

ANNEX IV

[PART-MED]

SUBPART A *GENERAL REQUIREMENTS*

SECTION 1

General

MED.A.001 ~~001~~ **Competent authority**

For the purpose of this Part, the competent authority shall be:

- (a) for aero-medical centres (AeMC):
 - (1) the authority designated by the Member State where the AeMC has its principal place of business;
 - (2) where the AeMC is located in a third country, the Agency;
- (b) for aero-medical examiners (AME):
 - (1) the authority designated by the Member State where the AMEs have their principal place of practice;
 - (2) if the principal place of practice of an AME is located in a third country, the authority designated by the Member State to which the AME applies for the issue of the AME certificate;
- (c) for general medical practitioners (GMP), the authority designated by the Member State to which the GMP notifies his/her activity;
- (d) for occupational health medical practitioners (OHMP) assessing the medical fitness of cabin crew, the authority designated by the Member State to which the OHMP notifies his/her activity.

MED.A.005 ~~005~~ **Scope**

This Part establishes the requirements for:

- (a) the issue, validity, revalidation and renewal of the medical certificate required for exercising the privileges of a pilot licence or of a student pilot;
- (b) the medical fitness of cabin crew;
- (c) the certification of AMEs; and
- (d) the qualification of GMPs and of occupational health medical practitioners (OHMP).

MED.A.010 ~~010~~ **Definitions**

For the purpose of this Part, the following definitions apply:

- ‘Accredited medical conclusion’ means the conclusion reached by one or more medical experts acceptable to the licensing authority, on the basis of objective and non-discriminatory criteria, for the purposes of the case concerned, in consultation with flight operations or other experts as necessary,

- ‘Assessment’ means the conclusion on the medical fitness of a person based on the evaluation of the person’s medical history and/or aero-medical examinations as required in this Part and further examinations as necessary, and/or medical tests such as, but not limited to, ECG, blood pressure measurement, blood testing, X-ray,
- ‘Colour safe’ means the ability of an applicant to readily distinguish the colours used in air navigation and correctly identify aviation coloured lights,
- ‘Eye specialist’ means an ophthalmologist or a vision care specialist qualified in optometry and trained to recognise pathological conditions,
- ‘Examination’ means an inspection, palpation, percussion, auscultation or other means of investigation especially for diagnosing disease,
- ‘Investigation’ means the assessment of a suspected pathological condition of an applicant by means of examinations and tests in order to verify the presence or absence of a medical condition,
- ‘Licensing authority’ means the competent authority of the Member State that issued the licence, or to which a person applies for the issue of a licence, or, when a person has not yet applied for the issue of a licence, the competent authority in accordance with this Part,
- ‘Limitation’ means a condition placed on the medical certificate, licence or cabin crew medical report that shall be complied with whilst exercising the privileges of the licence, or cabin crew attestation,
- ‘Refractive error’ means the deviation from emmetropia measured in dioptres in the most ametropic meridian, measured by standard methods.

MED.A.015 ~~Medical confidentiality~~

All persons involved in medical examination, assessment and certification shall ensure that medical confidentiality is respected at all times.

MED.A.020 ~~Increase in medical fitness~~

- (a) Licence holders shall not exercise the privileges of their licence and related ratings or certificates at any time when they:
 - (1) are aware of any decrease in their medical fitness which might render them unable to safely exercise those privileges;
 - (2) take or use any prescribed or non-prescribed medication which is likely to interfere with the safe exercise of the privileges of the applicable licence;
 - (3) receive any medical, surgical or other treatment that is likely to interfere with flight safety.
- (b) In addition, licence holders shall, without undue delay, seek aero-medical advice when they:
 - (1) have undergone a surgical operation or invasive procedure;
 - (2) have commenced the regular use of any medication;
 - (3) have suffered any significant personal injury involving incapacity to function as a member of the flight crew;
 - (4) have been suffering from any significant illness involving incapacity to function as a member of the flight crew;
 - (5) are pregnant;

- (6) have been admitted to hospital or medical clinic;
- (7) first require correcting lenses.
- (c) In these cases:
 - (1) holders of Class 1 and Class 2 medical certificates shall seek the advice of an AeMC or AME. The AeMC or AME shall assess the medical fitness of the licence holder and decide whether they are fit to resume the exercise of their privileges;
 - (2) holders of LAPL medical certificates shall seek the advice of an AeMC or AME, or the GMP who signed the medical certificate. The AeMC, AME or GMP shall assess the medical fitness of the licence holders and decide whether they are fit to resume the exercise of their privileges.
- (d) Cabin crew members shall not perform duties on an aircraft and, where applicable, shall not exercise the privileges of their cabin crew attestation when they are aware of any decrease in their medical fitness, to the extent that this condition might render them unable to discharge their safety duties and responsibilities.
- (e) In addition, if in the medical conditions specified in (b)(1) to (b)(5), cabin crew members shall, without undue delay, seek the advice of an AME, AeMC, or OHMP as applicable. The AME, AeMC or OHMP shall assess the medical fitness of the cabin crew members and decide whether they are fit to resume their safety duties.

MED.A.025 Obligations of AeMC, AME, GMP and OHMP

- (a) When conducting medical examinations and/or assessments, AeMC, AME, GMP and OHMP shall:
 - (1) ensure that communication with the person can be established without language barriers;
 - (2) make the person aware of the consequences of providing incomplete, inaccurate or false statements on their medical history.
- (b) After completion of the aero-medical examinations and/or assessment, the AeMC, AME, GMP and OHMP shall:
 - (1) advise the person whether fit, unfit or referred to the licensing authority, AeMC or AME as applicable;
 - (2) inform the person of any limitation that may restrict flight training or the privileges of the licence, or cabin crew attestation as applicable;
 - (3) if the person has been assessed as unfit, inform him/her of his/her right of a secondary review; and
 - (4) in the case of applicants for a medical certificate, submit without delay a signed, or electronically authenticated, report to include the assessment result and a copy of the medical certificate to the licensing authority.
- (c) AeMCs, AMEs, GMPs and OHMPs shall maintain records with details of medical examinations and assessments performed in accordance with this Part and their results in accordance with national legislation.

- (d) When required for medical certification and/or oversight functions, AeMCs, AMEs, GMPs and OHMP shall submit to the medical assessor of the competent authority upon request all aero-medical records and reports, and any other relevant information.

