

MANUAL FOR  
AVIATION MEDICAL EXAMINATIONS

**(Translation)**

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**CIVIL AVIATION BUREAU  
MINISTRY OF LAND, INFRASTRUCTURE AND TRANSPORT**

**JAPAN AEROMEDICAL RESEARCH CENTER**

The text in this book is a translation of Manual For Aviation Medical Examinations ( 航空身体検査マニュアル ) and should not be construed as an official one. In case of legal use, reference should be made to the Japanese original text.

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**Amendment to the manual for aviation  
medical examinations**

For the purpose of enforcing the provisions of Article 61-2 of the Civil Aeronautics Regulations, the manual for aviation medical examinations is hereby amended, and this amendment will become effective on April 1, 2007.

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# **MANUAL FOR AVIATION MEDICAL EXAMINATIONS**

## **I. Objective of This Manual**

This manual is to provide guidance for aviation medical examinations performed to ensure the safe operation of aircraft, and to allow the appropriate and uniform application of examinations and assessments in determining whether the mental and physical conditions of flight crew members meet the medical standards specified in Table 4 of the Civil Aeronautics Regulations.

## **II. General Precautions and Procedures for Aviation Medical Examinations and Certification**

### **1. Significance of Aviation Medical Certification**

- 1-1 In order to ensure the safe operation of aircraft, flight crew members in charge of aircraft operation are examined to determine whether or not their mental and physical condition is adequate for the performance of their duties, and an aviation medical certificate is issued only to those who meet these criteria. No person may perform airman duties unless he/she holds an aviation medical certificate.
- 1-2 The Medical Standards (Table 4 of the Civil Aeronautics Regulations) and this manual are established to examine and evaluate whether or not flight crew members possess the mental and physical condition required to perform airman duties, namely whether or not they are aeromedically qualified.
- 1-3 An aviation medical certificate is effective for 6 months for those holding an airline transport pilot certificate and for 1 year for other flight crew members, as stipulated in Article 33 of the Civil Aeronautics Law. The aviation medical examination aims to conduct a cross-sectional assessment of an applicant's mental and physical condition at the time of the examination, and an aviation medical certificate does not guarantee that some mental or physical condition will not interfere with airman duties at some point in its effective period. Article 71 of the Civil Aeronautics Law stipulates that flight crew members must not perform airman duties even during the effective period of the aviation medical certificate once they become disqualified in terms of the medical standards.
- 1-4 Being in aeromedically qualified condition is not necessarily synonymous with being in good health. "Healthy" candidates may be judged to be disqualified,

whereas those not in a completely healthy condition may be judged to be qualified. Being aeromedically qualified means satisfying the following conditions:

- (1) A flight crew member must have the mental and physical abilities necessary to perform airman duties, and must retain these abilities under all possible flight conditions at a level equivalent to, or higher than, that required for safe flight.
- (2) A flight crew member is expected to maintain these capabilities throughout the effective period of their aviation medical certificates.

In particular, since incapacitation during flight is a serious threat to flight safety, it is critical to eliminate any risk of becoming incapacitated.

## **2. Responsibility of Designated Examiner**

- 2-1 A designated aviation medical examiner (hereinafter referred to as “designated examiner”) is authorized to issue aviation medical certificates under Article 31 of the Civil Aeronautics Law.
- 2-2 A designated examiner, when applying the Medical Standards to the results of examinations performed as specified in Article 31-3 of the Civil Aeronautics Law, must strictly and carefully follow this MANUAL FOR AVIATION MEDICAL EXAMINATIONS. If it is unclear whether or not the results of the examination conform to the Medical Standards, an aviation medical certificate must not be issued.
- 2-3 If an applicant is found to have attempted to receive an aviation medical certificate by false declaration or by any other fraudulent means, the designated examiner must promptly report such conduct to the Minister of Land, Infrastructure and Transport.
- 2-4 Should a designated examiner issue an aviation medical certificate to an applicant disqualified according to the Medical Standards stipulated by Article 31-3 of the Civil Aeronautics Law, safe operation of aircraft may be endangered. Article 149-2 of the Civil Aeronautics Law stipulates penal provisions against such an examiner.

## **3. Methods for Aviation Medical Examinations**

- 3-1 The designated examiner or the physician engaged in aviation medical examinations at the designated medical institutions (hereinafter referred to as “examiner”) should make efforts to confirm, by interviewing the applicant, the

statements in his/her self-declared past history, medication taken, etc. In pursuit of this, the designated examiner or the examiner is required to collect relevant information when necessary, with the consent of the applicant, from such sources as his/her family members, the doctor in charge of his/her health care or other appropriate persons and accurately assess his/her past history, medication taken etc.

