimum fuel supply (in gallons or pounds).
  - (7) A statement of the type of operation (e.g., IFR, VFR).
  - (8) The latest available weather-reports, and forecasts for the destination airport/heliport and alternate airports/heliports.
  - (9) Any additional available weather information that the PIC considers necessary.

*Note: See also ICAO Doc 9376, Preparation of an Operations Manual, Chapter 7.*

#### **8.12.1.6 FLIGHT RELEASE: AIRCRAFT REQUIREMENTS**

- (a) No person may issue a flight release for a commercial air transport operation unless the aircraft is airworthy and properly equipped for the intended flight operation.
- (b) No person may issue a flight release for a commercial air transport operation using an aircraft with inoperative instruments and equipment installed, except as specified in the MEL approved for the operator for that type aircraft.

#### **8.12.1.7 FLIGHT RELEASE: FACILITIES AND NOTAMs**

- (a) No person may release an aircraft over any route or route segment unless there are adequate communications and navigational facilities in satisfactory operating condition as necessary to conduct the flight safely.

- (b) The flight operations officer shall ensure that the PIC is provided all available current reports or information on airport conditions and irregularities of navigation facilities that may affect the safety of the flight.

*Note: For their review of the operational flight plan, the PIC will be provided with all available NOTAMs with respect to the routing, facilities and airports.*

#### **8.12.1.8 FLIGHT RELEASE: WEATHER REPORTS AND FORECASTS**

- (a) No person may release a flight unless he or she is thoroughly familiar with reported and forecast weather conditions on the route to be flown.
- (b) No person may release a flight unless he or she has communicated all information and reservations they may have regarding weather reports and forecasts to the PIC.

#### **8.12.1.9 FLIGHT RELEASE IN ICING CONDITIONS**

- (a) No person may release an aircraft, when in their opinion or that of the PIC, the icing conditions that may be expected or are met exceed that for which the aircraft is certified and has sufficient operational de-icing or anti-icing equipment.
- (b) No person may release an aircraft any time conditions are such that frost, ice or snow may reasonably be expected to adhere to the aircraft, unless there is the available to the PIC at the airport/heliport of departure adequate facilities and equipment to accomplish the procedures approved for the operator by the Authority for ground de-icing and anti-icing; and the aircraft has been inspected for icing and, if necessary, has been given appropriate de-icing/anti-icing treatment; and
- (c) Accumulation of ice or other naturally occurring contaminants shall be removed so that the aircraft is kept in an airworthy condition prior to take-off.

#### **8.12.1.10 FLIGHT RELEASE UNDER VFR OR IFR**

- (a) No person may release a flight under VFR or IFR unless the weather reports and forecasts indicated that the flight can reasonably be expected to be completed as specified in the release.

#### **8.12.1.11 FLIGHT RELEASE: MINIMUM FUEL SUPPLY**

- (a) No person may issue a flight release for a commercial air transport operation unless the fuel supply specified in the release is equivalent to or greater than the minimum flight planning requirements of this Part, including anticipated contingencies.

#### **8.12.1.12 FLIGHT RELEASE: AIRCRAFT LOADING AND PERFORMANCE**

- (a) No person may issue a flight release unless he or she is familiar with the anticipated loading of the aircraft and is reasonably certain that the proposed operation will not exceed the
- (1) Centre of gravity limits;
  - (2) Aircraft operating limitations; and
  - (3) Minimum performance requirements.

**8.12.1.13 FLIGHT RELEASE: AMENDMENT OR RE-RELEASE EN ROUTE**

- (a) Each person who amends a flight release while the flight is en route shall record that amendment.
- (b) No person may amend the original flight release to change the destination or alternate airport while the aircraft is en route unless the flight preparation requirements for routing, airport selection and minimum fuel supply are met at the time of amendment or re-release.
- (c) No person may allow a flight to continue to an airport to which it has been released if the weather reports and forecasts indicate changes which would render that airport unsuitable for the original flight release.

**8.12.1.14 FLIGHT RELEASE WITH AIRBORNE WEATHER RADAR EQUIPMENT**

- (a) No person may release a large aircraft carrying passengers under IFR or night VFR conditions when current weather reports indicate that thunderstorms, or other potentially hazardous weather conditions that can be detected with airborne weather radar, may reasonably be expected along the route to be flown, unless the airborne weather radar equipment is in satisfactory operating condition.

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**8.13 SAFETY MANAGEMENT SYSTEM – INTERNATIONAL GENERAL AVIATION OPERATORS**

- (a) International general aviation operators shall implement an SMS that meets the criteria established by the State of Registry when conducting operations with:
- (1) An airplane with a maximum certificated take-off mass exceeding 5 700 kg;
  - (2) An airplane equipped with one or more turbojet engines; or
  - (3) An airplane with a seating configuration of more than nine passenger seats.
- (b) The SMS shall be acceptable to the Authority and shall:
- (1) Meet the criteria established by the State of Registry;
  - (2) Address the SMS framework and elements prescribed in PCAR Part 1; I.S. 1.5; and
  - (3) Be commensurate with the size and complexity of the operation.

*Note 1: Guidance on the implementation of an SMS for international general aviation is contained in ICAO Doc 9859, Safety Management Manual (SMM), and in industry codes of practice.*

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**Republic of the Philippines**  
**CIVIL AVIATION REGULATIONS (CAR)**

**PART 8: IS**  
**OPERATIONS:**

**IMPLEMENTING STANDARDS**

**IS: 8.2.1.5 INOPERATIVE INSTRUMENTS AND EQUIPMENT**

- (a) This implementing standard authorizes flight operations with inoperative instruments and equipment installed in situations where no master minimum equipment list (MMEL) is available and no MEL is required for the specific aircraft operation under these regulations.
- (b) The inoperative instruments and equipment may not be
- (1) Part of the VFR-day instruments and equipment prescribed in Part 7;
  - (2) Required on the aircraft's equipment list or the operations equipment list for the kind of flight operation being conducted;
  - (3) Required by Part 7 for the specific kind of flight operation being conducted, or
  - (4) Required to be operational by an airworthiness directive.
- (c) To be eligible for these provisions, the inoperative instruments and equipment shall be
- (1) Determined by the PIC not to be a hazard to safe operation;
  - (2) Deactivated and placarded *Inoperative*; and
- Note: If deactivation of the inoperative instrument or equipment involves maintenance, it must be accomplished and recorded in accordance with Part 5.*
- (3) Removed from the aircraft, the flight deck control placarded and the maintenance recorded in accordance with Part 5.
- Note: The required instruments and equipment for specific operations are listed in Part 7.*

**IS: 8.5.1.26 GUIDELINES/PROCEDURES ON THE USE OF TRANSMITTING PORTABLE ELECTRONIC DEVICE ON BOARD THE AIRCRAFT**

- (a) The Civil Aviation Authority of the Philippines allows the use of transmitting portable electronic devices specifically laptops and cellular phone including MP3 and GSMOBA, on a conditional basis, on all commercial aircraft operating within or enroute over the territorial jurisdiction of the Republic of the Philippines.
- (b) **The conditions and limitations are:**
- (1) **When the aircraft doors are still open.** Use of laptops and cellular phone may be used, internet or short-message-service (SMS) or voice communications, unless the Pilot-In-Command and or Senior Cabin Crew would specifically announce on the public address system (PAS) its prohibition. In no case shall laptop using broadband communications and cellular phone be allowed or used when the aircraft is re-fuelling. In this instance, all transmitting portable electronic devices must be turned-off.
  - (2) **When the aircraft doors are closed.** Transmitting portable electronics devices, on silent mode, may be used only for short-message-service (SMS) or internet. Voice communications are not allowed except the use of GSMOBA provided its use does not interfere with the orderly conduct of flight. Games on electronic devices on silent mode may be played.
  - (3) The use of MP3's should always be with earphones and not with additional or separate speaker and or amplifiers.
- (c) All Philippine-registered commercial airlines/operator shall submit, for CAAP approval, the page or pages of these revised Operations Manual containing the

- (d) procedures and guidelines including restriction in the implementation of this regulations.
- (e) Notwithstanding, any person who uses PTED's, MP3's and GSMOBA that interfere with the orderly and safe conduct of air travel shall be proceeded with against under the provisions of Republic Act Number 9497 or related laws.
- (f) **Transitory Provision.** Pending CAAP approval of the amended 'operation manual' of Philippine' registered airline/operator incorporating the guidelines, procedures and restrictions for conditions use of transmitting portable electronic devices, MP3's, and GSMOBA, all persons shall observe the provisions of Paragraph (b) of the Implementing Standards of this regulations.

#### IS: 8.8.1.7 INSTRUMENT APPROACH OPERATING MINIMA

- (a) Each Operator establishing airport/heliport-operating minima shall have its method for determining such minima approved by the Authority.
- (b) Each Operator's method for determining airport/heliport-operating minima which will apply to any particular operation, shall accurately account for:
  - (1) the type, performance and handling characteristics of the aircraft;
  - (2) the composition of the flight crew, their competence and experience;
  - (3) the dimensions and characteristics of the runways selected for use;
  - (4) the adequacy and performance of the available visual and non-visual ground aids;
  - (5) the equipment available on the aircraft for the purpose of navigation acquisition of visual references and/or control of flight path during the approach, landing and the missed approach;
  - (6) the obstacles in the approach and missed approach areas and the obstacle clearance altitude/height for the intended instrument approach procedures;
  - (7) the means used to determine and report meteorological conditions; and
  - (8) the obstacles in the climb-out areas and the necessary clearance margins;
  - (9) the declared distances, for helicopters.

#### IS: 8.8.1.9 CATEGORY II AND III MANUAL

- (a) *Application for approval.* An applicant for approval of a Category II manual or an amendment to an approved Category II manual shall submit the proposed manual or amendment to the Authority. If the application requests an evaluation program, it shall include the following:
  - (1) The location of the aircraft and the place where the demonstrations are to be conducted; and
  - (2) The date the demonstrations are to commence (at least 10 days after filing the application).
- (b) *Contents.* Each Category II manual must contain:
  - (1) The registration number, make, and model of the aircraft to which it applies;
  - (2) A maintenance program; and

- (3) The procedures and instructions related to recognition of DH, use of runway visual range (RVR) information, approach monitoring, the decision region (the region between the middle marker and the decision height), the maximum permissible deviations of the basic ILS indicator within the decision region, a missed approach, use of airborne low approach equipment, minimum altitude for the use of the autopilot, instrument and equipment failure warning systems, instrument failure, and other procedures, instructions, and limitations that may be found necessary by the Authority.

*Note: Category II approval is required to prior to obtaining Category III approval.*

#### **IS: 8.8.1.28 INTERCEPTION OF CIVIL AIRCRAFT**

- (a) All concerned in Republic of the Philippines shall observe the following principles regarding the interception of civil aircraft.

- (1) Interception of civil aircraft will be undertaken only as a last resort.
- (2) If undertaken, an interception will be limited to determining the identity of the aircraft, unless it is necessary to return the aircraft to its planned track, direct it beyond the boundaries of national airspace, guide it away from a prohibited, restricted or danger area or instruct it to effect a landing at a designated aerodrome.
- (3) Practice interception of civil aircraft will not be undertaken.
- (4) Navigational guidance and related information will be given to an intercepted aircraft by radiotelephony, whenever radio contact can be established.
- (5) In the case where an intercepted civil aircraft is required to land in the territory overflown, the aerodrome designated for the landing is to be suitable for the safe landing of the aircraft type concerned.

*Note: In the unanimous adoption by the 25th Session (Extraordinary) of the ICAO Assembly on 10 May 1984 of Article 3-Bis to the Convention on International Civil Aviation, the Contracting States have recognized that "every State must refrain from resorting to the use of weapons against civil aircraft in flight."*

- (b) All concerned in Republic of the Philippines shall ensure that:
  - (1) A standard method has been established and made available to the public for the maneuvering of aircraft intercepting a civil aircraft that is designed to avoid any hazard for the intercepted aircraft.
  - (2) Provision is made for the use of secondary surveillance radar, where available, to identify civil aircraft in areas where they may be subject to interception.
- (c) The PIC of an aircraft that is intercepted by another aircraft shall immediately:
  - (1) Follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with the specifications in item (e) below.
  - (2) Notify, if possible, the appropriate air traffic services unit.
  - (3) Attempt to establish radio communication with the intercepting aircraft or with the appropriate intercept control unit. By making a general call on the emergency frequency 121.5 MHz, giving the identity of the intercepted aircraft and the nature of the flight; and if no contact has been established and if practicable, repeating this call on the emergency frequency 243 MHz.
  - (4) If equipped with SSR transponder, select Mode A Code 7700, unless otherwise instructed by the appropriate air traffic services unit.

- (d) If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by visual signals, the PIC of the intercepted aircraft shall request immediate clarification while continuing to comply with the visual instructions given by the intercepting aircraft.
- (e) If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by radio, the PIC of the intercepted aircraft shall request immediate clarification while continuing to comply with the radio instructions given by the intercepting aircraft.
- (f) Radio communication during interception. If radio contact is established during interception but communication in a common language is not possible, the PIC of each involved aircraft shall attempt to convey instructions, acknowledgement of instructions and essential information by using the phrases and pronunciations in the table below and transmitting each phrase twice:
- (g) Radio communication during interception
  - (1) If radio contact is established during interception but communication in a common language is not possible, attempts shall be made to convey instructions, acknowledgement of instructions and essential information by using the phrases and pronunciations in the table below and transmitting each phrase twice:

| Phrases for use by INTERCEPTING aircraft   |               |                      | Phrases for use by INTERCEPTED aircraft |                          |                                   |
|--|---------------|----------------------|---|--------------------------|-----------------------------------|
| Phrase   | Pronunciation | Meaning              | Phrase                                  | Pronunciation            | Meaning                           |
| CALL SIGN<br>sign?   | KOL SA-IN     | What is your call    | CALL SIGN<br>(Call sign) <sup>2</sup>   | KOL SA-IN<br>(Call sign) | My call sign is (call sign)       |
| FOLLOW   | FOL-LO        | Follow me            | WILCO                                   | VILL-KO                  | Understood<br>Will comply         |
| DESCEND  | DEE-SEND      | Descend for landing  | CAN NOT                                 | KANN NOTT                | Unable to comply                  |
| YOU LAND   | YOU LAAND     | Land at this airport | REPEAT                                  | REE-PEET                 | Repeat your instruction           |
| PROCEED  | PRO-SEED      | You may proceed      | AM LOST                                 | AM LOSST                 | Position unknown                  |
|  |               |                      | MAYDAY                                  | MAYDAY                   | I am in distress                  |
|  |               |                      | HIJACK <sup>3</sup>                     | HI-JACK                  | I have been hijacked              |
|  |               |                      | LAND                                    | LAAND                    | I request to land at              |
|  |               |                      | (place name)<br>DESCEND                 | (place name)<br>DEE-SEND | (place name)<br>I require descent |
| <p><b>1. In the second column, syllables to be emphasized are underlined.</b></p> <p><b>2. The call sign required to be given is used in radiotelephone, communications with air traffic services units and corresponding to the aircraft identification in the flight plan.</b></p> <p><b>3. Circumstances may not always permit, nor make desirable, the use of the phrase "HIJACK".</b></p> |               |                      |   |                          |                                   |

- (h) The following signals shall be used in the event of interception.
  - (1) Signals initiated by intercepting aircraft and responses by intercepted aircraft.

| Series | INTERCEPTING Aircraft Signals   | Meaning                               | INTERCEPTED Aircraft Responds                                    | Meaning                  |
|--------|---|---------------------------------------|--|--------------------------|
| 1      | DAY or NIGHT—Rocking aircraft and flashing navigational lights at irregular intervals (and landing lights in the case of a helicopter) from a | You have been intercepted. Follow me. | DAY or NIGHT - Rocking aircraft, flashing navigational lights at | Understood, will comply. |

|   |   |                              |  |                                 |
|---|---|------------------------------|--|---------------------------------|
|   | <p>position slightly above and ahead of, and normally to the left of, the intercepted aircraft (or to the right if the intercepted aircraft is a helicopter) and, after acknowledgement, a slow level turn, normally to the left, (or to the right in the case of a helicopter) on the desired heading.</p> <p>Note 1. —Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above in Series 1.</p> <p>Note 2. —If the intercepting aircraft is not able to keep pace with the intercepting aircraft, the latter is expected to fly a series of race-track patterns and to rock the aircraft each time it passes the intercepted aircraft.</p> |                              | <p>irregular intervals and following.</p>  |                                 |
| 2 | <p>DAY or NIGHT —An abrupt break-away maneuver from the intercepted aircraft consisting of a climbing turn of 90 degrees or more without crossing the line of flight of the intercepted aircraft.</p>   | <p>You may proceed</p>       | <p>DAY or NIGHT - Rocking the aircraft.</p>  | <p>Understood, will comply.</p> |
| 3 | <p>DAY or NIGHT —Lowering landing gear (if fitted), showing steady landing lights and overflying runway in use or, if the intercepted aircraft is a helicopter, overflying the helicopter landing area. In the case of helicopters, the intercepting helicopter makes a landing approach, coming to hover near to the landing area</p>  | <p>Land at this Airport.</p> | <p>DAY or NIGHT - Lowering landing gear (if fitted), showing steady landing lights and following the intercepting aircraft and, if, after overflying the runway in use or helicopter landing area. Landing is considered safe, proceeding to land.</p> | <p>Understood, will comply.</p> |

(2) Signals initiated by intercepted aircraft and responses by intercepting aircraft.

| Series | INTERCEPTING Aircraft Signals   | Meaning   | INTERCEPTED Aircraft Responds   | Meaning  |
|--------|---|---|---|--|
| 4      | <p>DAY or NIGHT—Raising landing gear (if fitted) and flashing landing lights while passing over runway in use or helicopter landing area at a height exceeding 300 m (1,000 ft) but not exceeding 600 m (2000 ft) (in the case of a helicopter, at a height exceeding 50 m (170 ft) but not exceeding 100 m (330 ft) above the airport level, and continuing to circle runway in use or helicopter landing area. If unable to flash landing lights, flash any other lights available.</p> | <p>Airport you have designated is inadequate.</p> | <p>DAY or NIGHT – If it is desired that the intercepted aircraft follow the intercepting aircraft to an alternate airport, the intercepting aircraft raises its landing gear (if fitted) and uses the Series 1 signals prescribed for intercepting aircraft.</p> <p>If it is decided to release the intercepted</p> | <p>Understood, Follow me.</p> <p>Understood, you may</p> |

|   |   |                 |   |             |
|---|---|-----------------|---|-------------|
|   |   |                 | aircraft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft. | proceed.    |
| 5 | DAY or NIGHT—Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights. DAY or NIGHT — Irregular flashing of all available lights. | Can not comply. | DAY or NIGHT – Uses Series 2 signals prescribed for intercepting aircraft.                          | Understood. |
| 6 | DAY or NIGHT – Irregular flashing of all available lights.  | In distress.    | DAY or NIGHT – Uses Series 2 signals prescribed for intercepting aircraft.                          | Understood. |

### IS: 8.8.2.11 UNIVERSAL AVIATION SIGNALS

- (a) Distress signals. The following signals used, either together or separately, mean that grave and imminent danger threatens, and immediate assistance is requested:

*Note 1: None of the provisions in this section shall prevent the use, by an aircraft in distress, of any means at its disposal to attract attention, make known its position and obtain help.*

*Note 2: For full details of telecommunication transmission procedures for the distress and urgency signals, see ICAO Annex 10, Volume II, Chapter 5.*

*Note 3: For details of the search and rescue visual signals, see ICAO Annex 12.*

- (1) A signal made by radiotelegraphy or by any other signaling method consisting of the group SOS (••• — — — ••• in the Morse Code);
- (2) A signal sent by radiotelephony consisting of the spoken word MAYDAY;
- (3) Rockets or shells throwing red lights, fired one at a time at short intervals;
- (4) A parachute flare showing a red light.