SECTION 2

Requirements for medical certificates

MED.A.030 Medical certificates

- (a) A student pilot shall not fly solo unless that student pilot holds a medical certificate, as required for the relevant licence.
- (b) Applicants for and holders of a light aircraft pilot licence (LAPL) shall hold at least an LAPL medical certificate.
- (c) Applicants for and holders of a private pilot licence (PPL), a sailplane pilot licence (SPL), or a balloon pilot licence (BPL) shall hold at least a Class 2 medical certificate.
- (d) Applicants for and holders of an SPL or a BPL involved in commercial sailplane or balloon flights shall hold at least a Class 2 medical certificate.
- (e) If a night rating is added to a PPL or LAPL, the licence holder shall be colour safe.
- (f) Applicants for and holders of a commercial pilot licence (CPL), a multi-crew pilot licence (MPL), or an airline transport pilot licence (ATPL) shall hold a Class 1 medical certificate.
- (g) If an instrument rating is added to a PPL, the licence holder shall undertake pure tone audiometry examinations in accordance with the periodicity and the standard required for Class 1 medical certificate holders.
- (h) A licence holder shall not at any time hold more than one medical certificate issued in accordance with this Part.

MED.A.035 Application for a medical certificate

- (a) Applications for a medical certificate shall be made in a format established by the competent authority.
- (b) Applicants for a medical certificate shall provide the AeMC, AME or GMP as applicable, with:
- (1) proof of their identity;
 - (2) a signed declaration:
 - (i) of medical facts concerning their medical history;
 - (ii) as to whether they have previously undergone an examination for a medical certificate and, if so, by whom and with what result;
 - (iii) as to whether they have ever been assessed as unfit or had a medical certificate suspended or revoked.

- (c) When applying for a revalidation or renewal of the medical certificate, applicants shall present the medical certificate to the AeMC, AME or GMP prior to the relevant examinations.

MED.A.040ue, revalidation and renewal of medical certificates

- (a) A medical certificate shall only be issued, revalidated or renewed once the required medical examinations and/or assessments have been completed and a fit assessment is made.
- (b) Initial issue:
- (1) Class 1 medical certificates shall be issued by an AeMC.
- (2) Class 2 medical certificates shall be issued by an AeMC or an AME.
- (3) LAPL medical certificates shall be issued by an AeMC, an AME or, if permitted under the national law of the Member State where the licence is issued, by a GMP.
- (c) Revalidation and renewal:
- (1) Class 1 and Class 2 medical certificates shall be revalidated or renewed by an AeMC or an AME.
- (2) LAPL medical certificates shall be revalidated or renewed by an AeMC, an AME or, if permitted under the national law of the Member State where the licence is issued, by a GMP.
- (d) The AeMC, AME or GMP shall only issue, revalidate or renew a medical certificate if:
- (1) the applicant has provided them with a complete medical history and, if required by the AeMC, AME or GMP, results of medical examinations and tests conducted by the applicant's doctor or any medical specialists; and
- (2) the AeMC, AME or GMP have conducted the aero-medical assessment based on the medical examinations and tests as required for the relevant medical certificate to verify that the applicant complies with all the relevant requirements of this Part.
- (e) The AME, AeMC or, in the case of referral, the licensing authority may require the applicant to undergo additional medical examinations and investigations when clinically indicated before they issue, revalidate or renew a medical certificate.
- (f) The licensing authority may issue or re-issue a medical certificate, as applicable, if:
- (1) a case is referred;
- (2) it has identified that corrections to the information on the certificate are necessary.

MED.A.040u, validity, revalidation and renewal of medical certificates

- (a) *Validity*
- (1) Class 1 medical certificates shall be valid for a period of 12 months.
- (2) The period of validity of Class 1 medical certificates shall be reduced to 6 months for licence holders who:
- (i) are engaged in single-pilot commercial air transport operations carrying passengers and have reached the age of 40;

- (ii) have reached the age of 60.
- (3) Class 2 medical certificates shall be valid for a period of:
 - (i) 60 months until the licence holder reaches the age of 40. A medical certificate issued prior to reaching the age of 40 shall cease to be valid after the licence holder reaches the age of 42;
 - (ii) 24 months between the age of 40 and 50. A medical certificate issued prior to reaching the age of 50 shall cease to be valid after the licence holder reaches the age of 51; and
 - (iii) 12 months after the age of 50.
- (4) LAPL medical certificates shall be valid for a period of:
 - (i) 60 months until the licence holder reaches the age of 40. A medical certificate issued prior to reaching the age of 40 shall cease to be valid after the licence holder reaches the age of 42;
 - (ii) 24 months after the age of 40.
- (5) The validity period of a medical certificate, including any associated examination or special investigation, shall be:
 - (i) determined by the age of the applicant at the date when the medical examination takes place; and
 - (ii) calculated from the date of the medical examination in the case of initial issue and renewal, and from the expiry date of the previous medical certificate in the case of revalidation.
- (b) *Revalidation*

Examinations and/or assessments for the revalidation of a medical certificate may be undertaken up to 45 days prior to the expiry date of the medical certificate.
- (c) *Renewal*
 - (1) If the holder of a medical certificate does not comply with (b), a renewal examination and/or assessment shall be required.
 - (2) In the case of Class 1 and Class 2 medical certificates:
 - (i) if the medical certificate has expired for more than 2 years, the AeMC or AME shall only conduct the renewal examination after assessment of the aero-medical records of the applicant;
 - (ii) if the medical certificate has expired for more than 5 years, the examination requirements for initial issue shall apply and the assessment shall be based on the revalidation requirements.
 - (3) In the case of LAPL medical certificates, the AeMC, AME or GMP shall assess the medical history of the applicant and perform the aero-medical examination and/or assessment in accordance with MED.B.095.

MED.A.030 ~~030~~ **Referral**

- (a) If an applicant for a Class 1 or Class 2 medical certificate is referred to the licensing authority in accordance with MED. B.001, the AeMC or AME shall transfer the relevant medical documentation to the licensing authority.
- (b) If an applicant for an LAPL medical certificate is referred to an AME or AeMC in accordance with MED.B.001, the GMP shall transfer the relevant medical documentation to the AeMC or AME.