- 3-2 The designated examiner should make sure that examiners and other medical institutions, which conduct a part of examinations under contract, fully understand the medical certification system and, he/she must carry out aviation medical examinations on his/her own responsibility.
- 3-3 The designated examiner, if he/she judges that the medication routinely taken by the applicant may interfere with the normal operation of aircraft, must disqualify the candidate. When it is unclear whether or not the use of the medication may interfere with the normal operation of aircraft, the applicant should be disqualified and the judgment of the Minister of Land, Infrastructure and Transport is required. The application for this judgment should be pursued through the submission of detailed documents on the background of the disease, effects of the medications used, etc.
- 3-4 In a case where a medication temporarily used by the applicant is judged to affect the results of the medical examination, he/she should undertake the examination after the use of said medication has been discontinued.
- 3-5 The designated examiner or the examiner should make sure to enter the past history, results and findings of the interview and the examinations performed, presence or absence of side effects of drugs if used, and other matters supporting the judgment, into the space for physician's comment in the application form for an aviation medical certificate.

#### **4. Application for the judgment of the Minister**

- 4-1 The applicant for an aviation medical examination, after having been disqualified by a designated examiner as a result of the examination, should be notified that he/she may apply for certification to the Minister of Land, Infrastructure and Transport, who will render a judgment on the case according to Paragraph 3 of Article 61-2 of the Civil Aeronautics Regulations (hereinafter referred to as "the judgment of the Minister of Land, Infrastructure and Transport"). When the applicant applies for the judgment of the Minister of Land, Infrastructure and Transport, documents of examinations necessary for

the judgment should be submitted together with a copy of Aviation Medical Examination application form to the Personnel Licensing Division, Engineering Department, Civil Aviation Bureau, the Ministry of Land, Infrastructure and Transport.

See “Notes” sections in “III. Items and Details of Aviation Medical Examination” for documents required.

- 4-2 In order for the Minister of Land, Infrastructure and Transport to render a judgment on whether or not the applicant has mental or physical conditions that may interfere with the duties of an airman, an applicant may be required to undergo a medical flight test or a check for motor function in the cockpit of an airplane or a flight simulator. If the test documents submitted by the applicant are insufficient or contain questionable statements, or when judged necessary for evaluation, he/she may be required to submit results of tests received in other medical institutions and other documents.
- 4-3 If an applicant, who has been qualified by the judgment of the Minister of Land, Infrastructure and Transport, applies for renewal of the aviation medical certificate, the Minister may, where appropriate, order the applicant to receive an examination for the disease condition that prevented the fulfillment of the requirements of medical standards specified in Table 4 of the Civil Aeronautics Regulations.
- 4-4 Any applicants who applied for the judgment of the Minister of Land, Infrastructure and Transport and has been qualified by the judgment of the Minister of Land, Infrastructure and Transport (including those designated as eligible by a special instruction given by the Minister according to subparagraph 4-5), when he/she is further identified as having recovered fully or defectively from the disease condition or physical anomaly or identified as such conditions would not be changed, and these conditions are not expected to progress to an extent that interferes with the performance of airman duties, may thereafter be judged as qualified in subsequent examinations by the designated examiner according to the instructions of the Minister of Land, Infrastructure and Transport (instructions for closed case).
- 4-5 Any applicant who applied for the judgment of the Minister of Land, Infrastructure and Transport and has been qualified by the judgment of the Minister of Land, Infrastructure and Transport, when he/she is further identified by the Minister as being in a stable condition and eligible for continuous qualification (The Minister may issue a special instruction to the

designated examiner and the applicant for the qualification), may thereafter be judged as qualified in subsequent examinations by the designated examiner according to the Minister's instruction if there is no adverse change in the condition.

## **5. Protection of personal information**

- 5-1 The designated examiner should handle personal information in an appropriate manner according to the "Law on the Protection of Personal Information" (Act No. 57 of 2003).
- 5-2 A designated examiner must not use information obtained through a physical examination for any purpose other than for a medical examination certificate without the consent of the candidate, except in cases in which the provision of personal data is based on laws or regulations.
- 5-3 In accordance with Article 8 of the Law on the Protection of Personal Information Held by Administrative Agencies (Act No. 58 of 2003), the Minister of Land, Infrastructure and Transport should not use or supply personal information for purposes other than for a medical examination certificate, except in cases in which the provision of personal data is based on laws or regulations.