*Note: Article 41 of the ITU Radio Regulations (Nos. 3268, 3270 and 3271 refer) provides information on the alarm signals for actuating radiotelegraph and radiotelephone auto-alarm systems: 3268 The radiotelegraph alarm signal consists of a series of twelve dashes sent in one minute, the duration of each dash being four seconds and the duration of the interval between consecutive dashes one second. It may be transmitted by hand but its transmission by means of an automatic instrument is recommended. 3270 The radiotelephone alarm signal consists of two substantially sinusoidal audio frequency tones transmitted alternately. One tone shall have a frequency of 2,200 Hz and the other a frequency of 1,300 Hz, the duration of each tone being 250 milliseconds. 3271 The radiotelephone alarm signal, when generated by automatic means, shall be sent continuously for a period of at least thirty seconds but not exceeding one minute; when generated by other means, the signal shall be sent as continuously as practicable over a period of approximately one minute.*

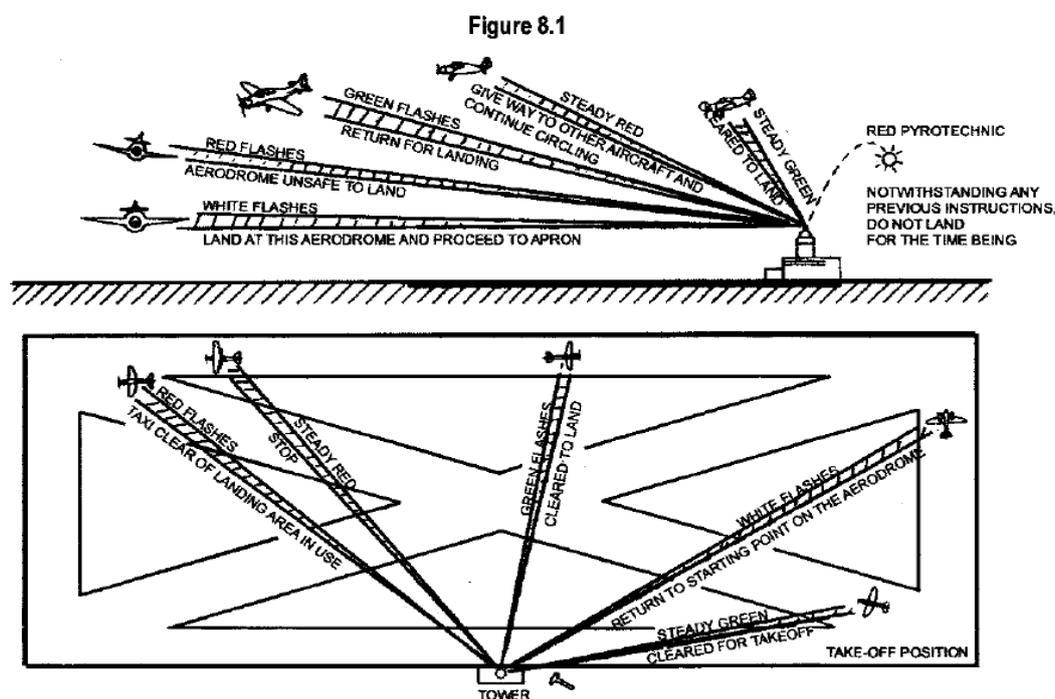
- (b) The following signals used either together or separately, mean that an aircraft wishes to give notice of difficulties which compel it to land without requiring immediate assistance:

- (1) The repeated switching on and off of the landing lights; or
- (2) The repeated switching on and off of the navigation lights in such manner as to be distinct from flashing navigation lights.

- (c) The following signals used, either together or separately, mean that an aircraft has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or of some person on board or within sight:
- (1) A signal made by radiotelegraphy or by any other signaling method consisting of the group XXX.
  - (2) A signal sent by radiotelephony consisting of the spoken words PAN, PAN.
- (d) Visual signals used to warn an unauthorized aircraft. By day and by night, a series of projectiles discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars will indicate to an unauthorized aircraft that it is flying in or about to enter a restricted, prohibited, or danger area, and that the aircraft is to take such remedial action as may be necessary.
- (e) Signals for airport traffic. Airport controllers shall use and pilots shall obey the following light and pyrotechnic signals:

| Light   |                         | From Airport Control to:   |   |
|---|-------------------------|--|---|
|   |                         | Aircraft in flight   | Aircraft on the ground                  |
| Directed towards aircraft concerned<br>(See Figure 8.1) | Steady green            | • Cleared to land  | Cleared for take-off                    |
|   | Steady red              | • give way to other aircraft and continue circling                               | Stop                                    |
|   | Series of green flashes | • Return for landing   | Cleared to taxi                         |
|   | Series of red flashes   | • Airport unsafe to land   | Taxi clear of landing area in use       |
|   | Series of white flashes | • Land at this airport and proceed to apron*                                     | Return to starting point on the airport |
|   | Red pyrotechnic         | • Notwithstanding with any previous instructions, do not land for the time being |   |

\* Clearances to land and taxi will be given in due course.



(f) Pilots shall acknowledge aerodrome controller signals as follows:

(1) When in flight—

(i) During the hours of daylight by rocking the aircraft's wings.

*Note: This signal should not be expected on the base and final legs of the approach.*

(ii) During the hours of darkness by flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.

(2) When on the ground—

(i) During the hours of daylight by moving the aircraft's ailerons or rudder.

(ii) During the hours of darkness by flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.

(g) Aerodrome authorities shall use the following visual ground signals during the following situations:

- (1) *Prohibition of landing.* A horizontal red square panel with yellow diagonals (Figure 8.2) when displayed in a signal area indicates that landings are prohibited and that the prohibition is liable to be prolonged.

Figure 8.2



- (2) *Need for special precautions while approaching or landing.* A horizontal red square panel with one yellow diagonal (Figure 8.3) when displayed in a signal area indicates that owing to the bad state of the manoeuvring area, or for any other reason, special precautions must be observed in approaching to land or in landing.

Figure 8.3



- (3) *Use of runways and taxiways.*
- (i) A horizontal white dumb-bell (Figure 8.4) when displayed in a signal area indicates that aircraft are required to land, take off and taxi on runways and taxiways only.

Figure 8.4



- (ii) The same horizontal white dumb-bell as in Figure 8.4, but with a black bar placed perpendicular to the shaft across each circular portion of the dumb-bell (Figure 8.5) when displayed in a signal area indicates that aircraft are required to land and take off on runways only, but other manoeuvres need not be confined to runways and taxiways.

Figure 8.5



- (4) *Closed runways or taxiways.* Crosses of a single contrasting colour, yellow or white (Figure 8.6), displayed horizontally on runways and taxiways or parts thereof indicate an area unfit for movement of aircraft.

Figure 8.6



- (5) *Directions for landing or takeoff.*

- (i) A horizontal white or orange landing T (Figure 8.7) indicates the direction to be used by aircraft for landing and rake-off, which shall be in a direction parallel to the shaft of the T towards the cross arm.

*Note: When used at night, the landing T is either illuminated or outlined in white coloured lights.*

Figure 8.7



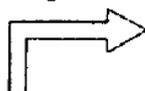
- (ii) A set of two digits (Figure 8.8) displayed vertically at or near the aerodrome control tower indicates to aircraft on the manoeuvring area the direction for takeoff, expressed in units of 10 degrees to the nearest 10 degrees of the magnetic compass.

Figure 8.8



- (6) *Right-hand traffic.* When displayed in a signal area, or horizontally at the end of the runway or strip in use, a right-hand arrow of conspicuous colour (Figure 8.9) indicates that turns are to be made to the right before landing and after takeoff.

Figure 8.9



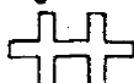
- (7) *Air traffic services reporting office.* The letter C displayed vertically in black against a yellow background (Figure 8.10) indicates the location of the air traffic services reporting office.

Figure 8.10



- (8) *Glider flights in operation.* A double white cross displayed horizontally (Figure 8.11) in the signal area indicates that the aerodrome is being used by gliders and that glider flights are being performed.

Figure 8.11



- (h) The following marshalling signals shall be used from a signalman to an aircraft.

*Note: These signals are designed for use by the signalman, with hands illuminated as necessary to facilitate observation by the pilot, and facing the aircraft in a position:*

- (1) For fixed-wing aircraft, the signalman shall be positioned forward of the left-wing tip within view of the pilot and, for helicopters, where the signalman can best be seen by the pilot.

*Note 1: The meaning of the relevant signals remains the same if bats, illuminated wands or torch-lights are held.*

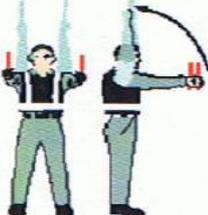
*Note 2: The aircraft engines are numbered, for the signalman facing the aircraft, from right to left (i.e. No. 1 engine being the port outer engine).*

*Note 3: Signals marked with an asterisk are designed for use to hovering helicopters.*

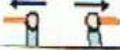
- (2) Prior to using the following signals, the signalman shall ascertain that the area within which an aircraft is to be guided is clear of objects which the aircraft might otherwise strike.

*Note: The design of many aircraft is such that the path of the wing tips, engines and other extremities cannot always be monitored visually from the flight deck while the aircraft is being maneuvered on the ground.*

- (3) Upon observing or receiving any of the signals given in below (as shown in Appendix 1 of Annex 2), aircraft shall take such action as may be required by the interpretation of the signal given in that Appendix. These signals shall, when used, have the meaning indicated therein. They shall be used only for the purpose indicated and no other signals likely to be confused with them shall be used.
- (4) A signalman shall be responsible for providing standard marshalling signals to aircraft in a clear and precise manner using the signals shown below.
- (5) No person shall guide an aircraft unless trained, qualified and approved by the appropriate authority to carry out the functions of a signalman.
- (6) The signalman shall wear a distinctive fluorescent identification vest to allow the flight crew to identify that he or she is the person responsible for the marshalling operation.
- (7) Daylight-fluorescent wands, table-tennis bats or gloves shall be used for all signaling by all participating ground staff during daylight hours. Illuminated wands shall be used at night or in low visibility.

|   |   |
|---|---|
|    | <p><b>1. Wingwalker/guide</b></p> <p>Raise right hand above head level with wand pointing up; move left-hand wand pointing down toward body. Note.— This signal provides an indication by a person positioned at the aircraft wing tip to the pilot/ marshaller/ push-back operator that the aircraft movement on/off a parking position would be unobstructed.</p> |
|    | <p><b>2. Identify gate</b></p> <p>Raise fully extended arms straight above head with wands pointing up.</p>   |
|   | <p><b>3. Proceed to next signalman or as directed by tower/ground control</b></p> <p>Point both arms upward; move and extend arms outward to sides of body and point with wands to direction of next signalman or taxi area.</p>  |
|  | <p><b>4. Straight ahead</b></p> <p>Bend extended arms at elbows and move wands up and down from chest height to head.</p>   |
|  | <p><b>5 a). Turn left (from pilot's point of view)</b></p> <p>With right arm and wand extended at a 90-degree angle to body, make "come ahead" signal with left hand. The rate of signal motion indicates to pilot the rate of aircraft turn.</p>   |
|  | <p><b>5 b). Turn right (from pilot's point of view)</b></p> <p>With left arm and wand extended at a 90-degree angle to body, make "come ahead" signal with right hand. The rate of signal motion indicates to pilot the rate of aircraft turn.</p>  |

|   |  |
|---|--|
|    | <p><b>6 a). Normal stop</b></p> <p>Fully extend arms and wands at a 90-degree angle to sides and slowly move to above head until wands cross.</p>  |
|    | <p><b>6 b). Emergency stop</b></p> <p>Abruptly extend arms and wands to top of head, crossing wands.</p>   |
|   | <p><b>7 a). Set brakes</b></p> <p>Raise hand just above shoulder height with open palm. Ensuring eye contact with flight crew, close hand into a fist. Do not move until receipt of "thumbs up" acknowledgement from flight crew.</p>    |
|  | <p><b>7 b). Release brakes</b></p> <p>Raise hand just above shoulder height with hand closed in a fist. Ensuring eye contact with flight crew, open palm. Do not move until receipt of "thumbs up" acknowledgement from flight crew.</p> |
|  | <p><b>8 a). Chocks inserted</b></p> <p>With arms and wands fully extended above head, move wands inward in a "jabbing" motion until wands touch. Ensure acknowledgement is received from flight crew.</p>                                |

|   |  |
|---|--|
|    | <p><b>8 b). Chocks removed</b></p> <p>With arms and wands fully extended above head, move wands outward in a "jabbing" motion. Do not remove chocks until authorised by flight crew.</p>                                   |
|   | <p><b>9. Start engine(s)</b></p> <p>Raise right arm to head level with wand pointing up and start a circular motion with hand; at the same time, with left arm raised above head level, point to engine to be started.</p> |
|  | <p><b>10. Cut engines</b></p> <p>Extend arm with wand forward of body at shoulder level; move hand and wand to top of left shoulder and draw wand to top of right shoulder in a slicing motion across throat.</p>          |
|  | <p><b>11. Slow down</b></p> <p>Move extended arms downwards in a "patting" gesture, moving wands up and down from waist to knees.</p>  |

|   |  |
|---|--|
|    | <p><b>12. Slow down engine(s) on indicated side</b></p> <p>With arms down and wands toward ground, wave either <i>right</i> or <i>left</i> wand up and down indicating engine(s) on <i>left</i> or <i>right</i> side respectively should be slowed down.</p> |
|    | <p><b>13. Move back</b></p> <p>With arms in front of body at waist height, rotate arms in a forward motion. To stop rearward movement, use signal 6 a) or 6 b).</p>  |
|   | <p><b>14 a). Turns while backing (for tail to starboard)</b></p> <p>Point left arm with wand down and bring right arm from overhead vertical position to horizontal forward position, repeating right-arm movement.</p>                                      |
|  | <p><b>14 b). Turns while backing (for tail to port)</b></p> <p>Point right arm with wand down and bring left arm from overhead vertical position to horizontal forward position, repeating left-arm movement.</p>  |
|  | <p><b>15. Affirmative/all clear</b></p> <p>Raise right arm to head level with wand pointing up or display hand with "thumbs up"; left arm remains at side by knee.</p>   |

|   |  |
|---|--|
|    | <p><b>16. Hover</b></p> <p>Fully extend arms and wands at a 90-degree angle to sides.</p>  |
|    | <p><b>17. Move upwards</b></p> <p>Fully extend arms and wands at a 90-degree angle to sides and, with palms turned up, move hands upwards. Speed of movement indicates rate of ascent.</p>                 |
|   | <p><b>18. Move downwards</b></p> <p>Fully extend arms and wands at a 90-degree angle to sides and, with palms turned down, move hands downwards. Speed of movement indicates rate of descent.</p>          |
|  | <p><b>19 a). Move horizontally left (from pilot's point of view)</b></p> <p>Extend arm horizontally at a 90-degree angle to right side of body. Move other arm in same direction in a sweeping motion.</p> |
|  | <p><b>19 b). Move horizontally right (from pilot's point of view)</b></p> <p>Extend arm horizontally at a 90-degree angle to left side of body. Move other arm in same direction in a sweeping motion.</p> |

|   |   |
|---|---|
|    | <p><b>20. Land</b></p> <p>Cross arms with wands downwards and in front of body.</p>   |
|    | <p><b>21. Fire</b></p> <p>Move right-hand wand in a “fanning” motion from shoulder to knee, while at the same time pointing with left-hand wand to area of fire.</p>  |
|   | <p><b>22. Hold position/stand by</b></p> <p>Fully extend arms and wands downwards at a 45-degree angle to sides. Hold position until aircraft is clear for next manoeuvre.</p>                                    |
|  | <p><b>23. Dispatch aircraft</b></p> <p>Perform a standard salute with right hand and/or wand to dispatch the aircraft. Maintain eye contact with flight crew until aircraft has begun to taxi.</p>                |
|  | <p><b>24. Do not touch controls (technical/servicing communication signal)</b></p> <p>Extend right arm fully above head and close fist or hold wand in horizontal position; left arm remains at side by knee.</p> |

|   |  |
|---|--|
|    | <p><b>25. Connect ground power (technical/servicing communication signal)</b></p> <p>Hold arms fully extended above head; open left hand horizontally and move finger tips of right hand into and touch open palm of left hand (forming a "T"). At night, illuminated wands can also be used to form the "T" above head.</p>   |
|    | <p><b>26. Disconnect power (technical/servicing communication signal)</b></p> <p>Hold arms fully extended above head with finger tips of right hand touching open horizontal palm of left hand (forming a "T"); then move right hand away from the left. Do not disconnect power until authorised by flight crew. At night, illuminated wands can also be used to form the "T" above head.</p> |
|  | <p><b>27. Negative (technical/servicing communication signal)</b></p> <p>Hold right arm straight out at 90 degrees from shoulder and point wand down to ground or display hand with "thumbs down"; left hand remains at side by knee.</p>  |
|  | <p><b>28. Establish communication via interphone (technical/servicing communication signal)</b></p> <p>Extend both arms at 90 degrees from body and move hands to cup both ears.</p>   |
|  | <p><b>29. Open/close stairs (technical/servicing communication signal)</b></p> <p>With right arm at side and left arm raised above head at a 45-degree angle, move right arm in a sweeping motion towards top of left shoulder.</p> <p><i>Note.— This signal is intended mainly for aircraft with the set of integral stairs at the front.</i></p>   |