SUBPARREQUIREMENTS FOR PILOT MEDICAL CERTIFICATES

B

SECTION 1

General

MED.B.001 Limitations to medical certificates

- (a) *Limitations to Class 1 and Class 2 medical certificates*
 - (1) If the applicant does not fully comply with the requirements for the relevant class of medical certificate but is considered to be not likely to jeopardise flight safety, the AeMC or AME shall:
 - (i) in the case of applicants for a Class 1 medical certificate, refer the decision on fitness of the applicant to the licensing authority as indicated in this Subpart;
 - (ii) in cases where a referral to the licensing authority is not indicated in this Subpart, evaluate whether the applicant is able to perform his/her duties safely when complying with one or more limitations endorsed on the medical certificate, and issue the medical certificate with limitation(s) as necessary;
 - (iii) in the case of applicants for a Class 2 medical certificate, evaluate whether the applicant is able to perform his/her duties safely when complying with one or more limitations endorsed on the medical certificate, and issue the medical certificate, as necessary with limitation(s), in consultation with the licensing authority;
 - (iv) The AeMC or AME may revalidate or renew a medical certificate with the same limitation without referring the applicant to the licensing authority.
- (b) *Limitations to LAPL medical certificates*
 - (1) If a GMP, after due consideration of the applicant's medical history, concludes that the applicant does not fully meet the requirements for medical fitness, the GMP shall refer the applicant to an AeMC or AME, except those requiring a limitation related only to the use of corrective lenses.
 - (2) If an applicant for an LAPL medical certificate has been referred, the AeMC or AME shall give due consideration to MED.B.095, evaluate whether the applicant is able to perform their duties safely when complying with one or more limitations endorsed on the medical certificate and issue the medical certificate with limitation(s) as necessary. The AeMC or AME shall always consider the need to restrict the pilot from carrying passengers (Operational Passenger Limitation, OPL).
 - (3) The GMP may revalidate or renew an LAPL medical certificate with the same limitation without referring the applicant to an AeMC or AME.

- (c) When assessing whether a limitation is necessary, particular consideration shall be given to:
- (1) whether accredited medical conclusion indicates that in special circumstances the applicant's failure to meet any requirement, whether numerical or otherwise, is such that exercise of the privileges of the licence applied for is not likely to jeopardise flight safety;
 - (2) the applicant's ability, skill and experience relevant to the operation to be performed.
- (d) *Operational limitation codes*
- (1) Operational multi-pilot limitation (OML — Class 1 only)
 - (i) When the holder of a CPL, ATPL or MPL does not fully meet the requirements for a Class 1 medical certificate and has been referred to the licensing authority, it shall be assessed whether the medical certificate may be issued with an OML 'valid only as or with qualified co-pilot'. This assessment shall be performed by the licensing authority.
 - (ii) The holder of a medical certificate with an OML shall only operate an aircraft in multi-pilot operations when the other pilot is fully qualified on the relevant type of aircraft, is not subject to an OML and has not attained the age of 60 years.
 - (iii) The OML for Class 1 medical certificates may only be imposed and removed by the licensing authority.
 - (2) Operational Safety Pilot Limitation (OSL — Class 2 and LAPL privileges)
 - (i) The holder of a medical certificate with an OSL limitation shall only operate an aircraft if another pilot fully qualified to act as pilot-in-command on the relevant class or type of aircraft is carried on board, the aircraft is fitted with dual controls and the other pilot occupies a seat at the controls.
 - (ii) The OSL for Class 2 medical certificates may be imposed or removed by an AeMC or AME in consultation with the licensing authority.
 - (3) Operational Passenger Limitation (OPL — Class 2 and LAPL privileges)
 - (i) The holder of a medical certificate with an OPL limitation shall only operate an aircraft without passengers on board.
 - (ii) An OPL for Class 2 medical certificates may be imposed by an AeMC or AME in consultation with the licensing authority.
 - (iii) An OPL for an LAPL medical certificate limitation may be imposed by an AeMC or AME.
 - (e) Any other limitation may be imposed on the holder of a medical certificate if required to ensure flight safety.
 - (f) Any limitation imposed on the holder of a medical certificate shall be specified therein.

SECTION 2

Medical requirements for Class 1 and Class 2 medical certificates

MED.B.005 ~~General~~

- (a) Applicants for a medical certificate shall be free from any:
 - (1) abnormality, congenital or acquired;
 - (2) active, latent, acute or chronic disease or disability;
 - (3) wound, injury or sequelae from operation;
 - (4) effect or side effect of any prescribed or non-prescribed therapeutic, diagnostic or preventive medication taken;

that would entail a degree of functional incapacity which is likely to interfere with the safe exercise of the privileges of the applicable licence or could render the applicant likely to become suddenly unable to exercise the privileges of the licence safely.

- (b) In cases where the decision on medical fitness of an applicant for a Class 1 medical certificate is referred to the licensing authority, this authority may delegate such a decision to an AeMC, except in cases where an OML is needed.
- (c) In cases where the decision on medical fitness of an applicant for a Class 2 medical certificate is referred to the licensing authority, this authority may delegate such a decision to an AeMC or an AME, except in cases where an OSL or OPL is needed.

MED.B.00 Cardiovascular System

- (a) *Examination*
 - (1) A standard 12-lead resting electrocardiogram (ECG) and report shall be completed on clinical indication, and:
 - (i) for a Class 1 medical certificate, at the examination for the first issue of a medical certificate, then every 5 years until age 30, every 2 years until age 40, annually until age 50, and at all revalidation or renewal examinations thereafter;
 - (ii) for a Class 2 medical certificate, at the first examination after age 40 and then every 2 years after age 50.
 - (2) Extended cardiovascular assessment shall be required when clinically indicated.
 - (3) For a Class 1 medical certificate, an extended cardiovascular assessment shall be completed at the first revalidation or renewal examination after age 65 and every 4 years thereafter.
 - (4) For a Class 1 medical certificate, estimation of serum lipids, including cholesterol, shall be required at the examination for the first issue of a medical certificate, and at the first examination after having reached the age of 40.
- (b) *Cardiovascular System — General*
 - (1) Applicants shall not suffer from any cardiovascular disorder which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
 - (2) Applicants for a Class 1 medical certificate with any of the following conditions shall be assessed as unfit:
 - (i) aneurysm of the thoracic or supra-renal abdominal aorta, before or after surgery;
 - (ii) significant functional abnormality of any of the heart valves;