## **6. Other**

A designated examiner must not issue an aviation medical certificate for himself/herself.

### **III. Items of Aviation Medical Examination**

Each section of the examination is organized based on the following standardized concept.

1. Medical Standards:

Requirements specified in Attached Table 4 of the Civil Aeronautics Regulations

2. Disqualifying Conditions:

The Medical Standards expressed in general and all-encompassing terms in paragraph 1 are interpreted in terms of specific disease conditions and dysfunctions. However, since it is impossible to define all disqualifying conditions, those conditions not specified in this paragraph should be carefully evaluated for their impact on potential qualification by referring to the Medical Standards.

3. Examination Procedures and Precautions:

Method, timing and frequency of the aviation medical examination, precautions for performing the examination, etc.

4. Evaluation Precautions:

Precautions for performing evaluation and judgment on the results of interview and tests

5. Notes:

Information relevant to application for the judgment of the Minister, such as test documents required for an application for the judgment of the Minister, and other various reference information

## **1. GENERAL**

### **1-1 Systemic Condition-1**

#### 1. Medical Standards

The applicant must have no malformation, deformity, or dysfunction in his/her head, face, neck, body trunk or extremities that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 Malformation, deformity, or dysfunction that may interfere with the performance of airman duties
- 2-2 Malformation, deformity, or dysfunction that may interfere with the wearing and the proper fitting of an oxygen mask or other flight equipment

#### 3. Examination Procedures and Precautions

- 3-1 Presence or absence of any function affected by postoperative wound or trauma should be confirmed by referring to 7. MUSCULOSKELETAL SYSTEM.
- 3-2 An applicant with scoliosis or kyphosis is qualified unless the condition interferes with the performance of airman duties or is associated with decreased respiratory function.

#### 4. Evaluation Precautions

#### 5. Notes

- 5-1 If the applicant has any kind of deformity, malformation or dysfunction such that it is difficult to evaluate whether or not the condition interferes with the performance of airman duties, he/she should apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records and the results of an evaluation of the current range of motion and motor function of muscles, etc.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided there is no possibility of change in physical findings and of interference with the performance of airman duties, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **1-2 Systemic Condition-2**

### 1. Medical Standards

The applicant must not be obese to the extent that such obesity may interfere with the performance of airman duties.

### 2. Disqualifying Conditions

Excessive obesity that may interfere with the performance of airman duties

### 3. Examination Procedures and Precautions

### 4. Evaluation Precautions

Obesity is one of the significant risk factors for arteriosclerosis and cardiovascular disease. An applicant with severe obesity with body mass index (BMI) exceeding 30 must be examined for other risk factors of cardiovascular disease and evaluated for qualification with consideration given to the risk of sudden incapacitation during flight. Also, evaluation should be made to determine whether or not the condition interferes with the controlling of the aircraft.

BMI is calculated according to the formula given below.

$BMI = \text{body weight (kg)} / \text{height (m)}^2$

### 5. Notes

## **1-3 Tumors**

### 1. Medical Standards

The applicant must have neither a current, past or suspected malignant tumor, nor any benign tumor that might interfere with the performance of airman duties.

### 2. Disqualifying Conditions

2-1 Malignant tumor or suspected malignant tumor

2-2 History of malignant tumor

2-3 Ongoing treatment associated with malignant tumor

2-4 Benign tumor that might interfere with the performance of airman duties

### 3. Examination Procedures and Precautions

If an applicant has a history of a malignant tumor or is suspected of having a malignant tumor, full examination including imagings and tumor markers should be performed.

### 4. Evaluation Precautions

An applicant with a benign tumor is qualified if the condition is judged to pose no risk of interfering with the performance of airman duties.

### 5. Notes

5-1 Regarding an applicant with any of the disqualifying conditions described above in paragraph 2, if he/she is doing well during or after treatment and provided the function of the affected organ and the kinetic functions are in a condition appropriate to perform airman duties, may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting such as medical records, details of the treatments (including an operative report if performed, stage by General Rules for Clinical and Pathological Studies on Cancer and by TNM classification, results of postoperative examinations) and the results of follow-up observation sufficient to establish the absence of symptoms of recurrence or metastasis (tumor markers, imagings, etc.). See the Section for each disease for the postoperative follow-up observation period.