- (i) Signals from the pilot of an aircraft to a signalman.
- (1) The PIC or Co-Pilot shall use the following signals when communicating with a signalman:
- Note: These signals are designed for use by a pilot in the cockpit with hands plainly visible to the signalman, and illuminated as necessary to facilitate observation by the signalman.*
- Note: The aircraft engines are numbered in relation to the signalman facing the aircraft, from right to left (i.e. No. 1 engine being the port outer engine).*
- (2) *Brakes engaged:* raise arm and hand, with fingers extended, horizontally in front of face, then clench fist.
- (3) *Brakes released:* raise arm, with fist clenched, horizontally in front of face, then extend fingers.
- Note: The moment the fist is clenched or the fingers are extended indicates, respectively, the moment of brake engagement or release.*
- (4) *Insert chocks:* arms extended, palms outwards, move hands inwards to cross in front of face.
- (5) *Remove chocks:* hands crossed in front of face, palms outwards, move arms outwards.
- (6) *Ready to start engine(s).* Raise the appropriate number of fingers on one hand indicating the number of the engine to be started.

#### IS: 8.8.3.4 TABLE OF CRUISING LEVELS

- (a) The cruising levels at which a flight or a portion of a flight is to be conducted shall be in terms of:
- (1) Flight levels, for flights at or above the lowest usable flight level or, where applicable, above the transition altitude;
- (2) Altitudes, for flights below the lowest usable flight level or, where applicable, at or below the transition altitude.
- (b) The PIC shall observe the following cruising levels in areas where, on the basis of regional air navigation agreement and in accordance with conditions specified therein, a vertical separation minimum (VSM) of 300 m (1,000 ft) is applied between FL 290 and FL 410 inclusive.\*
- (c) Except where otherwise indicated in air traffic control clearances or specified by the appropriate ATS authority, VFR flights in level cruising flight when operated above 900 m (3,000 ft) from the ground or water, or a higher datum as specified by the appropriate ATS authority, shall be conducted at a cruising level appropriate to the track as specified in the following tables of cruising levels (as in Appendix 3 of Annex 2).

| TRACK**                            |                    |       |             |                    |       |                                    |                    |       |             |                    |       |
|------------------------------------|--------------------|-------|-------------|--------------------|-------|------------------------------------|--------------------|-------|-------------|--------------------|-------|
| From 000 Degrees to 179 Degrees*** |                    |       |             |                    |       | From 180 Degrees to 359 Degrees*** |                    |       |             |                    |       |
| IFR Flights                        |                    |       | VFR Flights |                    |       | IFR Flights                        |                    |       | VFR Flights |                    |       |
| FL                                 | Altitude<br>Meters | Feet  | FL          | Altitude<br>Meters | Feet  | FL                                 | Altitude<br>Meters | Feet  | FL          | Altitude<br>Meters | Feet  |
| -90                                | —                  | —     | —           | —                  | —     | 0                                  | —                  | —     | —           | —                  | —     |
| 10                                 | 300                | 1000  | —           | —                  | —     | 20                                 | 600                | 2000  | —           | —                  | —     |
| 30                                 | 900                | 3000  | 35          | 1050               | 3500  | 40                                 | 1200               | 4000  | 45          | 1350               | 4500  |
| 50                                 | 1500               | 5000  | 55          | 1700               | 5500  | 60                                 | 1850               | 6000  | 65          | 2000               | 6500  |
| 70                                 | 2150               | 7000  | 75          | 2300               | 7500  | 80                                 | 2450               | 8000  | 85          | 2600               | 8500  |
| 90                                 | 2750               | 9000  | 95          | 2900               | 9500  | 100                                | 3050               | 10000 | 105         | 3200               | 10500 |
| 110                                | 3350               | 11000 | 115         | 3500               | 11500 | 120                                | 3650               | 12000 | 125         | 3800               | 12500 |
| 130                                | 3950               | 13000 | 135         | 4100               | 13500 | 140                                | 4250               | 14000 | 145         | 4400               | 14500 |
| 150                                | 4550               | 15000 | 155         | 4700               | 15500 | 160                                | 4900               | 16000 | 165         | 5050               | 16500 |
| 170                                | 5200               | 17000 | 175         | 5350               | 17500 | 180                                | 5500               | 18000 | 185         | 5650               | 18500 |
| 190                                | 5800               | 19000 | 195         | 5950               | 19500 | 200                                | 6100               | 20000 | 205         | 6250               | 20500 |
| 210                                | 6400               | 21000 | 215         | 6550               | 21500 | 220                                | 6700               | 22000 | 225         | 6850               | 22500 |
| 230                                | 7000               | 23000 | 235         | 7150               | 23500 | 240                                | 7300               | 24000 | 245         | 7450               | 24500 |
| 250                                | 7600               | 25000 | 255         | 7750               | 25500 | 260                                | 7900               | 26000 | 265         | 8100               | 26500 |
| 270                                | 8250               | 27000 | 275         | 8400               | 27500 | 280                                | 8550               | 28000 | 285         | 8700               | 28500 |
| 290                                | 8850               | 29000 |             |                    |       | 300                                | 9150               | 30000 |             |                    |       |
| 310                                | 9450               | 31000 |             |                    |       | 320                                | 9750               | 32000 |             |                    |       |
| 330                                | 10050              | 33000 |             |                    |       | 340                                | 10350              | 34000 |             |                    |       |
| 350                                | 10650              | 35000 |             |                    |       | 360                                | 10950              | 36000 |             |                    |       |
| 370                                | 11300              | 37000 |             |                    |       | 380                                | 11600              | 38000 |             |                    |       |
|                                    |                    |       |             |                    |       | 400                                | 12200              | 40000 |             |                    |       |
| 410                                | 12500              | 41000 |             |                    |       | 430                                | 13100              | 43000 |             |                    |       |
| 450                                | 13700              | 45000 |             |                    |       | 470                                | 14350              | 47000 |             |                    |       |
| 490                                | 14950              | 49000 |             |                    |       | 510                                | 15550              | 51000 |             |                    |       |
| etc.                               | etc.               | etc.  |             |                    |       | etc.                               | etc.               | etc.  |             |                    |       |

\*Except when, on the basis of regional air navigation agreements, a modified table of cruising levels based on a nominal vertical separation minimum of 300 m (1,000 ft) is prescribed for use, under specified conditions, by aircraft operating above FL 410 within designated portions of the airspace.

\*\*Magnetic track, or in polar areas at latitudes higher than 70 degrees and within such extensions to those areas as may be prescribed by the appropriate ATS authorities, grid tracks as determined by a network of lines parallel to the Greenwich Meridian superimposed on a polar stereographic chart in which the direction towards the North Pole is employed as the Grid North.

\*\*\*Except where, on the basis of regional air navigation agreements, from 090 to 269 degrees and from 270 to 089 degrees is prescribed to accommodate predominant traffic directions and appropriate transition procedures to be associated therewith are specified.

- (c) The PIC shall observe the following cruising levels in other areas not specified in item (a) above.

| TRACK**                            |                    |       |             |                    |       |                                    |                    |       |             |                    |       |
|------------------------------------|--------------------|-------|-------------|--------------------|-------|------------------------------------|--------------------|-------|-------------|--------------------|-------|
| From 000 Degrees to 179 Degrees*** |                    |       |             |                    |       | From 180 Degrees to 359 Degrees*** |                    |       |             |                    |       |
| IFR Flights                        |                    |       | VFR Flights |                    |       | IFR Flights                        |                    |       | VFR Flights |                    |       |
| FL                                 | Altitude<br>Meters | Feet  | FL          | Altitude<br>Meters | Feet  | FL                                 | Altitude<br>Meters | Feet  | FL          | Altitude<br>Meters | Feet  |
| -90                                | —                  | —     | —           | —                  | —     | 0                                  | —                  | —     | —           | —                  | —     |
| 10                                 | 300                | 1000  | —           | —                  | —     | 20                                 | 600                | 2000  | —           | —                  | —     |
| 30                                 | 900                | 3000  | 35          | 1050               | 3500  | 40                                 | 1200               | 4000  | 45          | 1350               | 4500  |
| 50                                 | 1500               | 5000  | 55          | 1700               | 5500  | 60                                 | 1850               | 6000  | 65          | 2000               | 6500  |
| 70                                 | 2150               | 7000  | 75          | 2300               | 7500  | 80                                 | 2450               | 8000  | 85          | 2600               | 8500  |
| 90                                 | 2750               | 9000  | 95          | 2900               | 9500  | 100                                | 3050               | 10000 | 105         | 3200               | 10500 |
| 110                                | 3350               | 11000 | 115         | 3500               | 11500 | 120                                | 3650               | 12000 | 125         | 3800               | 12500 |
| 130                                | 3950               | 13000 | 135         | 4100               | 13500 | 140                                | 4250               | 14000 | 145         | 4400               | 14500 |
| 150                                | 4550               | 15000 | 155         | 4700               | 15500 | 160                                | 4900               | 16000 | 165         | 5050               | 16500 |
| 170                                | 5200               | 17000 | 175         | 5300               | 17500 | 180                                | 5500               | 18000 | 185         | 5650               | 18500 |
| 190                                | 5800               | 19000 | 195         | 5900               | 19500 | 200                                | 6100               | 20000 | 205         | 6250               | 20500 |
| 210                                | 6400               | 21000 | 215         | 6550               | 21500 | 220                                | 6700               | 22000 | 225         | 6850               | 22500 |
| 230                                | 7000               | 23000 | 235         | 7150               | 23500 | 240                                | 7300               | 24000 | 245         | 7450               | 24500 |
| 250                                | 7600               | 25000 | 255         | 7750               | 25500 | 260                                | 7900               | 26000 | 265         | 8100               | 26500 |
| 270                                | 8250               | 27000 | 275         | 8100               | 27500 | 280                                | 8550               | 28000 | 285         | 8700               | 28500 |
| 290                                | 8850               | 29000 | 300         | 9150               | 30000 | 310                                | 9450               | 31000 | 320         | 9750               | 32000 |
| 330                                | 10050              | 33000 | 340         | 10350              | 34000 | 350                                | 10650              | 35000 | 360         | 10950              | 36000 |
| 370                                | 11300              | 37000 | 380         | 11600              | 38000 | 390                                | 11900              | 39000 | 400         | 12200              | 40000 |
| 410                                | 12500              | 41000 | 420         | 12500              | 42000 | 430                                | 13100              | 43000 | 440         | 13400              | 44000 |
| 450                                | 13700              | 45000 | 460         | 14000              | 46000 | 470                                | 14350              | 47000 | 480         | 14650              | 48000 |
| 490                                | 14950              | 49000 | 500         | 15250              | 50000 | 510                                | 15550              | 51000 | 520         | 15850              | 52000 |
| etc.                               | etc.               | etc.  | etc.        | etc.               | etc.  | etc.                               | etc.               | etc.  | etc.        | etc.               | etc.  |

\*\*Magnetic track, or in polar areas at latitudes higher than 70 degrees and within such extensions to those areas as may be prescribed by the appropriate ATS authorities, grid tracks as determined by a network of lines parallel to the Greenwich Meridian superimposed on a polar stereographic chart in which the direction towards the North Pole is employed as the Grid North.

\*\*\*.Except where, on the basis of regional air navigation agreements, from 090 to 269 degrees and from 270 to 089 degrees is prescribed to accommodate predominant traffic directions and appropriate transition procedures to be associated therewith are specified.

*Note: Guidance material relating to vertical separation is contained in ICAO Doc 9574, Manual on the Implementation of a 300 m (1,000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive. The system of flight levels is prescribed in ICAO Doc 8168, Procedures for Air Navigation Services.*

**IS: 8.8.4.6 AUTO-LAND IN CATEGORY I OR BETTER WEATHER CONDITIONS**

- (a) Some operators may wish to seek an approval from the Authority to perform automatic landings in Category I or better weather conditions for training purpose or to record data for operational demonstration/evaluation, or even at crew discretion.
- (b) Following guidance will be useful for the operators to consider before processing such requests:

- (1) The airport requirements:

The successful demonstration of Automatic Landing System (ALS) performance has been a part of type certification of Category II and Category III ILS quality beam, however, it has not been done in case of ILS Category I ILS quality beam. An automatic landing on Category I ILS quality beam is possible, provided an operator confirms the following:

- (i) The quality of electronic signal (ILS Category I quality beam) is capable of providing satisfactory guidance below 200 feet;
- (ii) The terrain profile before the runway threshold does not affect the ALS performance; and
- (iii) The electronic signal (e.g.: ILS Category I quality beam) sensitive areas need to be protected before an automatic landing is considered to be performed.
- (iv) The proposed automatic landing procedure shall be proven at each individual runway, before that runway is included in the authorization list.

- (2) Crew training and authorization: establish the operator standards to authorize pilots for automatic landings.

- (3) Crew procedures:

- (i) An operator must establish procedures and techniques similar to Category II and III operations.
- (ii) Visual cues must be obtained at the applicable DA, or a go-around must be performed.
- (iii) The crew must be warned that fluctuations on the Localizer or Glide Slope signal may occur, and in such case an immediate go-around and disconnection/discontinuation of auto-pilot are necessary.
- (iv) The Operations Manual contains crew procedures and list of runways wherein Category I or better weather conditions automatic landings are authorized.
- (v) The ALS is not considered safe when the critical area protection is not assured by the ATC.
- (vi) An operator must provide objective instructions to the flight crew, i.e.: when in visual contact with the runway, automatic landing or take-over manually or to go-around.

- (4) Limitations: Automatic landing must be approved in the Aircraft Flight Manual (AFM). At least Category II capability must be displayed on FMA. The AFM limitations must be observed, including: glide slope angle, airport elevation, flap configuration, wind limits, and the required equipment for Category II must be operative.

**IS: 8.10.1.9 COMPANY PROCEDURES INDOCTRINATION**

- (a) Each Operator shall ensure that all operations personnel are provided company indoctrination training that covers the following areas:
- (1) Operator's organization, scope of operation, and administrative practices as applicable to their assignments and duties.
  - (2) Appropriate provisions of these regulations and other applicable regulations and guidance materials.
  - (3) Contents of the Operator's certificate and operations specifications (not required for cabin crew).
  - (4) Operator policies and procedures.
  - (5) Crew member and flight operations officer duties and responsibilities.
  - (6) Operator testing program for alcohol and narcotic psychoactive substances.
  - (7) Applicable crew member manuals.
  - (8) Appropriate portions of the Operator's Operations Manual.
  - (9) For flight crew members in airplanes, upset prevention training elements as specified in IS 2.3.3.3 APPENDIX C.

**IS: 8.10.1.10 INITIAL DANGEROUS GOODS TRAINING**

- (a) Each Operator shall establish, maintain and have approved by the Authority, staff training programs commensurate with their responsibilities, as required by the Technical Instructions.
- (1) General familiarization training: which must be aimed at providing familiarity with the general provisions;
  - (2) Function-specific training: which must provide detailed training in the requirement applicable to the function for which that person is responsible; and
  - (3) Safety training: which must cover hazards presented by the dangerous goods, safe handling and emergency response procedures.
- (b) A test must be given to verify understanding of the regulations must be undertaken following training. Confirmation that the test has been completed satisfactorily is required and record should be made available to the Authority.
- (c) Each Operator not holding a permanent approval to carry dangerous goods shall ensure that:
- (1) Staff who are engaged in general cargo handling have received training to carry out their duties in respect of dangerous goods. At a minimum this training shall cover the areas identified in Column 1 of Table 1 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and how to identify such goods; and
  - (2) Crew members, passenger handling staff, and security staff employed by the Operator who deal with the screening of a passengers and their baggage, have received training which, at a minimum shall cover the areas identified in Column 2 of Table 1 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify them and what requirements apply to the carriage of such goods by passengers.

Table 1

| Areas Of Dangerous Goods Training               | 1 | 2 |
|---|---|---|
| General Philosophy                              | X | X |
| Limitations On Dangerous Goods In Air Transport | X | X |
| Package Marking And Labeling                    | X | X |
| Dangerous Goods In Passengers Baggage           |   | X |
| Emergency Procedures                            |   | X |

Note: x indicates an area to be covered.