- (iii) heart or heart/lung transplantation.
- (3) Applicants for a Class 1 medical certificate with an established history or diagnosis of any of the following conditions shall be referred to the licensing authority:
 - (i) peripheral arterial disease before or after surgery;
 - (ii) aneurysm of the abdominal aorta, before or after surgery;
 - (iii) functionally insignificant cardiac valvular abnormalities;
 - (iv) after cardiac valve surgery;
 - (v) abnormality of the pericardium, myocardium or endocardium;
 - (vi) congenital abnormality of the heart, before or after corrective surgery;
 - (vii) recurrent vasovagal syncope;
 - (viii) arterial or venous thrombosis;
 - (ix) pulmonary embolism;
 - (x) cardiovascular condition requiring systemic anticoagulant therapy.
- (4) Applicants for a Class 2 medical certificate with an established diagnosis of one of the conditions specified in (2) and (3) above shall be assessed by a cardiologist before a fit assessment can be considered in consultation with the licensing authority.
- (c) *Blood Pressure*
 - (1) The blood pressure shall be recorded at each examination.
 - (2) The applicant's blood pressure shall be within normal limits.
 - (3) Applicants for a Class 1 medical certificate:
 - (i) with symptomatic hypotension; or
 - (ii) whose blood pressure at examination consistently exceeds 160 mmHg systolic and/or 95 mmHg diastolic, with or without treatment;shall be assessed as unfit.
- (4) The initiation of medication for the control of blood pressure shall require a period of temporary suspension of the medical certificate to establish the absence of significant side effects.
- (d) *Coronary Artery Disease*
 - (1) Applicants for a Class 1 medical certificate with:
 - (i) suspected myocardial ischaemia;
 - (ii) asymptomatic minor coronary artery disease requiring no anti-anginal treatment;shall be referred to the licensing authority and undergo cardiological evaluation to exclude myocardial ischaemia before a fit assessment can be considered.
- (2) Applicants for a Class 2 medical certificate with any of the conditions detailed in (1) shall undergo cardiological evaluation before a fit assessment can be considered.

- (3) Applicants with any of the following conditions shall be assessed as unfit:
 - (i) myocardial ischaemia;
 - (ii) symptomatic coronary artery disease;
 - (iii) symptoms of coronary artery disease controlled by medication.
- (4) Applicants for the initial issue of a Class 1 medical certificate with a history or diagnosis of any of the following conditions shall be assessed as unfit:
 - (i) myocardial ischaemia;
 - (ii) myocardial infarction;
 - (iii) revascularisation for coronary artery disease.
- (5) Applicants for a Class 2 medical certificate who are asymptomatic following myocardial infarction or surgery for coronary artery disease shall undergo satisfactory cardiological evaluation before a fit assessment can be considered in consultation with the licensing authority. Applicants for the revalidation of a Class 1 medical certificate shall be referred to the licensing authority.
- (e) *Rhythm/Conduction Disturbances*
 - (1) Applicants for a Class 1 medical certificate shall be referred to the licensing authority when they have any significant disturbance of cardiac conduction or rhythm, including any of the following:
 - (i) disturbance of supraventricular rhythm, including intermittent or established sinoatrial dysfunction, atrial fibrillation and/or flutter and asymptomatic sinus pauses;
 - (ii) complete left bundle branch block;
 - (iii) Mobitz type 2 atrioventricular block;
 - (iv) broad and/or narrow complex tachycardia;
 - (v) ventricular pre-excitation;
 - (vi) asymptomatic QT prolongation;
 - (vii) Brugada pattern on electrocardiography.
 - (2) Applicants for a Class 2 medical certificate with any of the conditions detailed in (1) shall undergo satisfactory cardiological evaluation before a fit assessment in consultation with the licensing authority can be considered.
 - (3) Applicants with any of the following:
 - (i) incomplete bundle branch block;
 - (ii) complete right bundle branch block;
 - (iii) stable left axis deviation;
 - (iv) asymptomatic sinus bradycardia;
 - (v) asymptomatic sinus tachycardia;

- (vi) asymptomatic isolated uniform supra-ventricular or ventricular ectopic complexes;
- (vii) first degree atrioventricular block;
- (viii) Mobitz type 1 atrioventricular block;

may be assessed as fit in the absence of any other abnormality and subject to satisfactory cardiological evaluation.

(4) Applicants with a history of:

- (i) ablation therapy;
- (ii) pacemaker implantation;

shall undergo satisfactory cardiovascular evaluation before a fit assessment can be considered. Applicants for a Class 1 medical certificate shall be referred to the licensing authority. Applicants for a Class 2 medical certificate shall be assessed in consultation with the licensing authority.

(5) Applicants with any of the following conditions shall be assessed as unfit:

- (i) symptomatic sinoatrial disease;
- (ii) complete atrioventricular block;
- (iii) symptomatic QT prolongation;
- (iv) an automatic implantable defibrillating system;
- (v) a ventricular anti-tachycardia pacemaker.

MED.B.0R5 Respiratory System

- (a) Applicants with significant impairment of pulmonary function shall be assessed as unfit. A fit assessment may be considered once pulmonary function has recovered and is satisfactory.
- (b) For a Class 1 medical certificate, applicants are required to undertake pulmonary function tests at the initial examination and on clinical indication.
- (c) For a Class 2 medical certificate, applicants are required to undertake pulmonary function tests on clinical indication.
- (d) Applicants with a history or established diagnosis of:
 - (1) asthma requiring medication;
 - (2) active inflammatory disease of the respiratory system;
 - (3) active sarcoidosis;
 - (4) pneumothorax;
 - (5) sleep apnoea syndrome;
 - (6) major thoracic surgery;
 - (7) pneumonectomy;

shall undergo respiratory evaluation with a satisfactory result before a fit assessment can be considered. Applicants with an established diagnosis of the conditions specified in (3) and (5) shall undergo satisfactory cardiological evaluation before a fit assessment can be considered.

- (e) Aero-medical assessment:
 - (1) applicants for a Class 1 medical certificate with any of the conditions detailed in (d) above shall be referred to the licensing authority;
 - (2) applicants for a Class 2 medical certificate with any of the conditions detailed in (d) above shall be assessed in consultation with the licensing authority.
- (f) Applicants for a Class 1 medical certificate who have undergone a total pneumonectomy shall be assessed as unfit.