5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided there is no findings of recurrence or metastasis after a sufficiently long post-treatment follow-up period, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **I-4 Infectious Diseases**

### 1. Medical Standards

The applicant does not have, or is not suspected of having, any significant infectious disease.

### 2. Disqualifying Conditions

2-1 Acquired immunodeficiency syndrome (AIDS)

- 2-2 Human immunodeficiency virus (HIV) encephalopathy
- 2-3 HIV infection under treatment
- 2-4 Active tuberculosis
- 2-5 Other infectious diseases that may interfere with the performance of airman duties

### 3. Examination Procedures and Precautions

An applicant reporting HIV infection should be confirmed to have no abnormality in cognitive function and not to have AIDS.

### 4. Evaluation Precautions

- 4-1 With regard to HIV infection, if the applicant has no abnormality in cognitive function and is confirmed not to have AIDS, he/she is qualified unless he/she is undergoing treatment for the disease.
- 4-2 With regard to hepatitis, refer to “4. DIGESTIVE SYSTEM, 4-1 Gastrointestinal Diseases.”
- 4-3 With regard to tuberculosis, due attention should be paid to respiratory function by referring to “2. RESPIRATORY SYSTEM, 2-1 Respiratory Diseases.”
- 4-4 With regard to diseases stipulated by “Law Concerning the Prevention of Infectious Diseases and Medical Care for Patients Suffering Infectious Diseases”, follow the instructions stipulated by the Law.

### 5. Notes

## **1-5 Endocrine and Metabolic Diseases**

### 1. Medical Standards

An applicant must have no endocrine or metabolic disease, nor resultant organopathy or dysfunction that may interfere with the performance of airman duties.

### 2. Disqualifying Conditions

- 2-1 Thyroid disease requiring treatment
- 2-2 Pituitary disease, adrenal disease or parathyroid disease
- 2-3 Diabetes mellitus that requires insulin or oral glucose-lowering agents on a regular basis
- 2-4 Gout or hyperuricemia that may cause a gout attack

- 2-5 Hyperlipidemia that may cause organ dysfunction
- 2-6 Current, past or suspected tumor
- 2-7 Insufficient follow-up period after surgical operation for endocrine disease

### 3. Examination Procedures and Precautions

- 3-1 If the applicant has a history of thyroid disease or is suspected of having the disease, a thyroid function test should be performed.
- 3-2 If the applicant is suspected of having glucose metabolism, he/she should be examined for diabetes mellitus.
- 3-3 If the applicant is suspected of having any other endocrine or metabolic disease, the condition should be confirmed by blood test and imaging.

### 4. Evaluation Precautions

- 4-1 If an applicant with thyroid disease is receiving hormone replacement therapy, he/she is qualified if he/she is asymptomatic with stable FT<sub>3</sub> and FT<sub>4</sub> levels over a follow-up period of at least one month after the fixed dose and dosage regimen of the drug has been reached.
- 4-2 For an applicant with hyperthyroidism, if he/she has not been treated with any oral medication after isotope treatment and is asymptomatic with FT<sub>3</sub> and FT<sub>4</sub> levels remaining constant for at least one month, he/she is qualified.
- 4-3 With respect to the administration of a  $\alpha$ -glucosidase inhibitor, if the blood glucose level is controlled adequately without any side effect for at least one month after the initiation of administration, he/she is qualified. In this case, it is necessary to exercise due care against the possibility of hypoglycemia or hyperglycemia by measuring the postprandial blood glucose level.
- 4-4 An HbA1c level of less than 6.5% is set as the target value for suppressing the progression of microvascular complications of diabetes mellitus (Japan Diabetes Society, 2004). It is recommended that blood glucose level be controlled using this value as the reference.
- 4-5 If an applicant has gout or hyperuricemia that may cause a gout attack, if he/she is confirmed to have no symptoms or side effects over a sufficiently long follow-up period after starting the use of a uricosuric agent, an agent which reduces the production of uric acid, or an aciduria-improving agent, has no urolithiasis detectable by an imaging test, and has a stable serum uric acid level, he/she is qualified.
- 4-6 If the applicant is using statin, probucol, a fibrate drug, a nicotinic acid drug,

ethyl eicosapentanoate (EPA), or phytosterol for the treatment of hyperlipidemia, provided he/she is confirmed, over a sufficiently long follow-up period after starting the use of the drug, to have stable serum lipid level, to show no side effects of the drug used, and to have no severe arteriosclerotic findings as demonstrated by rest ECG, ophthalmoscopy, cervical vascular murmur, etc., he/she is qualified. Use of a drug that may affect blood glucose level, such as an insulin sensitizer, should be a cause for disqualification.