- (d) Each Operator holding a permanent approval to carry dangerous goods shall ensure that:
- (1) Personnel engaged in the acceptance of dangerous goods have received training and are qualified to carry out their duties. At a minimum, this training shall cover the areas identified in Column 1 of Table 2 and be to a depth sufficient to ensure the staff can take decisions on the acceptance or refusal of dangerous goods offered for carriage by air;
  - (2) Personnel engaged in ground handling, storage and loading of dangerous goods have received training to enable them to carry out their duties in respect of dangerous goods. At a minimum, this training shall cover the areas identified in Column 2 of Table 2 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods, how to identify such goods and how to handle and load them;
  - (3) Personnel engaged in general cargo handling have received training to enable them to carry out their duties in respect of dangerous goods. At a minimum, this training shall cover the areas identified in Column 3 of Table 2 and be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods; how to identify such goods and how to handle and load them;
  - (4) Flight crew members have received training which, at a minimum, shall cover the areas identified in Column 4 of Table 2. Training shall be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and how they should be carried on an airplane; and
  - (5) Passenger handling staff; security staff employed by the operator who deal with the screening of passengers and their baggage; and crew members (other than flight crew members) have received training which, at a minimum, shall cover the areas identified in Column 5 of Table 2. Training shall be to a depth sufficient to ensure that an awareness is gained of the hazards associated with dangerous goods and what requirements apply to the carriage of such goods by passengers or, more generally, their carriage on an airplane.
- (e) Each Operator shall ensure that all personnel who require dangerous goods training receive recurrent training at intervals of not longer than 2 years.
- (f) Each Operator shall ensure that records of dangerous goods training are maintained for all personnel required such training and that these records are maintained at the location where the personnel perform such duties.

- (g) Each Operator shall ensure that its handling agent's staff is trained in accordance with the applicable column of Table 1 or Table 2.

Table 2

| Areas Of Training  | 1 | 2 | 3 | 4 | 5 |
|--|---|---|---|---|---|
| General Philosophy   | X | X | X | X | X |
| Limitations On Dangerous Goods In The Air                        | X | X | X | X | X |
| Classification And List Of Dangerous Goods                       | X | X |   | X |   |
| General Packing Requirements And Packing                         | X |   |   |   |   |
| Packaging Specifications Marking                                 | X |   |   |   |   |
| Package Marking And Labeling                                     | X | X | X | X | X |
| Documentation From The Shipper                                   | X |   |   |   |   |
| Acceptance Of Dangerous Goods, including the use of a Checklist  | X |   |   |   |   |
| Loading Restrictions On Loading And                              | X | X | X | X |   |
| Inspections For Damage Or Leakage And Decontamination Procedures | X | X |   |   |   |
| Provision Of Information To Commander                            | X | X |   | X |   |
| Dangerous Goods In Passengers Baggage                            | X |   |   | X | X |
| Emergency Procedures   | X | X |   | X | X |

Note: x indicates an area to be covered.

- (h) An Operator shall provide dangerous goods training manuals which contain adequate procedures and information to assist personnel in identifying packages marked or labeled as containing hazardous materials including-
- (1) Instructions on the acceptance, handling, and carriage of hazardous materials;
  - (2) Instructions governing the determination of proper shipping names and hazard classes;
  - (3) Packaging, labeling, and marking requirements;
  - (4) Requirements for shipping papers, compatibility requirements, loading, storage, and handling requirements; and
  - (5) Restrictions.

#### IS: 8.10.1.12 INITIAL CREW RESOURCE MANAGEMENT TRAINING

- (a) Each Operator shall ensure that the flight operations officer and all aircraft crew members have CRM training as part of their initial and recurrent training requirements.
- (b) A CRM training program shall include
- (1) An initial indoctrination/awareness segment;
  - (2) A method to provide recurrent practice and feedback; and
  - (3) A method of providing continuing reinforcement.
- (c) Curriculum topics to be contained in an initial CRM training course include
- (1) Communications processes and decision behavior;

- (2) Internal and external influences on interpersonal communications;
- (3) Barriers to communication;
- (4) Listening skills;
- (5) Decision making skills;
- (6) Effective briefings;
- (7) Developing open communications;
- (8) Inquiry, advocacy, and assertion training;
- (9) Crew self-critique;
- (10) Conflict resolution;
- (11) Team building and maintenance;
- (12) Leadership and fellowship training;
- (13) Interpersonal relationships;
- (14) Workload management;
- (15) Situational awareness;
- (16) How to prepare, plan and monitor task completions;
- (17) Workload distribution;
- (18) Distraction avoidance;
- (19) Individual factors; and
- (20) Stress reduction.

#### **IS: 8.10.1.13 INITIAL EMERGENCY EQUIPMENT DRILLS**

- (a) Each aircraft crew member shall accomplish emergency training during the specified training periods. using those items of installed emergency equipment for each type of airplane in which he or she is to serve:
- (b) During initial training, each aircraft crew member shall perform the following one-time emergency drills
  - (1) Protective Breathing Equipment/Firefighting Drill:
    - (i) Locate source of fire or smoke (actual or simulated fire)
    - (ii) Implement procedures for effective crew co-ordination and communication, including notification of flight crew members about fire situation.
    - (iii) Don and activate installed PBE or approved PBE simulation device.
    - (iv) Maneuver in limited space with reduced visibility.
    - (v) Effectively use the aircraft's communication system.
    - (vi) Identify class of fire.
    - (vii) Select the appropriate extinguisher.
    - (viii) Properly remove extinguisher from securing device.
    - (ix) Prepare, operate and discharge extinguisher properly.
    - (x) Utilize correct firefighting techniques for type of fire.

## (2) Emergency Evacuation Drill:

- (i) Recognize and evaluate an emergency.
- (ii) Assume appropriate protective position.
- (iii) Command passengers to assume protective position.
- (iv) Implement crew co-ordination procedures.
- (v) Ensure activation of emergency lights.
- (vi) Assess aircraft conditions.
- (vii) Initiate evacuation (dependent on signal or decision).
- (viii) Command passengers to release seatbelts and evacuate.
- (ix) Assess exit and redirect, if necessary; to open exit, including deploying slides and commanding helpers to assist.
- (x) Command passengers to evacuate at exit and run away from aircraft.
- (xi) Assist special need passengers, such as handicapped, elderly, and persons in a state of panic.
- (xii) Actually exit aircraft or training device using at least one of the installed emergency evacuation slides.

*Note: The crew member may either observe the airplane exits being opened in the emergency mode and the associated exit slide/raft pack being deployed and inflated, or perform the tasks resulting in the accomplishment of these actions*

## (c) Each aircraft crew member shall accomplish additional emergency drills during initial and recurrent training, including performing the following emergency drills

## (1) Emergency Evacuation Drill:

- (i) Correctly pre-flight each type of emergency exit and evacuation slide or slide-raft (if part of cabin crew's assigned duties).
- (ii) Disarm and open each type of door exit in normal mode.
- (iii) Close each type of door exit in normal mode.
- (iv) Arm of each type of door exit in emergency mode.
- (v) Opening each type of door exit in emergency mode.
- (vi) Use manual slide inflation system to accomplish or ensure slide or slide-raft inflation.
- (vii) Open each type of window exit.
- (viii) Remove escape rope and position for use.

## (2) Hand Fire Extinguisher Drill:

- (i) Pre-flight each type of hand fire extinguisher.
- (ii) Locate source of fire or smoke and identify class of fire.
- (iii) Select appropriate extinguisher and remove from securing device.
- (iv) Prepare extinguisher for use.
- (v) Actually operate and discharge each type of installed hand fire extinguisher.

*Note: Fighting an actual or a simulated fire is not necessary during this drill.*

- (vi) Utilize correct firefighting techniques for type of fire.
  - (vii) Implement procedures for effective crew co-ordination and communication, including notification of crew members about the type of fire situation.
- (3) Emergency Oxygen System Drill:
- (i) Actually operate portable oxygen bottles, including masks and tubing.
  - (ii) Verbally demonstrate operation of chemical oxygen generators.
  - (iii) Prepare for use and operate oxygen device properly, including donning and activation.
  - (iv) Administer oxygen to self, passengers, and to those persons with special oxygen needs.
  - (v) Utilize proper procedures for effective crew co-ordination and communication.
  - (vi) Activate PBE.
  - (vii) Manually open each type of oxygen mask compartment and deploy oxygen masks.
  - (viii) Identify compartments with extra oxygen masks.
  - (ix) Implement immediate action decompression procedures.
  - (x) Reset oxygen system, if applicable.
  - (xi) Preflight and operation of PBE.
  - (xii) Activate PBE.

*Note: Several operators equip their aircraft with approved PBE units that have approved storage pouches fastened with two (2) metal staples at one end. However, considerations of practicality and cost compel operators to use a less durable storage pouch that lacks the staple fasteners for training purposes. As a result, pilots and cabin crew members have been surprised that opening the pouch furnished on board requires more force than opening the training pouch. The Authority should require crew member training that includes the appropriate procedures for operating PBE. In those cases where pouches with staples are used for storage of the PBE unit, special emphasis in training should highlight the difference between the training pouch and the onboard pouch. The training pouch maybe easy to open, but the approved, onboard pouch may require as much as 28 pounds of force to overcome the two (2) staple fasteners.*

- (4) Flotation Device Drill:
- (i) Pre-flight floatation device, if appropriate.
  - (ii) Don and inflate life vests.
  - (iii) Remove and use flotation seat cushions.
  - (iv) Demonstrate swimming techniques using a seat cushion.
- (5) Ditching Drill, if applicable:

*Note: During a ditching drill students shall perform the "prior to impact" and "after impact" procedures for a ditching as appropriate to the specific operator's type of operation.*

- (i) Implement crew co-ordination procedures, including briefing with captain to obtain pertinent ditching information and briefing flight attendants.

- (ii) Co-ordinate time frame for cabin and passenger preparation.
  - (iii) Adequately brief passengers on ditching procedures.
  - (iv) Ensure cabin is prepared, including the securing of carry-on baggage, lavatories, and galleys.
  - (v) Demonstrate how to properly deploy and inflate slide rafts.
  - (vi) Demonstrate how to properly deploy and inflate life-rafts, if applicable.
  - (vii) Remove, position, and attach slide rafts to aircraft.
  - (viii) Inflate rafts.
  - (ix) Use escape ropes at over-wing exits.
  - (x) Command helpers to assist.
  - (xi) Use slides and seat cushions as flotation devices.
  - (xii) Remove appropriate emergency equipment from aircraft.
  - (xiii) Board rafts properly.
  - (xiv) Initiate raft management procedures (i.e., Disconnecting rafts from aircraft, applying immediate first aid, rescuing persons in water, salvaging floating rations and equipment, deploying sea anchor, tying rafts together, activating or ensuring operation of emergency locator transmitter).
  - (xv) Initiate basic survival procedures (i.e., Removing and utilizing survival kit items, repairing and maintaining raft, ensuring protection from exposure, erecting canopy, communicating location, providing continued first aid, providing sustenance).
  - (xvi) Use heaving line to rescue persons in water.
  - (xvii) Tie slide-rafts or rafts together.
  - (xviii) Use life line on edge of slide raft or raft as a handhold.
  - (xix) Secure survival kit items.
- (d) Each aircraft crew member shall accomplish additional emergency drill requirements during initial and recurrent training including observing the following emergency drills:
- (1) Life raft Removal and Inflation Drill, if applicable:
    - (i) Removal of a life raft from the aircraft or training device.
    - (ii) Inflation of a life raft.
  - (2) Slide raft Transfer Drill:
    - (i) Transfer of each type of slide raft pack from an unusable door to a usable door.
    - (ii) Disconnect slide raft at unusable door.
    - (iii) Redirect passengers to usable slide raft.
    - (iv) Installation and deployment of slide raft at usable door.
  - (3) Slide and Slide raft Deployment, Inflation, and Detachment Drill:
    - (i) Engage slide girt bar in floor brackets.
    - (ii) Arm slide for automatic inflation.
    - (iii) Inflate slides with and without quick-release handle (manually and automatically).

- (iv) Disconnecting slide from aircraft for use as a flotation device.
  - (v) Arm slide rafts for automatic inflation.
  - (vi) Disconnecting slide raft from the aircraft.
- (4) Emergency Evacuation Slide Drill:
- (i) Open armed exit with slide or slide raft deployment and inflation.
  - (ii) Egress from aircraft via the evacuation slide and run away to a safe distance.

**IS: 8.10.1.14 (b) INITIAL AIRCRAFT GROUND TRAINING - FLIGHT CREW**

- (a) Each Operator shall have an initial aircraft ground training curriculum for the flight crew applicable to their duties, the type of operations conducted and aircraft flown. Instructions shall include at least the following general subjects
- (1) Operator's dispatch, flight release, or flight locating procedures.
  - (2) Principles and methods for determining mass and balance, and runway limitations for takeoff.
  - (3) Operator's operations specifications, authorizations and limitations.
  - (4) Adverse weather recognition and avoidance, and flight procedures which shall be followed when operating in the following conditions:
    - (i) Icing.
    - (ii) Fog.
    - (iii) Turbulence.
    - (iv) Heavy precipitation.
    - (v) Thunderstorms.
    - (vi) Low-level wind-shear and micro-burst.
    - (vii) Low visibility.
    - (viii) Contaminated runway.
  - (5) Normal and emergency communications procedures and navigation equipment including the Operator's communications procedures and ATC clearance requirements;
  - (6) Navigation procedures used in area departure, en route, area arrival, approach and landing phases;
  - (7) Approved crew resource management training;
  - (8) Air traffic control systems, procedures, and phraseology;
  - (9) Aircraft performance characteristics during all flight regimes, including:
    - (i) The use of charts, tables, tabulated data and other related manual information
    - (ii) Normal, abnormal, and emergency performance problems.
    - (iii) Meteorological and mass limiting performance factors (such as temperature, pressure, contaminated runways, precipitation, climb/runway limits).
    - (iv) Inoperative equipment performance limiting factors (such as MEL/CDL, inoperative antiskid).

- (v) Special operational conditions (such as unpaved runways, high altitude airports and drift down requirements).
- (10) Normal, abnormal and emergency procedures on the aircraft type to be used.
- (b) Each Operator shall have an initial aircraft ground training curriculum for the flight crew applicable to their duties, the type of operations conducted and aircraft flown, including at least the following aircraft systems (if applicable):
  - (1) Aircraft:
    - (i) Aircraft dimensions, turning radius, panel layouts, cockpit and cabin configurations.
    - (ii) Other major systems and components or appliances of the aircraft.
    - (iii) Operating limitations.
    - (iv) Approved aircraft flight manual.
  - (2) Power units:
    - (i) Basic engine description.
    - (ii) Engine thrust ratings.
    - (iii) Engine components such as accessory drives, ignition, oil, fuel control, hydraulic, and bleed air features.
  - (3) Electrical.
    - (i) Sources of aircraft electrical power (engine driven generators, APU generator, and external power);
    - (ii) Electrical buses;
    - (iii) Circuit breakers;
    - (iv) Aircraft battery; and
    - (v) Standby power systems.
  - (4) Hydraulic.
    - (i) Hydraulic reservoirs, pumps, accumulators; filters, check valves, interconnects and actuators; and
    - (ii) Other hydraulically operated components.
  - (5) Fuel.
    - (i) Fuel tanks (location and quantities);
    - (ii) Engine driven pumps;
    - (iii) Boost pumps;
    - (iv) System valves and cross-feeds;
    - (v) Quantity indicators; and
    - (vi) Provisions for fuel jettisoning.
  - (6) Pneumatic.
    - (i) Bleed air sources (APU or external ground air); and
    - (ii) Means of routing, venting and controlling bleed air via valves, ducts, chambers. and temperature and pressure limiting devices
  - (7) Air conditioning and pressurization.