MED.B.02 Digestive System

- (a) Applicants shall not possess any functional or structural disease of the gastro-intestinal tract or its adnexa which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) Applicants with any sequelae of disease or surgical intervention in any part of the digestive tract or its adnexa likely to cause incapacitation in flight, in particular any obstruction due to stricture or compression shall be assessed as unfit.
- (c) Applicants shall be free from herniae that might give rise to incapacitating symptoms.
- (d) Applicants with disorders of the gastro-intestinal system including:
 - (1) recurrent dyspeptic disorder requiring medication;
 - (2) pancreatitis;
 - (3) symptomatic gallstones;
 - (4) an established diagnosis or history of chronic inflammatory bowel disease;
 - (5) after surgical operation on the digestive tract or its adnexa, including surgery involving total or partial excision or a diversion of any of these organs;

shall be assessed as unfit. A fit assessment may be considered after successful treatment or full recovery after surgery and subject to satisfactory gastroenterological evaluation.

- (e) Aero-medical assessment:
 - (1) applicants for a Class 1 medical certificate with the diagnosis of the conditions specified in (2), (4) and (5) shall be referred to the licensing authority;
 - (2) fitness of Class 2 applicants with pancreatitis shall be assessed in consultation with the licensing authority.

MED.B.03 Metabolic and Endocrine Systems

- (a) Applicants shall not possess any functional or structural metabolic, nutritional or endocrine disorder which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) Applicants with metabolic, nutritional or endocrine dysfunction may be assessed as fit subject to demonstrated stability of the condition and satisfactory aero-medical evaluation.

(c) *Diabetes mellitus*

- (1) Applicants with diabetes mellitus requiring insulin shall be assessed as unfit.
 - (2) Applicants with diabetes mellitus not requiring insulin shall be assessed as unfit unless it can be demonstrated that blood sugar control has been achieved.
- (d) Aero-medical assessment:
- (1) applicants for a Class 1 medical certificate requiring medication other than insulin for blood sugar control shall be referred to the licensing authority;
 - (2) fitness of Class 2 applicants requiring medication other than insulin for blood sugar control shall be assessed in consultation with the licensing authority.

MED.B.010 Haematology

- (a) Applicants shall not possess any haematological disease which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) For a Class 1 medical certificate, haemoglobin shall be tested at each examination for the issue of a medical certificate.
- (c) Applicants with a haematological condition, such as:
 - (1) coagulation, haemorrhagic or thrombotic disorder;
 - (2) chronic leukaemia;

may be assessed as fit subject to satisfactory aeromedical evaluation.

- (d) Aero-medical assessment:
 - (1) applicants for a Class 1 medical certificate with one of the conditions specified in (c) above shall be referred to the licensing authority;
 - (2) fitness of Class 2 applicants with one of the conditions specified in (c) above shall be assessed in consultation with the licensing authority.
- (e) Class 1 applicants with one of the haematological conditions specified below shall be referred to the licensing authority:
 - (1) abnormal haemoglobin, including, but not limited to anaemia, polycythaemia or haemoglobinopathy;
 - (2) significant lymphatic enlargement;
 - (3) enlargement of the spleen.

MED.B.015 Urinary System

- (a) Applicants shall not possess any functional or structural disease of the renal or genito-urinary system or its adnexa which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) Urinalysis shall form part of every aero-medical examination. The urine shall contain no abnormal element considered to be of pathological significance.

- (c) Applicants with any sequela of disease or surgical procedures on the kidneys or the urinary tract likely to cause incapacitation, in particular any obstruction due to stricture or compression shall be assessed as unfit.
- (d) Applicants with a genitourinary disorder, such as:
 - (1) renal disease;
 - (2) one or more urinary calculi, or a history of renal colic;may be assessed as fit subject to satisfactory renal/urological evaluation.
- (e) Applicants who have undergone a major surgical operation in the urinary apparatus involving a total or partial excision or a diversion of its organs shall be assessed as unfit and be re-assessed after full recovery before a fit assessment can be considered. Applicants for a Class 1 medical certificate shall be referred to the licensing authority for the re-assessment.

MED.B.04 Infectious Disease

- (a) Applicants shall have no established medical history or clinical diagnosis of any infectious disease which is likely to interfere with the safe exercise of the privileges of the applicable licence held.
- (b) Applicants who are HIV positive may be assessed as fit subject to satisfactory aero-medical evaluation. Applicants for a Class 1 medical certificate shall be referred to the licensing authority.

MED.B.05 Obstetrics and Gynaecology

- (a) Applicants shall not possess any functional or structural obstetric or gynaecological condition which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) Applicants who have undergone a major gynaecological operation shall be assessed as unfit until full recovery.
- (c) *Pregnancy*
 - (1) In the case of pregnancy, if the AeMC or AME considers that the licence holder is fit to exercise her privileges, he/she shall limit the validity period of the medical certificate to the end of the 26th week of gestation. After this point, the certificate shall be suspended. The suspension shall be lifted after full recovery following the end of the pregnancy.
 - (2) Holders of Class 1 medical certificates shall only exercise the privileges of their licences until the 26th week of gestation with an OML. Notwithstanding MED. B.001 in this case, the OML may be imposed and removed by the AeMC or AME.

MED.B.06 Musculoskeletal System

- (a) Applicants shall not possess any abnormality of the bones, joints, muscles or tendons, congenital or acquired which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) An applicant shall have sufficient sitting height, arm and leg length and muscular strength for the safe exercise of the privileges of the applicable licence(s).

- (c) An applicant shall have satisfactory functional use of the musculoskeletal system to enable the safe exercise of the privileges of the applicable licence(s). Fitness of the applicants shall be assessed in consultation with the licensing authority.

MED.B.055 Psychiatry

- (a) Applicants shall have no established medical history or clinical diagnosis of any psychiatric disease or disability, condition or disorder, acute or chronic, congenital or acquired, which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) Applicants with a mental or behavioural disorder due to alcohol or other use or abuse of psychotropic substances shall be assessed as unfit pending recovery and freedom from substance use and subject to satisfactory psychiatric evaluation after successful treatment. Applicants for a Class 1 medical certificate shall be referred to the licensing authority. Fitness of Class 2 applicants shall be assessed in consultation with the licensing authority.
- (c) Applicants with a psychiatric condition such as:
- (1) mood disorder;
 - (2) neurotic disorder;
 - (3) personality disorder;
 - (4) mental or behavioural disorder;

shall undergo satisfactory psychiatric evaluation before a fit assessment can be made.

- (d) Applicants with a history of a single or repeated acts of deliberate self-harm shall be assessed as unfit. Applicants shall undergo satisfactory psychiatric evaluation before a fit assessment can be considered.
- (e) Aero-medical assessment:
- (1) applicants for a Class 1 medical certificate with one of the conditions detailed in (b), (c) or (d) above shall be referred to the licensing authority;
 - (2) fitness of Class 2 applicants with one of the conditions detailed in (b), (c) or (d) above shall be assessed in consultation with the licensing authority.
- (f) Applicants with an established history or clinical diagnosis of schizophrenia, schizotypal or delusional disorder shall be assessed as unfit.

MED.B.056 Psychology

- (a) Applicants shall have no established psychological deficiencies, which are likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) A psychological evaluation may be required as part of, or complementary to, a specialist psychiatric or neurological examination.

MED.B.057 Neurology

- (a) Applicants shall have no established medical history or clinical diagnosis of any neurological condition which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).

- (b) Applicants with an established history or clinical diagnosis of:
- (1) epilepsy;
 - (2) recurring episodes of disturbance of consciousness of uncertain cause;
- shall be assessed as unfit.

- (c) Applicants with an established history or clinical diagnosis of:
- (1) epilepsy without recurrence after age 5;
 - (2) epilepsy without recurrence and off all treatment for more than 10 years;
 - (3) epileptiform EEG abnormalities and focal slow waves;
 - (4) progressive or non-progressive disease of the nervous system;
 - (5) a single episode of disturbance of consciousness of uncertain cause;
 - (6) loss of consciousness after head injury;
 - (7) penetrating brain injury;
 - (8) spinal or peripheral nerve injury;

shall undergo further evaluation before a fit assessment can be considered. Applicants for a Class 1 medical certificate shall be referred to the licensing authority. Fitness of Class 2 applicants shall be assessed in consultation with the licensing authority.

MED.B.070 Visual System

- (a) Applicants shall not possess any abnormality of the function of the eyes or their adnexa or any active pathological condition, congenital or acquired, acute or chronic, or any sequelae of eye surgery or trauma, which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) *Examination*
- (1) For a Class 1 medical certificate:
 - (i) a comprehensive eye examination shall form part of the initial examination and be undertaken periodically depending on the refraction and the functional performance of the eye; and
 - (ii) a routine eye examination shall form part of all revalidation and renewal examinations.
 - (2) For a Class 2 medical certificate:
 - (i) a routine eye examination shall form part of the initial and all revalidation and renewal examinations; and
 - (ii) a comprehensive eye examination shall be undertaken when clinically indicated.
- (c) Distant visual acuity, with or without correction, shall be:
- (1) in the case of Class 1 medical certificates, 6/9 (0,7) or better in each eye separately and visual acuity with both eyes shall be 6/6 (1,0) or better;

- (2) in the case of Class 2 medical certificates, 6/12 (0,5) or better in each eye separately and visual acuity with both eyes shall be 6/9 (0,7) or better. An applicant with substandard vision in one eye may be assessed as fit in consultation with the licensing authority subject to satisfactory ophthalmic assessment;
- (3) applicants for an initial Class 1 medical certificate with substandard vision in one eye shall be assessed as unfit. At revalidation, applicants with acquired substandard vision in one eye shall be referred to the licensing authority and may be assessed as fit if it is unlikely to interfere with safe exercise of the licence held.
- (d) An applicant shall be able to read an N5 chart (or equivalent) at 30-50 cm and an N14 chart (or equivalent) at 100 cm, with correction, if prescribed.
- (e) Applicants for a Class 1 medical certificate shall be required to have normal fields of vision and normal binocular function.
- (f) Applicants who have undergone eye surgery may be assessed as fit subject to satisfactory ophthalmic evaluation.
- (g) Applicants with a clinical diagnosis of keratoconus may be assessed as fit subject to a satisfactory examination by an ophthalmologist. Applicants for a Class 1 medical certificate shall be referred to the licensing authority.
- (h) Applicants with:
 - (1) astigmatism;
 - (2) anisometropia;
 may be assessed as fit subject to satisfactory ophthalmic evaluation.
- (i) Applicants with diplopia shall be assessed as unfit.
- (j) Spectacles and contact lenses. If satisfactory visual function is achieved only with the use of correction:
 - (1) (i) for distant vision, spectacles or contact lenses shall be worn whilst exercising the privileges of the applicable licence(s);
 - (ii) for near vision, a pair of spectacles for near use shall be kept available during the exercise of the privileges of the licence;
 - (2) a spare set of similarly correcting spectacles shall be readily available for immediate use whilst exercising the privileges of the applicable licence(s);
 - (3) the correction shall provide optimal visual function, be well-tolerated and suitable for aviation purposes;
 - (4) if contact lenses are worn, they shall be for distant vision, monofocal, non-tinted and well tolerated;
 - (5) applicants with a large refractive error shall use contact lenses or high-index spectacle lenses;
 - (6) no more than one pair of spectacles shall be used to meet the visual requirements;
 - (7) orthokeratological lenses shall not be used.

MED.B.075our vision

- (a) Applicants shall be required to demonstrate the ability to perceive readily the colours that are necessary for the safe performance of duties.
- (b) *Examination*
 - (1) Applicants shall pass the Ishihara test for the initial issue of a medical certificate.
 - (2) Applicants who fail to pass in the Ishihara test shall undergo further colour perception testing to establish whether they are colour safe.
- (c) In the case of Class 1 medical certificates, applicants shall have normal perception of colours or be colour safe. Applicants who fail further colour perception testing shall be assessed as unfit. Applicants for a Class 1 medical certificate shall be referred to the licensing authority.
- (d) In the case of Class 2 medical certificates, when the applicant does not have satisfactory perception of colours, his/her flying privileges shall be limited to daytime only.