- (i) Heaters, air conditioning packs, fans, and other environmental control devices;
  - (ii) Pressurization system components such as outflow and negative pressure relief valves; and
  - (iii) Automatic, standby, and manual pressurization controls and annunciators.
- (8) Flight controls.
- (i) Primary controls (yaw, pitch, and roll devices);
  - (ii) Secondary controls (leading/trailing edge devices, flaps, trim, and damping mechanisms);
  - (iii) Means of actuation (direct/indirect or fly by wire); and
  - (iv) Redundancy devices.
- (9) Landing gear and brakes.
- (i) Landing gear extension and retraction mechanism including the operating sequence of struts, doors, and locking devices, and brake and antiskid systems, if applicable;
  - (ii) Steering (nose or body steering gear);
  - (iii) Bogie arrangements;
  - (iv) Air/ground sensor relays; and
  - (v) Visual down-lock indicators.
- (10) Ice and rain protection.
- (i) Rain removal systems; and
  - (ii) Anti-icing and/or de-icing system(s) affecting flight controls, engines, pitot and static probes, fluid outlets, cockpit windows, and aircraft structures.
- (11) Equipment and furnishings.
- (i) Exits;
  - (ii) Galleys;
  - (iii) Water and waste systems;
  - (iv) Lavatories;
  - (v) Cargo areas;
  - (vi) Crew member and passenger seats;
  - (vii) Bulkheads,
  - (viii) Seating and/or cargo configurations; and
  - (ix) Non-emergency equipment and furnishings.
- (12) Navigation equipment.
- (i) Flight directors;
  - (ii) Horizontal situation indicator;
  - (iii) Radio magnetic indicator,
  - (iv) Navigation receivers (GPS, ADF, VOR, OMEGA, LORAN-C, RNAV, Marker Beacon, DME);
  - (v) Inertial systems (INS, IRS);

- (vi) Functional displays;
  - (vii) Fault indications and comparator systems;
  - (viii) Aircraft transponders;
  - (ix) Radio altimeters;
  - (x) Weather radar; and
  - (xi) Cathode ray tube or computer generated displays of aircraft position and navigation information.
- (13) Auto flight system.
- (i) Autopilot;
  - (ii) Auto-throttles;
  - (iii) Flight director and navigation systems;
  - (iv) Automatic approach tracking;
  - (v) Auto-land; and
  - (vi) Automatic fuel and performance management systems.
- (14) Flight instruments.
- (i) Panel arrangement;
  - (ii) Flight instruments (attitude indicator, directional gyro, magnetic compass, airspeed indicator, vertical speed indicator, altimeters, standby instruments); and
  - (iii) Instrument power sources and instrument sensory sources (e.g., Pitot static pressure).
- (15) Display systems.
- (i) Weather radar; and
  - (ii) Other CRT displays (e.g., checklist, vertical navigation or longitudinal navigation displays).
- (16) Communication equipment.
- (i) VHF/HF radios;
  - (ii) Audio panels;
  - (iii) In-flight interphone and passenger address systems;
  - (iv) Voice recorder; and
  - (v) Air/ground passive communications systems (ACARS).
- (17) Warning systems.
- (i) Aural, visual, and tactile warning systems (including the character and degree of urgency related to each signal); and
  - (ii) Warning and caution annunciator systems (including ground proximity and take-off warning systems).
- (18) Fire protection.
- (i) Fire and overheat sensors, loops, modules, or other means of providing visual and/or aural indications of fire or overheat detection;

- (ii) Procedures for the use of fire handles, automatic extinguishing systems and extinguishing agents; and
  - (iii) Power sources necessary to provide protection for fire and overheat conditions in engines, APU, cargo bay/wheel well, cockpit, cabin and lavatories.
- (19) Oxygen
- (i) Passenger, crew, and portable oxygen supply systems;
  - (ii) Sources of oxygen (gaseous or solid);
  - (iii) Flow and distribution networks;
  - (iv) Automatic deployment systems;
  - (v) Regulators, pressure levels and gauges; and
  - (vi) Servicing requirements.
- (20) Lighting.
- (i) Cockpit, cabin, and external lighting systems;
  - (ii) Power sources;
  - (iii) Switch positions; and
  - (iv) Spare light bulb locations.
- (21) Emergency equipment.
- (i) Fire and oxygen bottles;
  - (ii) First aid kits;
  - (iii) Life-rafts and life preservers;
  - (iv) Crash axes;
  - (v) Emergency exits and lights;
  - (vi) Slides and slide rafts;
  - (vii) Escape straps or handles; and
  - (viii) Hatches, ladders and movable stairs.
- (22) Auxiliary Power Unit (APU).
- (i) Electric and bleed air capabilities;
  - (ii) Interfaces with electrical and pneumatic systems;
  - (iii) Inlet doors and exhaust ducts;
  - (iv) Fuel supply.
- (23) Performance.
- (c) Each Operator shall have an initial aircraft ground training curriculum for the flight crew applicable to their duties, the type of operations conducted and aircraft flown, including at least the following aircraft systems integration items:
- (1) Use of checklist.
    - (i) Safety checks;
    - (ii) Cockpit preparation (switch position and checklist flows);
    - (iii) Checklist callouts and responses; and

- (iv) Checklist sequence.
  - (2) Flight planning.
    - (i) Pre-flight and i-flight planning.
    - (ii) Performance limitations (meteorological, mass, and MEL/CDL items);
    - (iii) Required fuel loads;
    - (iv) Weather planning (lower than standard take-off minimums or alternate requirements).
  - (3) Display systems.
    - (i) Weather radar.
    - (ii) CRT displays (checklists, vertical navigational and longitudinal displays).
  - (4) Navigation and communication systems.
    - (i) Pre-flight and operation of applicable receivers;
    - (ii) Onboard navigation systems; and
    - (iii) Flight plan information input and retrieval.
  - (5) Auto-flight/flight directors.
    - (i) Auto-pilot.
    - (ii) Auto-thrust.
    - (iii) Flight director systems, including the appropriate procedures, normal and abnormal indications, and annunciators.
  - (6) Cockpit familiarization
    - (i) Activation of aircraft system controls and switches to include normal, abnormal and emergency switches; and
    - (ii) Control positions and relevant annunciators, lights, or other caution and warning systems.
- (d) Each Operator shall ensure that initial ground training for flight crew consists of at least the following program hours of instruction based on the aircraft to be used, unless a reduction is determined appropriate by the Authority:
- (1) For pilots and flight engineers:
    - (i) Piston-engine airplane: 64 hours.
    - (ii) Turbo-propeller powered airplane: 80 hours.
    - (iii) Turbo-jet airplane: 120 hours.
    - (iv) Helicopter: 64 hours.
    - (v) Powered-lift: 80 hours.
    - (vi) Other aircraft: 64 hours.
  - (2) For flight navigators:
    - (i) Piston-engine aircraft: 6 hours.
    - (ii) Turbo-propeller powered aircraft: 32 hours.
    - (iii) Turbojet-aircraft: 32 hours.

**IS: 8.10.1.14(c1) INITIAL AND RE-QUALIFICATION AIRCRAFT GROUND TRAINING:  
CABIN CREW MEMBERS**

(a) Each Operator shall have an initial and re-qualification ground training curriculum for cabin crew members applicable to the type of operations conducted and aircraft flown, including at least the following general subjects:

- (1) Aircraft familiarization.
  - (i) Aircraft characteristics and description;
  - (ii) Flight-deck configuration;
  - (iii) Cabin configuration;
  - (iv) Galleys;
  - (v) Lavatories; and
  - (vi) Stowage areas.
- (2) Aircraft equipment and furnishings.
  - (i) Cabin crew stations;
  - (ii) Cabin crew panels,
  - (iii) Passenger seats;
  - (iv) Passenger service units and convenience panels,
  - (v) Passenger information signs,
  - (vi) Aircraft markings; and
  - (vii) Aircraft placards.
  - (viii) Bassinets and bayonet tables.
- (3) Aircraft systems.
  - (i) Air conditioning and pressurization system,
  - (ii) Aircraft communication systems (call, interphone and passenger address),
  - (iii) Lighting and electrical systems;
  - (iv) Oxygen systems (flight crew, observer and passenger); and
  - (v) Water system.
  - (vi) Entertainment and convenience systems.
- (4) Aircraft exits.
  - (i) General information;
  - (ii) Exits with slides or slide rafts (pre-flight and normal operation);
  - (iii) Exits without slides (pre-flight and normal operations); and
  - (iv) Window exits.
- (5) Crew member communication and co-ordination.
  - (i) Authority of PIC;
  - (ii) Routine communication signals and procedures; and
  - (iii) Crew member briefing.
- (6) Routine crew member duties and procedures.

- (i) Crew member general responsibilities;
  - (ii) Reporting duties and procedures for specific aircraft;
  - (iii) Pre-departure duties and procedures prior to passenger boarding;
  - (iv) Passenger boarding duties and procedures;
  - (v) Prior to movement on the surface duties and procedures;
  - (vi) Prior to take-off duties and procedures applicable to specific aircraft;
  - (vii) In-flight duties and procedures;
  - (viii) Prior to landing duties and procedures;
  - (ix) Movement on the surface and arrival duties and procedures;
  - (x) After arrival duties and procedures; and
  - (xi) Intermediate stops.
- (7) Passenger handling responsibilities.
- (i) Crew member general responsibilities;
  - (ii) Infants, children, and unaccompanied minors;
  - (iii) Passengers needing special assistance;
  - (iv) Passengers needing special accommodation;
  - (v) Carry-on stowage requirements;
  - (vi) Passenger seating requirements; and
  - (vii) Smoking and no smoking requirements.
- (8) Approved Crew Resource Management (CRM) training for cabin crew members.
- (9) Security.
- (10) Survival.
- (b) Each Operator shall have an initial and re-qualification ground training curriculum for cabin crew members applicable to the type of operations conducted and aircraft flown, including at least the following aircraft specific emergency subjects:
- (1) Emergency equipment.
- (i) Emergency communication and notification systems;
  - (ii) Aircraft exits;
  - (iii) Exits with slides or slide rafts (emergency operation);
  - (iv) Slides and slide rafts in a ditching;
  - (v) Exits without slides (emergency operation);
  - (vi) Window exits (emergency operation);
  - (vii) Exits with tail-cones (emergency operation);
  - (viii) Cockpit exits (emergency operation);
  - (ix) Ground evacuation and ditching equipment;
  - (x) First aid equipment;
  - (xi) Portable oxygen systems (oxygen bottles, chemical oxygen generators, protective breathing equipment (PBE));

- (xii) Firefighting equipment;
  - (xiii) Emergency lighting systems; and
  - (xiv) Additional emergency equipment.
- (2) Emergency assignments and procedures.
- (i) General types of emergencies specific to aircraft;
  - (ii) Emergency communication signals and procedures;
  - (iii) Rapid decompression;
  - (iv) Insidious decompression and cracked window and pressure seal leaks;
  - (v) Fires;
  - (vi) Ditching;
  - (vii) Ground evacuation;
  - (viii) Unwarranted evacuation (i.e., passenger initiated);
  - (ix) Illness or injury;
  - (x) Abnormal situations involving passengers or crew members;
  - (xi) Hijacking;
  - (xii) Bomb threat;
  - (xiii) Turbulence;
  - (xiv) Other unusual situations including an awareness of other crew members' assignments and functions as they pertain to the cabin crew's own duties; and
  - (viii) Previous aircraft accidents and incidents.
- (3) Aircraft specific emergency drills.
- (i) Emergency exit drill;
  - (ii) Hand fire extinguisher drill;
  - (iii) Emergency oxygen system drill;
  - (iv) Flotation device drill;
  - (v) Ditching drill, if applicable;
  - (vi) Life raft removal and inflation drill, if applicable;
  - (vii) Slide-raft pack transfer drill, if applicable;
  - (viii) Slide or slide-raft deployment, inflation, and detachment drill, if applicable; and
  - (ix) Emergency evacuation slide drill, if applicable.
- (c) Each Operator shall ensure that initial and re-qualification ground training for cabin crew members includes a competence check given by the appropriate supervisor or ground instructor to determine his or her ability to perform assigned duties and responsibilities.
- (d) Each Operator shall ensure that initial and re-qualification ground training for cabin crew members consists of at least the following program hours of instruction for each type of aircraft:
- (1) Piston-engine: 8 hours;
  - (2) Turbo-propeller powered: 8 hours;

- (3) Turbo-jet: 16 hours; and
- (4) Other aircraft: 8 hours.
- (e) The training program shall ensure that each cabin crew is:
  - (1) competent to execute those safety duties and functions which the cabin crew member is assigned to perform in the event of an emergency or in a situation requiring emergency evacuation;
  - (2) drilled and capable in the use of emergency and life-saving equipment required to be carried, such as life jackets, life rafts, evacuation slides, emergency exits, portable fire extinguishers, oxygen equipment and first-aid kits;
  - (3) when serving on airplanes operated above 3,000 m (10,000 ft), knowledgeable as regards the effect of lack of oxygen and, in the case of pressurized airplanes, as regards physiological phenomena accompanying a loss of pressurization;
  - (4) aware of other crew members' assignments and functions in the event of an emergency so far as is necessary for the fulfillment of the cabin crew member's own duties;
  - (5) aware of the types of dangerous goods which may, and may not, be carried in a passenger cabin and has completed the dangerous goods training program required by Annex 18; and
  - (6) knowledgeable about human performance as related to passenger cabin safety duties including flight crew-cabin crew coordination.

*Note 1: Requirements for the training of cabin crew members in the transport of dangerous goods are included in the Dangerous Goods Training Program contained in ICAO Annex 18 – The Safe Transport of Dangerous Goods by Air and the Technical Instruction for the Safe Transport of Dangerous Goods by Air (ICAO Doc 9284).*

*Note 2: For more information on Dangerous Goods operational requirements, see Chapter 14 of Annex 6 Part 1.*

*Note 3: Guidance material to design training programs to develop knowledge and skills in human performance can be found in the Cabin Crew Safety Training Manual (ICAO Doc 10002).*

- (f) On successful completion of the required training and competency check, a cabin crew member shall be issued with a "Cabin Crew Member Certificate", which shall remain valid for a period of two years, subject to successfully passing the required competency check.
- (g) No operator may use nor may any person serve as a cabin crew member on an aircraft, unless he/she has successfully completed his/her competency check within three (3) calendar months. To re-qualify, he/she must undergo a refresher training, and successfully complete the competency check before he/she is scheduled as a cabin crew member.

#### **IS: 8.10.1.14 (c2) CHECK CABIN CREW: INITIAL AND RE-QUALIFICATION TRAINING**

Initial and re-qualification ground training for the check cabin crew member shall include assessment and checking of cabin crew members on the pertinent portions of the operations manuals relating to aircraft-specific configuration, equipment, normal and emergency procedures for the aircraft types within the fleet.

- (a) The initial and re-qualification ground training for check cabin crew member must include the following:
- (1) Check cabin crew member duties, functions, and responsibilities.
  - (2) The applicable CAR and the Operator's policy and procedures.
  - (3) The appropriate methods, procedures, and techniques for conducting the required checks.
  - (4) Proper evaluation of cabin crew member performance including the detection of:
    - (i) Improper and insufficient training; and
    - (ii) Personal characteristics that could adversely affect safety.
  - (5) The appropriate corrective action in the case of unsatisfactory checks.
  - (6) The approved methods procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.
- (b) The initial ground training for check cabin crew member must include the following:
- (1) The fundamental principles of the teaching learning process.
  - (2) Teaching methods and procedures.
  - (3) The instructor-student relationship.
  - (4) However, sub-paragraphs (b) (1), (2) and (3) of this section are not required for the holder of a cabin crew instructor certificate.
- (c) The initial ground and flight training for cabin crew member instructor must be adequate to ensure competence to perform his/her assigned duties.
- (d) For the purposes of this section:
- (1) A check cabin crew member is a person who satisfactorily completed a check cabin crew training program approved by the Authority to conduct assessments of company cabin crew members on a particular aircraft type.
  - (2) Recent instructional experience means having provided instruction on the subject for which the instructor has the required rating or knowledge within the preceding 12 month period.
- (e) No AOC holder may use a person nor may any person serve as a check cabin crew in a training program established under this Subpart unless, with respect to the aircraft type involved, that person -
- (1) Has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training, that are required to serve as a cabin crew member in operations under this Part;
  - (2) Has satisfactorily been assessed as a evaluator of cabin crew members, the assessment of which may be conducted by the operator;
  - (3) Has completed the prescribed training requirements;
  - (4) Has attained a minimum of the following:
    - (i) Two (2) years of experience as a cabin crew member in appropriate operations;
    - (ii) Has been a evaluator of cabin crew members for at least six (6) months;
    - (iii) Experience as an in-flight instructor for at least one (1) year;
    - (iv) 30 sectors or 30 hours on the specific aircraft type; and

- (v) Six sectors or 8 hours on the specific aircraft type in the preceding 12 months; and
- (5) Has satisfied the recency of experience requirements; and
- (6) Meets at least one of the following criteria:
  - (i) For cabin crew members who have previous ground instructional experience, within the preceding 12 months, have completed either a minimum of 24 instructional hours or 12 instructional hours under the supervision of a qualified ground instructor on the aircraft system or subject on which he/she is to give instruction;
  - (ii) For cabin crew members without previous ground instructional experience, have a minimum of: two (2) years of experience as a cabin crew member in appropriate operation; 60 sectors or 60 hours flown on the specific aircraft type; or
  - (iii) As a cabin crew member have served in that capacity in the preceding 12 months, and have completed either a minimum of 24 instructional hours or 12 instructional hours under the supervision of a qualified ground instructor on the subject on which he is to give instruction in the preceding 12 months.

*Note: The 12 hours supervised instruction required by paragraphs (6) (iii) of this section must have been rated by a qualified instructor.*
- (f) Completion of the requirements of this section, as applicable, shall be entered in the individual's training record maintained by the AOC holder.
- (g) For the purposes of determining an anniversary date for recurrency of this section are considered to be completed in the month required if completed in the calendar month before or in the calendar month after the month in which it is due.
- (h) The Authority, upon application by the certificate holder, may authorize deviations from the requirements of subparagraph (e) (4) (iv & v), (e) (6) (i) of this section in the event the AOC holder adds to its fleet an aircraft not before proven for use in its operations.

**IS: 8.10.1.14(d) INITIAL AIRCRAFT GROUND TRAINING: FLIGHT OPERATIONS OFFICER**

- (a) Each Operator shall provide initial aircraft ground training for flight operations officers that include instruction in at least the following subjects:
  - (1) General dispatch subjects:
    - (i) Appropriate regulations.
    - (ii) Operations Manual of the AOC holder.
    - (iii) Operations specifications of the AOC holder.
    - (iv) Weather reports: interpretation, available sources, actual and prognostic, seasonal variations.
    - (v) Communications, to include normal and emergency.
    - (vi) Meteorology, to include effects on radio reception.
    - (vii) Adverse weather.
    - (viii) Notices to airmen.
    - (ix) Navigational charts and publications.

- (x) Joint dispatcher/pilot responsibilities.
  - (xi) ATC coordination procedures.
  - (xii) Familiarization with operations area, including classes of airspace and special areas of navigation.
  - (xiii) Characteristics of special aerodromes.
- (2) Aircraft characteristics:
- (i) Aircraft specific flight preparation.
  - (ii) Aircraft operating and performance characteristics.
  - (iii) Navigation equipment, including peculiarities and limitations.
  - (iv) Instrument approach and communication equipment.
  - (v) Emergency equipment.
  - (vi) FM or RFM provisions applicable to the aircraft duties.
  - (vii) MEL/CDL.
  - (viii) Applicable equipment training.
- (3) Operations procedures:
- (i) Adverse weather phenomena (wind-shear, clear air turbulence and thunderstorms).
  - (ii) Mass and balance computations and load control procedures.
  - (iii) Aircraft performance computations, to include takeoff weight limitations based on departure runway, arrival runway, and en route limitations, and also engine-out limitations.
  - (iv) Flight planning procedures, to include route selection, flight time, and fuel requirements analysis.
  - (v) Dispatch release preparation.
  - (vi) Crew briefings.
  - (vii) Flight monitoring procedures.
  - (viii) MEL and CDL procedures.
  - (ix) Manual performance of all required procedures in case of the loss of automated capabilities.
  - (x) Training in appropriate geographic areas.
  - (xi) ATC and instrument procedures, ground hold and central flow control procedures.
  - (xii) Radio/telephone procedures.
- (4) Abnormal and emergency procedures.
- (i) Assisting flight crew in an emergency.
  - (ii) Alerting of appropriate governmental, company and private agencies.
- (5) Crew resource management.
- Note: IS 8.10.1.12 contains CRM training items.*
- (6) Dangerous goods.