MED.B.000 ~~000~~ **rhino-laryngology**

- (a) Applicants shall not possess any abnormality of the function of the ears, nose, sinuses or throat, including oral cavity, teeth and larynx, or any active pathological condition, congenital or acquired, acute or chronic, or any sequelae of surgery or trauma which is likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) Hearing shall be satisfactory for the safe exercise of the privileges of the applicable licence(s).
- (c) *Examination*
 - (1) Hearing shall be tested at all examinations.
 - (i) In the case of Class 1 medical certificates and Class 2 medical certificates, when an instrument rating is to be added to the licence held, hearing shall be tested with pure tone audiometry at the initial examination and, at subsequent revalidation or renewal examinations, every 5 years until the age 40 and every 2 years thereafter.
 - (ii) When tested on a pure-tone audiometer, initial applicants shall not have a hearing loss of more than 35 dB at any of the frequencies 500, 1 000 or 2 000 Hz, or more than 50 dB at 3 000 Hz, in either ear separately. Applicants for revalidation or renewal, with greater hearing loss shall demonstrate satisfactory functional hearing ability.
 - (iii) Applicants with hypoacusis shall demonstrate satisfactory functional hearing ability.
 - (2) A comprehensive ear, nose and throat examination shall be undertaken for the initial issue of a Class 1 medical certificate and periodically thereafter when clinically indicated.
- (d) Applicants for a Class 1 medical certificate with:
 - (1) an active pathological process, acute or chronic, of the internal or middle ear;
 - (2) unhealed perforation or dysfunction of the tympanic membrane(s);
 - (3) disturbance of vestibular function;
 - (4) significant restriction of the nasal passages;

- (5) sinus dysfunction;
- (6) significant malformation or significant, acute or chronic infection of the oral cavity or upper respiratory tract;
- (7) significant disorder of speech or voice;

shall undergo further medical examination and assessment to establish that the condition does not interfere with the safe exercise of the privileges of the licence held.

- (e) Aero-medical assessment:
 - (1) applicants for a Class 1 medical certificate with the disturbance of vestibular function shall be referred to the licensing authority;
 - (2) fitness of Class 2 applicants with the disturbance of vestibular function shall be assessed in consultation with the licensing authority.

MED.B.05 ~~05~~ **dermatology**

Applicants shall have no established dermatological condition likely to interfere with the safe exercise of the privileges of the applicable licence(s) held.

MED.B.09 ~~09~~ **oncology**

- (a) Applicants shall have no established primary or secondary malignant disease likely to interfere with the safe exercise of the privileges of the applicable licence(s).
- (b) After treatment for malignant disease, applicants shall undergo satisfactory oncological evaluation before a fit assessment can be made. Class 1 applicants shall be referred to the licensing authority. Fitness of Class 2 applicants shall be assessed in consultation with the licensing authority.
- (c) Applicants with an established history or clinical diagnosis of intracerebral malignant tumour shall be assessed as unfit.

SECTION 3

Specific requirements for LAPL medical certificates

MED.B.09 ~~09~~ **Medical examination and/or assessment of applicants for LAPL medical certificates**

- (a) An applicant for an LAPL medical certificate shall be assessed based on aero-medical best practice.
- (b) Special attention shall be given to the applicant's complete medical history.
- (c) The initial assessment, all subsequent re-assessments after age 50 and assessments in cases where the medical history of the applicant is not available to the examiner shall include at least the following:
 - (1) clinical examination;
 - (2) blood pressure;
 - (3) urine test;

- (4) vision;
- (5) hearing ability.
- (d) After the initial assessment, subsequent re-assessments until age 50 shall include:
 - (1) an assessment of the LAPL holder's medical history; and
 - (2) the items under paragraph (c) as deemed necessary by the AeMC, AME or GMP in accordance with aero-medical best practice.

SUBPARREQUIREMENTS FOR MEDICAL FITNESS OF CABIN CREW

C

SECTION 1

General requirements

MED.C.001 General

Cabin crew members shall only perform the duties and responsibilities required by aviation safety rules on an aircraft if they comply with the applicable requirements of this Part.

MED.C.005 Aero-medical assessments

- (a) Cabin crew members shall undergo aero-medical assessments to verify that they are free from any physical or mental illness which might lead to incapacitation or an inability to perform their assigned safety duties and responsibilities.
- (b) Each cabin crew member shall undergo an aero-medical assessment before being first assigned to duties on an aircraft, and after that at intervals of maximum 60 months.
- (c) Aero-medical assessments shall be conducted by an AME, AeMC, or by an OHMP if the requirements of MED.D.040 are complied with.

SECTION 2

Requirements for aero-medical assessment of cabin crew

MED.C.020 General

Cabin crew members shall be free from any:

- (a) abnormality, congenital or acquired;
- (b) active, latent, acute or chronic disease or disability;
- (c) wound, injury or sequelae from operation; and
- (d) effect or side effect of any prescribed or non-prescribed therapeutic, diagnostic or preventive medication taken that would entail a degree of functional incapacity which might lead to incapacitation or an inability to discharge their safety duties and responsibilities.

MED.C.025 Content of aero-medical assessments

- (a) An initial aero-medical assessment shall include at least:

- (1) an assessment of the applicant cabin crew member's medical history; and
- (2) a clinical examination of the following:
 - (i) cardiovascular system;
 - (ii) respiratory system;
 - (iii) musculoskeletal system;
 - (iv) otorhino-laryngology;
 - (v) visual system; and
 - (vi) colour vision.
- (b) Each subsequent aero-medical re-assessment shall include:
 - (1) an assessment of the cabin crew member's medical history; and
 - (2) a clinical examination if deemed necessary in accordance with aero-medical best practice.
- (c) For the purpose of (a) and (b), in case of any doubt or if clinically indicated, a cabin crew member's aero-medical assessment shall also include any additional medical examination, test or investigation that are considered necessary by the AME, AeMC or OHMP.

SECTION 3

Additional requirements for applicants for, or holders of, a cabin crew attestation

MED.C.030 Cabin crew medical report

- (a) After completion of each aero-medical assessment, applicants for, and holders of, a cabin crew attestation:
 - (1) shall be provided with a cabin crew medical report by the AME, AeMC or OHMP; and
 - (2) shall provide the related information, or a copy of their cabin crew medical report to the operator(s) employing their services.
- (b) *Cabin crew medical report*

A cabin crew medical report shall indicate the date of the aero-medical assessment, whether the cabin crew member has been assessed fit or unfit, the date of the next required aero-medical assessment and, if applicable, any limitation(s). Any other elements shall be subject to medical confidentiality in accordance with MED.A.015.