*Note: IS 8.10.1.10 contains dangerous goods training items.*

(7) Security.

*Note: See Subpart 8.10.1.11.*

(8) Differences training.

*Note: IS 8.10.1.17 contains items on differences training.*

(b) Each AOC holder shall ensure that initial ground training for flight operations officers includes a competency check given by an appropriately qualified dispatch supervisor or ground instructor that demonstrates the required knowledge and abilities.

(c) Each AOC holder shall ensure that initial ground training for flight operations officers consists of at least the following program hours of instruction based on the aircraft to be used, unless a reduction is determined appropriate by the Authority:

(1) Piston-engine aircraft: 30 hours.

(2) Turbo-propeller powered aircraft: 40 hours.

(3) Turbo-jet aircraft: 40 hours.

(4) Other aircraft: 30 hours.

#### **IS: 8.10.1.15 INITIAL AIRCRAFT FLIGHT TRAINING**

(a) Each Operator shall ensure that pilot initial flight training includes at least the following:

*Note: Flight training may be conducted in an appropriate aircraft or adequate Flight Simulation Training Device (A = Airplane; H = Helicopter).*

(1) Preparation

(i) Visual inspection (for aircraft with a flight engineer, use of pictorial display authorized): A and H

(ii) Pre-taxi procedures: A and H

(iii) Performance limitations.

(2) Surface operation

(i) Pushback

(ii) Power-back taxi, if applicable to type of operation to be conducted.

(iii) Starting.

(iv) Taxi.

(v) Pre take-off checks.

(3) Take-off

(i) Normal.

(ii) Crosswind.

(iii) Rejected.

(iv) Power failure after V1.

(v) Lower than standard minimum, if applicable to type of operation to be conducted.

(4) Climb

- (i) Normal
  - (ii) One-engine inoperative during climb to en route altitude.
- (5) En route
- (i) Steep turns.
  - (ii) Approaches to stalls (take-off, en route, and landing configurations).
  - (iii) In-flight power unit shutdown.
  - (iv) In-flight power unit restart.
  - (v) High speed handling characteristics.
- (6) Descent
- (i) Normal.
  - (ii) Maximum rate.
- (7) Approaches
- (i) VFR procedures.
  - (ii) Visual approach with 50% loss of power on one-engine (2 engines inoperative on 3- engine airplanes) (PIC only)
  - (iii) Visual approach with slat/flap malfunction.
  - (iv) IFR precision approaches (ILS normal and ILS with one-engine inoperative).
  - (v) IFR non-precision approaches (NDB normal and VOR normal).
  - (vi) Non-precision approach with one engine inoperative (LOC back-course procedures, SDF/LDA, GPS, TACAN and circling approach procedures).  
*Note: Simulator shall be qualified for training/checking on the circling maneuver.*
  - (vii) Missed approach from precision approach
  - (viii) Missed approach from non-precision approach
  - (ix) Missed approach with power unit failure
- (8) Landings
- (i) Normal with a pitch mis-trim (small aircraft only)
  - (ii) Normal from precision instrument approach
  - (iii) Normal from precision instrument approach with most critical engine inoperative
  - (iv) Normal with 50% loss of power on one side (2 engines inoperative on 3-engine airplanes) (PIC only)
  - (v) Normal with flap/slat malfunction
  - (vi) Rejected landings
  - (vii) Crosswind
  - (viii) Manual reversion/degraded control augmentation
  - (ix) Short/soft field (small aircraft only)
  - (x) Glassy/rough water (seaplanes only)
- (9) After landing

- (i) Parking
  - (ii) Emergency evacuation
  - (iii) Docking, mooring, and ramping (seaplanes only)
- (10) Other flight procedures during any airborne phase
- (i) Airborne Collision Avoidance System: use and avoidance maneuvers
  - (ii) Holding
  - (iii) Ice accumulation on airframe
  - (iv) Air hazard avoidance
  - (v) Wind-shear/micro-burst
- (11) Normal, abnormal and alternate systems procedures during any phase
- (i) Pneumatic/pressurization
  - (ii) Air conditioning
  - (iii) Fuel and oil
  - (iv) Electrical
  - (v) Hydraulic
  - (vi) Flight controls
  - (vii) Anti-icing and de-icing systems
  - (viii) Autopilot
  - (ix) Flight management guidance systems and/or automatic or other approach and landing aids
  - (x) Stall warning devices, stall avoidance devices, and stability augmentation systems
  - (xi) Airborne weather radar
  - (xii) Flight instrument system malfunction
  - (xiii) Communications equipment
  - (xiv) Navigation systems
- (12) Emergency systems procedures during any phase
- (i) Aircraft fires
  - (ii) Smoke control
  - (iii) Power unit malfunctions
  - (iv) Fuel jettison
  - (v) Electrical, hydraulic, pneumatic systems
  - (vi) Flight control system malfunction
  - (vii) Landing gear and flap system malfunction
- (b) Each AOC holder shall ensure that flight engineer flight training includes at least the following training and practice in procedures related to the carrying out of flight engineer duties and functions. This training and practice may be accomplished either in flight or in a flight simulation training device.
- (1) Preparation.

- (i) Airplane preflight.
  - (A) Logbook procedures.
  - (B) Safety checks.
  - (C) Cabin/interiors.
  - (D) Exterior Walk-around.
  - (E) Servicing/deicing.
  - (F) Use of Oxygen.
- (2) Ground Operations.
  - (i) Performance Data.
    - (A) To/LND Data.
    - (B) Airport Analysis.
    - (C) Mass and Balance.
  - (ii) Use of Checklist.
    - (A) Panel setup.
  - (iii) Starting.
    - (A) External power.
    - (B) External Air.
    - (C) APU.
  - (iv) Communications.
    - (A) Station Procedures.
    - (B) ACARS.
  - (v) Taxi.
- (3) Takeoff.
  - (i) Power-unit Control.
  - (ii) Flaps/landing gear.
  - (iii) Fuel management.
  - (iv) Other Systems Operation.
  - (v) Aircraft Performance.
  - (vi) Checklist Completion.
- (4) Climb.
  - (i) Power unit control.
  - (ii) Fuel Management.
  - (iii) Pressurization.
  - (iv) Electrical System.
  - (v) Air Conditioning.
  - (vi) Flight Controls.
  - (vii) Other Systems.

- (5) En Route.
    - (i) Power unit Operation.
    - (ii) Fuel Management.
    - (iii) Performance Management.
    - (iv) Other Systems Operation.
  - (6) Descent.
    - (i) Powerplant operation.
    - (ii) Other Systems Operation.
    - (iii) Performance Management.
  - (7) Approach.
    - (i) Landing Data.
    - (ii) Landing Gear Operation.
    - (iii) Flat/Slat/Spoiler Operation.
    - (iv) Approach Monitoring.
  - (8) Landings.
    - (i) Powerplant Operation.
    - (ii) Aircraft Configuration.
    - (iii) System Operation.
    - (iv) Emergency Evacuation.
  - (9) Procedures during Any Ground or Airborne Phase.
    - (i) Cockpit Equipment.
    - (ii) Flap Slats/Gear.
    - (iii) Power-unit.
    - (iv) Pressurization.
    - (v) Pneumatic.
    - (vi) Air Conditioning.
    - (vii) Fuel and Oil.
    - (viii) Electrical.
    - (ix) Hydraulic.
    - (x) Flight Controls.
    - (xi) Anti-Icing and Deicing.
    - (xii) Other Checklist Procedures.
- (c) Each AOC holder shall ensure that flight navigator training includes at least the following:
- (1) Initial flight training for flight navigators must include flight training and a flight check that is adequate to ensure the crew member's proficiency in the performance of his or her assigned duties.
  - (2) The flight training and check specified in paragraph (1) must be performed:

- (i) In-flight or in an appropriate flight simulation training device; or
  - (ii) In commercial air transport operations, if performed under the supervision of a qualified flight navigator.
- (d) Each AOC holder shall ensure that initial flight training for pilots and flight engineers consists of at least the following program hours of instruction based on the aircraft to be used, unless a reduction is determined appropriate by the Authority:
- (1) For one trainee in either an aircraft or flight simulation training devices:
    - (i) Piston-engine aircraft—PIC: 14 hours; CP: 14 hours; and FE: 12 hours.
    - (ii) Turbo-propeller powered aircraft—PIC: 15 hours; CP: 15 hours; and FE: 12 hours.
    - (iii) Turbo-jet aircraft—PIC: 20 hours; CP: 16 hours; and FE: 12 hours.
    - (iv) Other aircraft—PIC and CP: 14 hours.
  - (2) For two pilots in a flight simulation training device:
    - (i) Piston-engine aircraft—PIC: 24 hours; CP: 24 hours; and FE: 20 hours.
    - (ii) Turbo-propeller powered aircraft—PIC: 24 hours; CP: 24 hours; and FE: 20 hours.
    - (iii) Turbo-jet aircraft—PIC: 28 hours; CP: 28 hours; and FE: 20 hours.
    - (iv) Other aircraft— PIC and CP: 24 hours.

#### **IS: 8.10.1.16 INITIAL SPECIALIZED OPERATIONS TRAINING**

- (a) Each Operator shall provide initial specialized operations training to ensure that each pilot and flight operations officer is qualified in the type of operation in which he or she serves and in any specialized or new equipment, procedures, and techniques, such as:
- (1) Class II navigation
    - (i) Knowledge of specialized navigation procedures, such as MNPS
    - (ii) Knowledge of specialized equipment, such as INS, LORAN, OMEGA
  - (2) CAT II and CAT III approaches
    - (i) Special equipment, procedures and practice
    - (ii) A demonstration of competency
  - (3) Lower than standard minimum take-offs
    - (i) Runway and lighting requirements
    - (ii) Rejected take-offs at, or near, V1 with a failure of the most critical engine
    - (iii) Taxi operations
    - (iv) Procedures to prevent runway incursions under low visibility conditions
  - (4) Extended range operations with two engine airplanes
  - (5) Airborne radar approaches
  - (6) Autopilot instead of co-Pilot

#### **IS: 8.10.1.17 AIRCRAFT DIFFERENCES**

(a) Each Operator shall provide aircraft differences training for flight operations officers when the operator has aircraft variances within the same type of aircraft, which includes at least the following:

(1) Operations procedures-

- (i) Operations under adverse weather phenomena conditions, including clear air turbulence, wind-shear, and thunderstorms;
- (ii) Mass and balance computations and load control procedures;
- (iii) Aircraft performance computations, to include take-off mass limitations based on departure runway, arrival runway, and en route limitations, and also engine-out limitations;
- (iv) Flight planning procedures, to include route selection, flight time, and fuel requirements analysis;
- (v) Dispatch release preparation;
- (vi) Crew briefings;
- (vii) Flight monitoring procedures;
- (viii) Flight crew response to various emergency situations, including the assistance the aircraft flight operations officer can provide in each situation;
- (ix) MEL and CDL procedures;
- (x) Manual performance of an required procedures in case of the loss of automated capabilities;
- (xi) Training in appropriate geographic areas;
- (xii) ATC and instrument procedures, to include ground hold and central flow control procedures; and
- (xiii) Radio/telephone procedures.

(2) Emergency procedures-

- (i) Actions taken to aid the flight crew; and
- (ii) Operator and Authority notification.

*Note: The FAA Flight Standardization Board, the Transport Canada and JAA Joint Operations Evaluation Board have a harmonized process and their reports are a source for differences training.*

**IS: 8.10.1.20 AIRCRAFT AND INSTRUMENT PROFICIENCY CHECK: PILOT**

- (a) Aircraft and instrument proficiency checks for PIC and CP must include the following operations and procedures listed in the appropriate skill test in Part 2, on each type or variant of type of aircraft.
- (b) The oral and flight test phases of a proficiency check should not be conducted simultaneously.
- (c) When the examiner determines that an applicant's performance is unsatisfactory, the examiner may terminate the flight test immediately or, with the consent of the applicant, continue with the flight test until the remaining events are completed.
- (d) If the check must be terminated (for mechanical or other reasons) and there are events which still need to be repeated, the examiner shall issue a letter of discontinuance,

valid for 60 days, listing the specific areas of operation that have been successfully completed.

- (e) Satisfactory completion of a proficiency check following completion of an approved operator training program for the particular type aircraft, satisfies the requirement for an aircraft type rating skill test if:
- (1) That proficiency check includes all maneuvers and procedures required for a type rating skill test.
  - (2) Proficiency checks are to be conducted by an examiner approved by the Authority.
  - (3) The oral and flight test phases of a proficiency check should not be conducted simultaneously.
  - (4) When the examiner determines that an applicant's performance is unsatisfactory, the examiner may terminate the flight test immediately or, with the consent of the applicant, continue with the flight test until the remaining events are completed.
  - (5) If the check must be terminated (for mechanical or other reasons) and there are events which still need to be repeated, the examiner shall issue a letter of discontinuance, valid for 60 days, listing the specific areas of operation that have been successfully completed.

| TYPE OF OPERATION OR PROCEDURE                            | PIC or Co-Pilot | Notes   |
|---|-----------------|---|
| <b>Ground Operations</b>                                  |                 |   |
| Preflight inspection                                      | PIC/Co-Pilot    |   |
| Taxiing   | PIC/Co-Pilot    | Both pilots may take simultaneous credit.                               |
| Power unit checks   | PIC/Co-Pilot    | Both pilots may take simultaneous credit.                               |
| <b>Take-offs</b>  |                 |   |
| Normal  | PIC/Co-Pilot    |   |
| Instrument  | PIC/Co-Pilot    |   |
| Crosswind   | PIC/Co-Pilot    |   |
| With power unit failure                                   | PIC/Co-Pilot    |   |
| Rejected take-off   | PIC/Co-Pilot    | Both pilots may take simultaneous credit. May be waived                 |
| <b>Instrument Procedures</b>                              |                 |   |
| Area departure  | PIC/Co-Pilot    | May be waived   |
| Area arrival  | PIC/Co-Pilot    | May be waived.  |
| Holding   | PIC/Co-Pilot    | May be waived   |
| Normal ILS approach                                       | PIC/Co-Pilot    |   |
| Engine-out ILS  | PIC/Co-Pilot    |   |
| Coupled ILS approach                                      | PIC/Co-Pilot    | Both pilots may take simultaneous credit                                |
| Nonprecision approach                                     | PIC/Co-Pilot    |   |
| Second nonprecision approach                              | PIC/Co-Pilot    |   |
| Missed approach from an ILS                               | PIC/Co-Pilot    |   |
| Second missed approach                                    | PIC only        |   |
| Circling approach   | PIC/Co-Pilot    | Only when authorized in the Operator's Operations Manual. May be waived |
| <b>In-flight Maneuvers</b>                                |                 |   |
| Steep turns   | PIC only        | May be waived   |
| Specific flight characteristics                           | PIC/Co-Pilot    |   |
| Approaches to stalls                                      | PIC/Co-Pilot    | May be waived   |
| Power unit failure  | PIC/Co-Pilot    |   |
| Two engine inoperative approach (3 and 4 engine aircraft) | PIC/Co-Pilot    |   |
| Normal landing  | PIC/Co-Pilot    |   |
| Landing from an ILS                                       | PIC/Co-Pilot    |   |
| Crosswind landing   | PIC/Co-Pilot    |   |
| Landing with engine-out                                   | PIC/Co-Pilot    |   |
| Landing from circling approach                            | PIC/Co-Pilot    | Only if authorized in Operations Manual. May be waived                  |
| <b>Normal And Non-Normal Procedures</b>                   |                 |   |
| Rejected landing  | PIC/Co-Pilot    |   |
| Two engine inoperative landing (3 and 4 engine aircraft)  | PIC only        |   |
| Other Events  | PIC or Co-Pilot | Examiner's discretion   |

**IS: 8.10.1.21 FLIGHT ENGINEER PROFICIENCY CHECKS**

(a) Examiners shall include during proficiency checks for flight engineers an oral or written examination of the normal, abnormal, and emergency procedures listed below:

(1) Normal procedures-

- (i) Interior pre-flight
- (ii) Panel set-up
- (iii) Fuel load
- (iv) Engine start procedures
- (v) Taxi and before take-off procedures
- (vi) Take-off and climb Pressurization
- (vii) Cruise and fuel management
- (viii) Descent and approach
- (ix) After landing and securing
- (x) Crew co-ordination
- (xi) Situational awareness, traffic scan, etc.
- (xii) Performance computations
- (xiii) Anti-ice; de-ice

(2) Abnormal and emergency procedures-

- (i) Troubleshooting
- (ii) Knowledge of checklist
- (iii) Ability to perform procedures
- (iv) Crew co-ordination
- (v) Minimum equipment list (MEL) and configuration deviation list (CDL)
- (vi) Emergency or alternate operation of airplane flight systems

**IS: 8.10.1.22 PAIRING OF LOW EXPERIENCE CREW MEMBERS: COMMERCIAL AIR TRANSPORT**

(a) Situations designated as critical by the Authority at special airports designated by the Authority or at special airports designated by the Operator include:

- (1) The prevailing visibility value in the latest weather report for the airport is at or below  $\frac{3}{4}$  mile;
- (2) The runway visual range for the runway to be used is at or below 4,000 feet;
- (3) The runway to be used has water, snow, slush or similar conditions that may adversely affect airplane performance;
- (4) The braking action on the runway to be used is reported to be less than "good";
- (5) The crosswind component for the runway to be used is in excess of 15 knots;
- (6) Wind-shear is reported in the vicinity of the airport; or
- (7) Any other condition in which the PIC determines it to be prudent to exercise the PIC's prerogative.

- (b) Circumstances which would be routinely be considered for deviation from the required minimum line operating flight time include:
- (1) A newly certified Operator does not employ any pilots who meet the minimum flight time requirements;
  - (2) An existing Operator adds to its fleet a type airplane not before proven for use in its operations; or
  - (3) An existing Operator establishes a new domicile to which it assigns pilots who will be required to become qualified on the airplanes operated from that domicile.

#### IS: 8.10.1.24 COMPETENCY CHECKS: CABIN CREW MEMBERS

- (a) A check cabin crew member, approved by the Authority, shall conduct competency checks for cabin crew members in the following areas to demonstrate that each candidate's competency level is sufficient to successfully perform assigned duties and responsibilities.

(1) Emergency equipment-

- (i) Emergency communication and notification systems;
- (ii) Aircraft exits;
- (iii) Exits with slides or slide-rafts (emergency operation);
- (iv) Slides and slide-rafts in a ditching;
- (v) Exits without slides (emergency operation);
- (vi) Window exits (emergency operation);
- (vii) Exits with tail-cones (emergency operation);
- (viii) Cockpit exits (emergency operation);
- (ix) Ground evacuation and ditching equipment;
- (x) First aid equipment;
- (xi) Portable oxygen systems (oxygen bottles, chemical oxygen generators, protective breathing equipment (PBE));
- (xii) Firefighting equipment;
- (xiii) Emergency lighting systems; and
- (xiv) Additional emergency equipment.

(2) Emergency procedures-

- (i) General types of emergencies specific to aircraft;
- (ii) Emergency communication signals and procedures;
- (iii) Rapid decompression;
- (iv) Insidious decompression and cracked window and pressure seal leaks;
- (v) Fires;
- (vi) Ditching;
- (vii) Ground evacuation;
- (viii) Unwarranted evacuation (i.e., Passenger initiated);
- (ix) Illness or injury;

- (x) Abnormal situations involving passengers or crew members;
  - (xi) Turbulence; and
  - (xii) Other unusual situations.
- (3) Emergency drills-
- (i) Location and use of all emergency and safety equipment carried on the airplane;
  - (ii) The location and use of all types of exits;
  - (iii) Actual donning of a lifejacket where fitted;
  - (iv) Actual donning of protective breathing equipment; and
  - (v) Actual handling of fire extinguishers.
- (4) Crew Resource Management-
- (i) Decision making skills;
  - (ii) Briefings and developing open communication;
  - (iii) Inquiry, advocacy, and assertion training; and
  - (iv) Workload management.
- (5) Dangerous goods-
- (i) Recognition of and transportation of dangerous goods;
  - (ii) Proper packaging, marking, and documentation; and
  - (iii) Instructions regarding compatibility, loading, storage and handling characteristics.
- (6) Security-
- (i) Hijacking; and
  - (ii) Disruptive passengers.
- (b) In startup AOC holders, where no qualified cabin crew can initially be assigned as check cabin crew, a qualified supervisor or inspector, approved by the Authority, shall observe and evaluate competency checks for cabin crew members until all requirements are met.
- (c) Cabin Crew Certificate:
- On completion of the competency check described as above, evaluators shall complete the Cabin Crew Certificate as required by Subpart 8.10.1.24.2 (b).

#### **IS: 8.10.1.25 COMPETENCE CHECKS: FLIGHT OPERATIONS OFFICERS**

- (a) Evaluators shall conduct competency checks for flight operations officers to demonstrate that the candidate's proficiency level is sufficient to ensure the successful outcome of all dispatch operations.
- (b) A qualified supervisor or inspector, approved by the Authority, shall observe and evaluate competency checks for flight operations officers.
- (c) Each competency check for flight operations officers shall include:
  - (1) An evaluation of all aspects of the dispatch function;

- (2) A demonstration of the knowledge and abilities in normal and abnormal situations; and
- (3) An observation of actual flights being dispatched.
- (d) Each evaluator of newly hired flight operations officers shall include during initial competency checks an evaluation of all of geographic areas and types of aircraft the flight operations officer will be qualified to dispatch. (Note: The supervisor may approve a competency check of representative aircraft types when, in the supervisor's judgment, a check including all types is impractical or unnecessary)
- (e) Evaluators may limit initial equipment and transition competency checks solely to the dispatch of the types of airplanes on which the aircraft dispatcher is qualifying (unless the check is to simultaneously count as a recurrent check).
- (f) Each evaluator of flight operations officers shall include, during recurrent and re-qualification competency checks, a representative sample of aircraft and routes for which the aircraft dispatcher maintains current qualification.
- (g) The Authority requires special operations competency checks before an aircraft dispatcher is qualified in EDTO or other special operations authorized by the Authority.

#### **IS: 8.10.1.33 RECURRENT TRAINING: FLIGHT CREW**

- (a) Each Operator shall establish a recurrent training program for all flight crew members in the Operator's operations manual and shall have it approved by the Authority.
- (b) Each flight crew member shall undergo recurrent training relevant to the type or variant of airplane on which he or she is certified to operate and for the crew member position involved.
- (c) Each Operator shall have all recurrent training conducted by suitably qualified personnel.
- (d) Each Operator shall ensure that flight crew member recurrent ground training includes at least the following:
  - (1) General subjects
    - (i) Flight locating procedures
    - (ii) Principles and method for determining mass/balance and runway limitations
    - (iii) Meteorology to ensure practical knowledge of weather phenomena including the principles of frontal system, icing, fog, thunderstorms, wind-shear, and high altitude weather situations
    - (iv) ATC systems and phraseology
    - (v) Navigation and use of navigational aids
    - (vi) Normal and emergency communication procedures
    - (vii) Visual cues before descent to MDA
    - (viii) Accident/incident and occurrence review
    - (ix) Other instructions necessary to ensure the pilot's competence
  - (2) Aircraft systems and limitations
    - (i) Normal, abnormal, and emergency procedures
    - (ii) Aircraft performance characteristics

- (iii) Engines and or propellers
  - (iv) Major aircraft components
  - (v) Major aircraft systems (i.e.: flight controls, electric, hydraulic and other systems as appropriate)
  - (vi) Ground icing and de-icing procedures and requirements.
- (3) Emergency equipment and drills
- (4) Every 12 months-
- (i) Location and use of all emergency and safety equipment carried on the airplane;
  - (ii) The location and use of all types of exits;
  - (iii) Actual/simulated donning of a lifejacket where fitted;
  - (iv) Actual/simulated donning of protective breathing equipment; and
  - (v) Actual/simulated handling of fire extinguishers.
- (5) Every 3 years-
- (i) Operation of all types of exits;
  - (ii) Demonstration of the method used to operate a slide, where fitted; and
  - (iii) Fire-fighting using equipment representative of that carried in the airplane on an actual or simulated fire;  
*Note: With halon extinguishers an alternative method acceptable to the authority may be used.*
  - (iv) Effects of smoke in an enclosed area and actual/simulated use of all relevant equipment in a simulated smoke-filled environment;
  - (v) Actual handling of pyrotechnics, real or simulated, where fitted;
  - (vi) Demonstration or simulated demonstration in the use of the life-raft(s), where fitted;
  - (vii) An emergency evacuation drill;
  - (viii) A ditching drill, if applicable; and
  - (ix) A rapid decompression drill, if applicable.
- (6) Crew resource management-
- (i) Decision making skills;
  - (ii) Briefings and developing open communication;
  - (iii) Inquiry, advocacy, and assertion training;
  - (iv) Workload management; and
  - (v) Situational awareness.
- (7) Dangerous goods - every year:
- (i) Recognition of and transportation of dangerous goods;
  - (ii) Limitations
  - (iii) Proper packaging, marking, and documentation;

- (iv) Instructions regarding compatibility, loading, storage and handling characteristics;
  - (v) Provisions for passengers and crew members;
  - (vi) Emergency procedures; and
  - (vii) Examination.
- (8) Security-
- (i) Hijacking; and
  - (ii) Disruptive passengers.
- (e) Each Operator shall verify knowledge of the recurrent ground training by an oral or written examination.
- (f) Each Operator shall ensure that pilot recurrent flight training include at least the following:

*Note: Flight training may be conducted in an appropriate aircraft or adequate FSTD (FSTD shall have landing capability). Requirements for FSTDs used for UPRT are specified in IS 2.3.3.3 APPENDIX C and should be qualified to ensure that the training task objectives can be achieved and negative transfer of training is avoided.*

- (1) Preparation-
- (i) Visual inspection (use of pictorial display authorized); and
  - (ii) Pre-taxi procedures.
- (2) Surface operation-
- (i) Performance limitations;
  - (ii) Cockpit management;
  - (iii) Securing cargo;
  - (iv) Pushback;
  - (v) Power-back taxi;
  - (vi) Starting;
  - (vii) Taxi; and
  - (viii) Pre take-off checks.
- (3) Take-off-
- (i) Normal;
  - (ii) Crosswind;
  - (iii) Rejected;
  - (iv) Power failure after V1;
  - (v) Power unit failure during second segment; and
  - (vi) Lower than standard minimum.
- (4) Climb –
- (i) Normal; and
  - (ii) One-engine inoperative during climb to en route altitude.
- (5) En route-

- (i) Steep turns;
  - (ii) Approaches to stalls (take-off, en route, and landing configurations);
  - (iii) In-flight power unit shutdown;
  - (iv) In-flight power unit restart; and
  - (v) High speed handling characteristics.
- (6) Descent-
- (i) Normal; and
  - (ii) Maximum rate.
- (7) Approaches-
- (i) VFR procedures;
  - (ii) Visual approach with 50% loss of power on one-engine (2 engines inoperative on 3-engines airplanes) (PIC only);
  - (iii) Visual approach with slat/flap malfunction;
  - (iv) IFR precision approaches (ILS normal and ILS with one-engine inoperative);
  - (v) IFR non-precision approaches (NDB normal and VOR normal);
  - (vi) Non-precision approach with one engine inoperative (LOC back-course, SDF/LDA, ( GPS, TACAN and circling approach procedures);  
*Note: Simulator shall be qualified for training/checking on the circling maneuver.*
  - (vii) Missed approach from precision approach;
  - (viii) Missed approach from non-precision approach; and
  - (ix) Missed approach with power unit failure.
- (8) Landings-
- (i) Normal with a pitch mis-trim (small aircraft only);
  - (ii) Normal from precision instrument approach;
  - (iii) Normal from precision instrument approach with most critical engine inoperative;
  - (iv) Normal with 50% loss of power on one side (2 engines inoperative on 3-engine airplanes) (PIC only);
  - (v) Normal with flap/slat malfunction;
  - (vi) Rejected landings;
  - (vii) Crosswind;
  - (viii) Short/soft field (small aircraft only); and
  - (ix) Glassy/rough water (seaplanes only).
- (9) After landing-
- (i) Parking;
  - (ii) Emergency evacuation; and
  - (iii) Docking, mooring, and ramping (seaplanes only).
- (10) Other flight procedures during any airborne phase-

- (i) Holding;
  - (ii) Ice accumulation on airframe;
  - (iii) Air hazard avoidance; and
  - (iv) Wind-shear/micro-burst.
- (11) Normal, abnormal and alternate systems procedures during any phase-
- (i) Pneumatic/pressurization;
  - (ii) Air conditioning;
  - (iii) Fuel and oil;
  - (iv) Electrical;
  - (v) Hydraulic;
  - (vi) Flight controls;
  - (vii) Anti-icing and de-icing systems;
- (12) Flight management guidance systems and/or automatic or other approach and landing aids;
- (i) Stall warning devices, stall avoidance devices. and stability augmentation systems;
  - (ii) Airborne weather radar;
  - (iii) Flight instrument system malfunction;
  - (iv) Communications equipment;
  - (v) Navigation systems;
  - (vi) Auto-pilot;
  - (vii) Approach and landing aids; and
  - (viii) Flight instrument system malfunction.
- (13) Emergency systems procedures during any phase-
- (i) Aircraft fires;
  - (ii) Smoke control;
  - (iii) Power unit malfunctions;
  - (iv) Fuel jettison;
  - (v) Electrical, hydraulic, pneumatic systems;
  - (vi) Flight control system malfunction; and
  - (vii) Landing gear and flap system malfunction.
- (14) For airplanes, upset prevention and recovery training as specified in IS 2.3.3.3 APPENDIX C.
- (i) Upset Prevention Training should prioritize the upset prevention elements and respective according to the operator's safety risk assessment. Upset prevention training should use a combination of manoeuvre-based and scenario-based training. Scenario-based training may be used to introduce flight crew to situations which, if not correctly managed, could lead to an upset condition, Relevant TEM and CRM aspects should be included in scenario-based training and the flight crew should understand the limitations of the FSTD in replicating

the physiological and psychological aspects of exposure to upset prevention scenarios.

- (ii) Upset Recovery Training should be manoeuvre-based, which enables flight crew to apply their handling skills and recovery strategy whilst leveraging CRM principles to return the airplane from an upset condition to a stabilized flight path. The flight crew should understand the limitations of the FSTD in replicating the physiological and psychological aspects of upset recovery exercises. In order to avoid negative training and negative transfer of training. Operators should ensure that the selected upset recovery exercises take into consideration the limitations of the FSTD.

- (iii) Stall Event Recovery Training

It is of utmost importance that stall event recovery training takes into account the capabilities of the FSTD used. Most current and grandfathered FFS models are deficient in representing the airplane in the aerodynamic stall regime, thus practicing of 'stall' in such a device could potentially result in negative training or negative transfer of training. The term 'stall event' is therefore introduced to cater for the capability of current and grandfathered FFS, and for potential future FFS enhancements. A 'stall event' is defined as an occurrence whereby the airplane experiences one or more conditions associated with an approach-to-stall or a stall.

IMPORTANT – when using current or grandfathers FFS, the stall event recovery exercises should only be conducted as approach-to-stall exercises. Stall training requires a special approved device. The FFS used for the upset recovery training should be qualified to ensure that the training task objectives can be achieved and negative transfer of training is avoided.

Stall event recovery training should emphasize the requirement to reduce the angle of attack (AOA) whilst accepting the resulting altitude loss.

High-altitude stall event training should be included so that flight crew appreciate the airplane control response, the significant altitude loss during the recovery, and the increased time required. The training should also emphasize the risk of triggering a secondary stall event during the recovery.

Refer to revision 3 of the Airline Upset Prevention and Recovery Training Aid for a detailed explanation and rationale on the stall event recovery template as recommended by the OEMs.

- (g) Each Operator shall ensure that flight engineer recurrent flight training includes at least the flight training specified in IS: 8.10.1.15(b).
- (h) Each Operator shall ensure that flight navigator recurrent training includes enough training and an in-flight check to ensure competency with respect to operating procedures and navigation equipment to be used and familiarity with essential navigation information pertaining to the Operator's routes that require a flight navigator.
- (i) The Operator may combine recurrent training with the Operator's proficiency check.
- (j) Recurrent ground and flight training curricula may be accomplished concurrently or intermixed, but completion of each of these curricula shall be recorded separately.

#### **IS: 8.10.1.34 RECURRENT EMERGENCY TRAINING: CABIN CREW MEMBERS**

- (a) Each Operator shall establish and have approved by the Authority a recurrent training program for all cabin crew members.

(b) Each cabin crew shall undergo recurrent training in evacuation and other appropriate normal and emergency procedures and drills relevant to their assigned positions and the type(s) and/or variant(s) of airplane on which they operate. The recurrent training for cabin crew members shall consist of at least the following program hours:

- (1) Group I: reciprocating powered aircraft, 4 hours;
- (2) Group I: turbo-propeller powered aircraft, 5 hours;
- (3) Group II: other aircraft, 12 hours.

The abovementioned program hours are for EACII aircraft type that falls under any group.

(c) Each Operator shall have all recurrent training and a competency check, as a part of recurrent training, conducted by suitably qualified personnel. A cabin crew member who completes recurrent training/competency check in a calendar month before or after the calendar month in which that training or check is required, he/she is considered to have taken or completed it in the calendar month in which it was required. This provision of 11th, 12th and 13th month is valid only for the 'completion' of the required recurrent training.

(d) Each Operator shall ensure that, every 12 months, each cabin crew receive recurrent training in at least the following:

(1) Emergency equipment-

- (i) Emergency communication and notification systems;
- (ii) Aircraft exits:
- (iii) Exits with slides or slide-rafts (emergency operation);
- (iv) Slides and slide-rafts in a ditching;
- (v) Exits without slides (emergency operation);
- (vi) Window exits (emergency operation);
- (vii) Exits with tail-cones (emergency operation);
- (viii) Cockpit exits (emergency operation);
- (ix) Ground evacuation and ditching equipment;
- (x) First aid equipment;
- (xi) Portable oxygen systems (oxygen bottles, chemical oxygen generators, protective breathing equipment (PBE));
- (xii) Firefighting equipment;
- (xiii) Emergency lighting systems; and
- (xiv) Additional emergency equipment.