MED.C.035 Limitations

- (a) If holders of a cabin crew attestation do not fully comply with the medical requirements specified in Section 2, the AME, AeMC or OHMP shall consider whether they may be able to perform cabin crew duties safely if complying with one or more limitations.

- (b) Any limitation(s) to the exercise of the privileges granted by the cabin crew attestation shall be specified on the cabin crew medical report and shall only be removed by an AME, AeMC or by an OHMP in consultation with an AME.

SUBPART ~~AERO-MEDICAL EXAMINERS (AME), GENERAL MEDICAL~~
D ~~PRACTITIONERS (GMP), OCCUPATIONAL HEALTH MEDICAL~~
~~PRACTITIONERS (OHMP)~~

SECTION 1

Aero-Medical Examiners

MED.D.010 Privileges

- (a) The privileges of an AME are to issue, revalidate and renew Class 2 medical certificates and LAPL medical certificates, and to conduct the relevant medical examinations and assessments.
- (b) Holders of an AME certificate may apply for an extension of their privileges to include medical examinations for the revalidation and renewal of Class 1 medical certificates, if they comply with the requirements in MED.D.015.
- (c) The scope of the privileges of the AME, and any condition thereof, shall be specified in the certificate.
- (d) Holders of a certificate as an AME shall not undertake aero-medical examinations and assessments in a Member State other than the Member State that issued their certificate as an AME, unless they have:
- (1) been granted access by the host Member State to exercise their professional activities as a specialised doctor;
 - (2) informed the competent authority of the host Member State of their intention to conduct aero-medical examinations and assessments and to issue medical certificates within the scope of their privileges as AME; and
 - (3) received a briefing from the competent authority of the host Member State.

MED.D.015 Application

- (a) Application for a certificate as an AME shall be made in a form and manner specified by the competent authority.
- (b) Applicants for an AME certificate shall provide the competent authority with:
- (1) personal details and professional address;
 - (2) documentation demonstrating that they comply with the requirements established in MED.D.010, including a certificate of completion of the training course in aviation medicine appropriate to the privileges they apply for;
 - (3) a written declaration that the AME will issue medical certificates on the basis of the requirements of this Part.

- (c) When the AME undertakes aero-medical examinations in more than one location, they shall provide the competent authority with relevant information regarding all practice locations.

MED.D.010 Requirements for the issue of an AME certificate

Applicants for an AME certificate with the privileges for the initial issue, revalidation and renewal of Class 2 medical certificates shall:

- (a) be fully qualified and licensed for the practice of medicine and hold a Certificate of Completion of specialist training;
- (b) have undertaken a basic training course in aviation medicine;
- (c) demonstrate to the competent authority that they:
- (1) have adequate facilities, procedures, documentation and functioning equipment suitable for aero-medical examinations; and
 - (2) have in place the necessary procedures and conditions to ensure medical confidentiality.

MED.D.015 Requirements for the extension of privileges

Applicants for an AME certificate extending their privileges to the revalidation and renewal of Class 1 medical certificates shall hold a valid certificate as an AME and have:

- (a) conducted at least 30 examinations for the issue, revalidation or renewal of Class 2 medical certificates over a period of no more than 5 years preceding the application;
- (b) undertaken an advanced training course in aviation medicine; and
- (c) undergone practical training at an AeMC or under supervision of the licensing authority.

MED.D.020 Training courses in aviation medicine

- (a) Training courses in aviation medicine shall be approved by the competent authority of the Member State where the organisation providing it has its principal place of business. The organisation providing the course shall demonstrate that the course syllabus is adequate and that the persons in charge of providing the training have adequate knowledge and experience.
- (b) Except in the case of refresher training, the courses shall be concluded by a written examination on the subjects included in the course content.
- (c) The organisation providing the course shall issue a certificate of completion to applicants when they have obtained a pass in the examination.

MED.D.025 Changes to the AME certificate

- (a) AMEs shall notify the competent authority of the following changes which could affect their certificate:
- (1) the AME is subject to disciplinary proceedings or investigation by a medical regulatory body;
 - (2) there are any changes to the conditions on which the certificate was granted, including the content of the statements provided with the application;

- (3) the requirements for the issue are no longer met;
- (4) there is a change of aero-medical examiner's practice location(s) or correspondence address.
- (b) Failure to inform the competent authority shall result in the suspension or revocation of the privileges of the certificate, on the basis of the decision of the competent authority that suspends or revokes the certificate.

MED.D.030 Validity of AME certificates

An AME certificate shall be issued for a period not exceeding 3 years. It shall be revalidated subject to the holder:

- (a) continuing to fulfil the general conditions required for medical practice and maintaining registration as a medical practitioner according to national law;
- (b) undertaking refresher training in aviation medicine within the last 3 years;
- (c) having performed at least 10 aero-medical examinations every year;
- (d) remaining in compliance with the terms of their certificate; and
- (e) exercising their privileges in accordance with this Part.

SECTION 2

General Medical Practitioners (GMPs)

MED.D.035 Requirements for general medical practitioners

- (a) GMPs shall act as AMEs for issuing LAPL medical certificates only:
 - (1) if they exercise their activity in a Member State where GMPs have appropriate access to the full medical records of applicants; and
 - (2) in accordance with any additional requirements established under national law.
- (b) In order to issue LAPL medical certificates, general medical practitioners (GMP) shall be fully qualified and licensed for the practice of medicine in accordance with national law.
- (c) GMPs acting as AMEs shall notify their activity to the competent authority.

SECTION 3

Occupational Health Medical Practitioners (OHMP)

MED.D.040 Requirements for occupational health medical practitioners

OHMPs shall only conduct aero-medical assessments of cabin crew if:

- (a) the competent authority is satisfied that the relevant national occupational health system can ensure compliance with the applicable requirements of this Part;
- (b) they are licensed in the practice of medicine and qualified in occupational medicine in accordance with national law; and

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- (c) have acquired knowledge in aviation medicine as relevant to the operating environment of cabin crew.