(2) Emergency procedures-

- (i) General types of emergencies specific to aircraft;
- (ii) Emergency communication signals and procedures;
- (iii) Rapid decompression;
- (iv) Insidious decompression and cracked window and pressure seal leaks;
- (v) Fires;
- (vi) Ditching;

- (vii) Ground evacuation;
  - (viii) Unwarranted evacuation (i.e., passenger initiated);
  - (ix) Illness or injury;
  - (x) Abnormal situations involving passengers or crew members;
  - (xi) Turbulence; and
  - (xii) Other unusual situations.
- (3) Emergency drills.
- (4) Every 12 months-
- (i) Location and use of all emergency and safety equipment carried on the airplane;
  - (ii) The location and use of all types of exits;
  - (iii) Actual donning of a lifejacket where fitted;
  - (iv) Actual donning of protective breathing equipment; and
  - (v) Actual handling of fire extinguishers.
- (5) Every 3 years-
- (i) Operation of all types of exits;
  - (ii) Demonstration of the method used to operate a slide, where fitted;
  - (iii) Fire-fighting using equipment representative of that carried in the airplane on an actual or simulated fire;  
*Note: With Halon extinguishers. An alternative method acceptable to the Authority may be used.*
  - (iv) Effects of smoke in an enclosed area and actual use of all relevant equipment in a simulated smoke-filled environment;
  - (v) Actual handling of pyrotechnics, real or simulated, where fitted;
  - (vi) Demonstration in the use of the life-raft(s), where fitted;
  - (vii) An emergency evacuation drill;
  - (viii) A ditching drill, if applicable;
  - (ix) A rapid decompression drill, if applicable;
- (6) Crew resource management-
- (i) Decision making skills;
  - (ii) Briefings and developing open communication;
  - (iii) Inquiry, advocacy, and assertion training; and
  - (iv) Workload management.
- (7) Dangerous goods-
- (i) Recognition of and transportation of dangerous goods;
  - (ii) Proper packaging, marking, and documentation; and
  - (iii) Instructions regarding compatibility, loading, storage and handling characteristics.
- (8) Security-

- (i) Hijacking; and
  - (ii) Disruptive passengers.
- (e) An Operator may administer each of the recurrent training curricula concurrently or intermixed, but shall record completion of each of these curricula separately.
- (f) The recurrent training program shall ensure that each cabin crew is:
- (1) competent to execute those safety duties and functions which the cabin crew member is assigned to perform in the event of an emergency or in a situation requiring emergency evacuation;
  - (2) drilled and capable in the use of emergency and life-saving equipment required to be extinguishers, oxygen equipment and first-aid kits;
  - (3) when serving on airplanes operated above 3,000 m (10,000 ft), knowledgeable as regards the effect of lack of oxygen and, in the case of pressurized airplanes, as regards physiological phenomena accompanying a loss of pressurization;
  - (4) aware of other crew members' assignments and functions in the event of an emergency so far as is necessary for the fulfillment of the cabin crew member's own duties;
  - (5) aware of the types of dangerous goods which may, and may not, be carried in a passenger cabin and has completed the dangerous goods training program required by Annex 18; and
  - (6) knowledgeable about human performance as related to passenger cabin safety duties including flight crew-cabin crew coordination.
- (g) Each operator shall maintain a record of the satisfactory completion of the recurrent training and competency check given to the crew member.

#### **IS: 8.10.1.35 RECURRENT TRAINING - FLIGHT OPERATIONS OFFICER**

- (a) Each Operator shall establish and maintain a recurrent training program, approved by the Authority and established in the Operator's operations manual, to be completed annually by each flight operations officer.
- (b) Each flight operations officer shall undergo recurrent training relevant to the type(s) and/or variant(s) of airplane and operations conducted by the Operator.
- (c) Each Operator shall conduct all recurrent training by suitably qualified personnel.
- (d) An Operator shall ensure that, every 12 months, each flight operations officer receive recurrent training in at least the following:
  - (7) Aircraft-specific flight preparation;
  - (8) Emergency assistance to flight crew members;
  - (9) Dispatch resource management: and
  - (10) Dangerous goods.
- (e) Line observations in accordance with Subpart 8.10.1.29: An Operator shall ensure that, every 12 months, each flight operations officer has observed, on the flight deck, the conduct of two (2) complete flights, comprising at least five (5) total hours, over routes representative of those for which that person is assigned duties.
- (f) An Operator may administer each of the recurrent ground and flight training curricula concurrently or intermixed, but shall record completion of each of these curricula separately.

**IS: 8.10.1.36 RESERVED.****IS: 8.10.1.37 INSTRUCTOR TRAINING****(a) Flight Instructor Training**

- (1) No person may employ a person, nor may any person serve as flight instructor in a training program unless:
  - (i) That person has satisfactorily completed initial or transition flight instructor training; and
  - (ii) Within the preceding 24 calendar months, that person satisfactorily conducts instruction under the observation of an inspector from the Authority, an Operator's check airman, or an examiner employed by the Operator.

**(b) Cabin Crew Instructor Training.**

- (1) No operator may employ a person, nor may any person serve as cabin instructor in a training program unless:
  - (i) That person has satisfactorily completed initial or transition cabin instructor training; and
  - (ii) Within the preceding 24 calendar months, that person satisfactorily conducts instruction under the observation of an inspector from the Authority or an AOC holder's check personnel.
- (2) An AOC holder may accomplish the observation check for a cabin instructor, in part or in full, in an aircraft or a cabin simulation training device.
- (3) Each AOC holder shall ensure that initial ground training for cabin instructors includes the following:
  - (i) Cabin instructor duties, functions, and responsibilities.
  - (ii) Applicable regulations and the AOC holder's policies and procedures.
  - (iii) Appropriate methods, procedures, and techniques for conducting the required checks.
  - (iv) Proper evaluation of student performance including the detection of:
    - (A) Improper and insufficient training; and
    - (B) Personal characteristics of an applicant that could adversely affect safety.
  - (v) Appropriate corrective action in the case of unsatisfactory checks.
  - (vi) Approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft, as applicable.
  - (vii) Except for existing cabin instructors:
    - (A) The fundamental principles of the teaching-learning process;
    - (B) Teaching methods and procedures; and
    - (C) The instructor-student relationship.
- (4) Each AOC holder shall ensure that the transition ground training for cabin instructors includes the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft, as appropriate to which the cabin instructor is in transition.
- (5) Each AOC holder shall ensure that the initial and transition flight training for cabin instructors includes the following:

- (i) The safety measures for emergency situations that are likely to develop during instruction.
  - (ii) The potential results of improper, untimely, or non-execution of safety measures during instruction.
- (c) An Operator may accomplish the observation check for a flight instructor, in part or in full, in an airplane, a flight simulator, or a flight training device.
- (d) Each Operator shall ensure that initial ground training for flight instructors includes the following
  - (1) Flight instructor duties, functions, and responsibilities;
  - (2) Applicable regulations and the Operator's policies and procedures;
  - (3) Appropriate methods, procedures, and techniques for conducting the required checks;
  - (4) Proper evaluation of student performance including the detection of:
    - (i) Improper and insufficient training, and
    - (ii) Personal characteristics of an applicant that could adversely affect safety;
  - (5) Appropriate corrective action in the case of unsatisfactory checks;
  - (6) Approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the airplane;
  - (7) Except for holders of a flight instructor license:
    - (i) The fundamental principles of the teaching-learning process;
    - (ii) Teaching methods and procedures; and
    - (iii) The instructor-student relationship.
- (e) Each Operator shall ensure that the transition ground training for flight instructors includes the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the flight instructor is in transition.
- (f) Each Operator shall ensure that the initial and transition flight training for flight instructors (aircraft), flight engineer instructors (aircraft), and flight navigator instructors (aircraft) includes the following:
  - (1) The safety measures for emergency situations that are likely to develop during instruction.
  - (2) The potential results of improper, untimely, or non-execution of safety measures during instruction.
  - (3) For pilot flight instructor (aircraft):
    - (i) In-flight training and practice in conducting flight instruction from the left and right pilot seats in the required normal, abnormal, and emergency procedures to ensure competence as an instructor; and
    - (ii) The safety measures to be taken from either pilot seat for emergency situations that are likely to develop during instruction.
  - (4) For flight engineer instructors (aircraft) and flight navigator instructors (aircraft), in flight training to ensure competence to perform assigned duties.
- (g) An Operator may accomplish the flight training requirements for flight instructors in full or in part in flight, in a flight simulator, or in a flight training device, as appropriate.

- (h) An Operator shall ensure that the initial and transition flight training for flight instructors (simulator) includes the following:
- (1) Training and practice in the required normal, abnormal, and emergency procedures and upset prevention and recovery to ensure competence to conduct the flight instruction required by this part. This training and practice shall be accomplished in full or in part in a flight simulator or in a flight training device.
  - (2) Training in the operation of flight simulators or flight simulation training devices, or both, to ensure competence to conduct the flight instruction required by this Part.
- (i) An Operator shall provide standardization training for instructors per aircraft type shall not be less than 10% of the instructor force, but at least 2 (two) are required.

It is of paramount importance that personnel providing UPRT in FSTDs have demonstrated during previous instructor qualification training Operators should, therefore, have a comprehensive training and standardization programmed in place, and may need to provide FSTD instructors with additional training to ensure such instructors have and maintain complete knowledge and understanding of the UPRT operating environment, and skill sets. This training should ensure that instructors:

- (i) are able to demonstrate the correct upset recovery techniques for the specific airplane type;
- (ii) understand the importance of applying type-specific Original Equipment Manufacturers (OEMs) procedures for recovery manoeuvres;
- (iii) are able to distinguish between the applicable SOPs and the OEMs recommendations (if available);
- (iv) understand the capabilities and limitations of the FSTD used for UPRT;
- (v) are aware of the potential of negative transfer if training that may exist when training outside the capabilities of the FSTD;
- (vi) understand and are able to use the IOS of the FSTD in the context of effective UPRT delivery;
- (vii) understand and are able to use the FSTD instructor tools available for providing accurate feedback on flight crew performance;
- (viii) understand the importance of adhering to the FSTD UPRT scenarios that have been validated by the training program developer; and
- (ix) understand the missing critical human factor aspects due to the limitations of the FSTD and convey this to the flight crew receiving the training.

The core group UPRT instructors shall:

- (x) have experienced realistic g-immersion during recovery in combination with representative aircraft type dynamic behavior.

#### **IS: 8.10.1.40 CHECK PERSONNEL TRAINING**

- (a) Training for Check Personnel – General.
- (1) No operator may employ a person, nor may any person serve as a check person in a training program unless, with respect to the aircraft type involved, that person has satisfactorily completed the appropriate training phases for the aircraft, including recurrent training and differences training, that are required to serve as PIC, FE, navigator, cabin crew member, or FOO, as applicable.

- (2) Each AOC holder shall ensure that initial ground training for check personnel includes:
    - (i) Check personnel duties, functions, and responsibilities.
    - (ii) Applicable regulations and the AOC holder's policies and procedures.
    - (iii) Appropriate methods, procedures, and techniques for conducting the required checks.
    - (iv) Proper evaluation of student performance including the detection of:
      - (A) Improper and insufficient training.
    - (v) Personal characteristics of an applicant that could adversely affect safety.
      - (A) Appropriate corrective action in the case of unsatisfactory checks.
      - (B) Approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures in the aircraft.
  - (3) Transition ground training for all check personnel, shall include the approved methods, procedures, and limitations for performing the required normal, abnormal, and emergency procedures applicable to the aircraft to which the check person is in transition.
- (b) Training for Check Personnel of Flight Crew.
- (1) For check persons, each AOC holder shall ensure that the initial and transition flight training includes:
    - (i) Training and practice in conducting flight evaluations (from the left and right pilot seats for check persons) in the required normal, abnormal, and emergency procedures to ensure competence to conduct the flight checks.
    - (ii) The potential results of improper, untimely or non-execution of safety measures during an evaluation.
    - (iii) The safety measures (to be taken from either pilot seat for check persons) for emergency situations that are likely to develop during an evaluation.
  - (2) For check persons and check flight navigators, each AOC holder shall ensure training to ensure competence to perform assigned duties to include:
    - (i) The safety measures for emergency situations that are likely to develop during a check.
    - (ii) The potential results of improper, untimely or non-execution of safety measures during a check.
  - (3) Each AOC holder shall ensure that the initial and transition flight training for check personnel (simulator) includes:
    - (i) Training and practice in conducting flight checks in the required normal, abnormal, and emergency procedures to ensure competence to conduct the checks required by this part (this training and practice shall be accomplished in an FSTD).
    - (ii) Training in the operation of FSTDs, to ensure competence to conduct the checks required by this part.
  - (4) An AOC holder may accomplish flight training for check personnel, in full or in part in an aircraft or in an FSTD, as appropriate.
  - (5) The AOC holder shall record the training in each individual's training record maintained by the AOC holder.

- (c) Training for Check Cabin Crew Members.
  - (1) For check cabin crew members, each AOC holder shall ensure that the training includes:
    - (i) The safety measures for emergency situations that are likely to develop during a check; and
    - (ii) The potential results of improper, untimely or non-execution of safety measures during a check.
- (d) Training for Check Flight Operations Officers.
  - (1) For check FOO, each AOC holder shall ensure that the training includes:
    - (i) The safety measures for emergency situations that are likely to develop during a check; and
    - (ii) The potential results of improper, untimely or non-execution of safety measures during a check.
- (e) The AOC holder shall record the training in each individuals training record maintained by the AOC holder.

#### IS: 8.11.1.2 MANAGING FATIGUE-RELATED SAFETY RISKS

##### (a) FRMS policy and documentation

- (1) FRMS policy
    - (i) The operator shall define its FRMS policy, with all elements of the FRMS clearly identified.
    - (ii) The policy shall require that the scope of FRMS operations be clearly defined in the operations manual.
    - (iii) The policy shall:
      - (A) reflect the shared responsibility of management, flight and cabin crews, and other involved personnel;
      - (B) clearly state the safety objectives of the FRMS;
      - (C) be signed by the accountable executive of the organization;
      - (D) be communicated, with visible endorsement, to all the relevant areas and levels of the organization;
      - (E) declare management commitment to effective safety reporting;
      - (F) declare management commitment to the provision of adequate resources for the FRMS;
      - (G) declare management commitment to continuous improvement of the FRMS;
      - (H) require that clear lines of accountability for management, flight and cabin crews, and all other involved personnel are identified; and
      - (I) require periodic reviews to ensure it remains relevant and appropriate.
- Note: Effective safety reporting is described in ICAO Doc 9859, Safety Management Manual (SMM).*

##### (b) FRMS documentation

- (1) An operator shall develop and keep current FRMS documentation that describes and records:
  - (i) FRMS policy and objectives
  - (ii) FRMS processes and procedures;
  - (iii) accountabilities, responsibilities and authorities for these processes and procedures;
  - (iv) mechanism for ongoing involvement of management, flight and cabin crew members, and all other involved personnel;
  - (v) FRMS training programs, training requirements and attendance records;
  - (vi) scheduled and actual flight times, duty periods and rest periods with significant deviations and reasons for deviations noted; and
  - (vii) FRMS outputs including findings from collected data, recommendations, and actions taken.

**(c) Fatigue risk management processes**

(1) Identification of hazards

An operator shall develop and maintain three fundamental and documented processes for fatigue hazard identification:

(i) Predictive

Predictive process shall identify fatigue hazards by examining crew scheduling and taking into account factors known to affect sleep and fatigue and their effects on performance. Methods of examination may include but are not limited to:

- (A) operator or industry operational experience and data collected on similar types of operations;
- (B) evidence-based scheduling practices; and
- (C) bio-mathematical models.

(ii) Proactive

The proactive process shall identify fatigue hazards within current flight operations. Methods of examination may include but are not limited to:

- (A) self-reporting of fatigue risks;
- (B) crew fatigue surveys;
- (C) relevant flight and cabin crew performance data;
- (D) available safety databases and scientific studies; and
- (E) analysis of planned versus actual time worked.

(iii) Reactive

The reactive process shall identify the contribution of fatigue hazards to reports and events associated with potential negative safety consequences in order to determine how impact of fatigue could have been minimized. At a minimum, the process may be triggered by any of the following:

- (A) fatigue reports;
- (B) confidential reports;
- (C) audit reports;

- (D) incidents; and
- (E) flight data analysis events.

(2) Risk assessment

An operator shall develop and implement risk assessment procedures that determine the probability and potential severity of fatigue-related events and identify when the associated risks require mitigation.

- (i) The risk assessment procedures shall review identified hazards and link them to:
  - (A) operational processes;
  - (B) their probability;
  - (C) possible consequences; and
  - (D) the effectiveness of existing safety barriers and controls.

(3) Risk mitigation

- (i) An operator shall develop and implement risk mitigation procedures that;
  - (A) select the appropriate mitigation strategies;
  - (B) implement the mitigation strategies; and
  - (C) monitor the strategies' implementation of effectiveness.

**(d) FRMS safety assurance processes**

(1) The operator shall develop and maintain FRMS safety assurance processes to:

- (i) proved for continuous FRMS performance monitoring, analysis of trends, and measurement to validate the effectiveness of the fatigue safety risk controls. The sources of data may include, but are not limited to:
  - (A) hazard reporting and investigations;
  - (B) audits and surveys; and
  - (C) reviews and fatigue studies'
- (ii) provide a formal process for the management of change which shall include but is not limited to:
  - (A) identification of changes in the operational environment that may affect FRMS;
  - (B) identification of changes within the organization that may affect; and
  - (C) consideration of available tools which could be used to maintain or improve FRMS performance prior to implementing changes and
- (iii) provide for the continuous improvement of the FRMS. This shall include but is not limited to:
  - (A) the elimination and/or modification of risk controls have has unintended consequences or that are no longer needed due to changes in the operational or organizational environment;
  - (B) routine evaluations of facilities, equipment, documentation and procedures; and
  - (C) the determination of the need to introduce new processes and procedures to mitigate emerging fatigue-related risks.

**(e) FRMS promotion processes**

- (1) FRMS promotion processes support the ongoing development of the FRMS, the continuous improvement of its overall performance, and attainment of optimum safety levels. The following shall be established and implemented by the operator as part of its FRMS:
  - (i) training programs to ensure competency commensurate with the roles and responsibilities of management, flight and cabin crew, and all other involved personnel under the planned FRMS; and
  - (ii) explains FRMS communication channels used to gather and disseminate FRMS-related information.

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