4-7 For current, past or suspected tumor, refer to “1. GENERAL, 1-3 Tumors.”

#### 5. Notes

- 5-1 If the applicant has diabetes mellitus that requires treatment with drugs other than  $\alpha$ -glucosidase inhibitors, oral glucose-lowering agents and insulin sensitizers, and has a blood glucose level appropriately controlled, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical reports including the change over time in blood glucose level and HbA1c level, presence or absence of complications, and the details of treatments.
- 5-2 If the applicant is using lipid-lowering agents that may affect blood glucose level, but has his/her blood glucose level adequately controlled, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of tests including the change over time in blood glucose level and HbA1c level, presence or absence of complications, and detailed medical reports including the treatments.
- 5-3 When the applicant with any of the disqualifying conditions described in paragraph 2 above has a history of surgery for an endocrine or metabolic disease such as pituitary disease, adrenal disease or parathyroid disease, but currently does not need treatment and has normal endocrine function, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting his/her operative report, postoperative test results on the endocrine system and the clinical course including current status and treatments.
- 5-4 If the applicants comes under the criteria described in subparagraphs 5-1 to 5-3 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **1-6 Rheumatic Disease, Collagen Disease or Immunodeficiency Disease**

### 1. Medical Standards

The applicant must have no rheumatic disease, collagen disease or immunodeficiency disease that may interfere with the performance of airman duties.

### 2. Disqualifying Conditions

2-1 Rheumatism and rheumatic diseases

2-2 Collagen disease

2-3 Congenital or acquired immune deficiency

### 3. Examination Procedures and Precautions

If any of the above diseases is suspected, the applicant should be carefully examined for qualification by confirming disease activity and presence or absence of concurrent diseases.

### 4. Evaluation Precautions

4-1 If the applicant has any of the conditions listed in subparagraphs 2-1 and 2-2 above or congenital immune deficiency, if the disease is not active and considered not to interfere with the performance of airman duties based on the collective judgment of the results of the tests, he/she is qualified.

4-2 With regard to acquired immune deficiency syndrome (AIDS) and HIV infection, refer to "1. GENERAL, 1-4 Infections."

### 5. Notes

5-1 If the applicant is subject to any of the conditions listed in subparagraphs 2-1 and 2-2 above or congenital immune deficiency, provided the disease is not active after a certain treatment and there is no locomotor disability that may interfere with the performance of airman duties, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the treatments and results of relevant tests, as well as records of the examination of disease activity and concurrent diseases.

5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land,

Infrastructure and Transport.

## **1-7 Allergic Diseases**

### 1. Medical Standards

The applicant must have no allergic disease that may interfere with the performance of airman duties.

### 2. Disqualifying Conditions

- 2-1 Allergic rhinitis accompanied by severe nasal congestion
- 2-2 Allergic conjunctivitis or allergic blepharitis
- 2-3 Allergic dermatitis

### 3. Examination Procedures and Precautions

- 3-1 For bronchial asthma, refer to “2. RESPIRATORY SYSTEM, 21 Respiratory Diseases.”
- 3-2 If a disqualifying condition is suspected from the history or the interview, the applicant should be carefully examined, and the conditions should be confirmed by the diagnosis of an otorhinolaryngologist, ophthalmologist or dermatologist, as necessary.

### 4. Evaluation Precautions

- 4-1 With regard to the conditions mentioned in subparagraph 2 above, when symptoms such as itching, lacrimation, or nasal discharge are insignificant and considered not to interfere with the performance of airman duties, the applicant is qualified.
- 4-2 If the allergic symptoms are controlled by external medicines (such as nasal drops, eye drops, ointment, cream or aerosol) or desensitization therapy, the applicant is qualified. When the applicant is using an oral antihistamine without sedative effect (second-generation antihistamines only) or an oral antiallergic agent, he/she is qualified provided it is confirmed that there are no side effects such as sleepiness and decreased concentration judged from the past use experience by an designated examiner or an industrial physician who is well-informed about aviation medicine. However, he/she must not perform airman duties for a period at least twice the usual interval of administration after taking the medication.

## 5. Notes

### **1-8 Sleep Disorders**

#### 1. Medical Standards

The applicant must have no sleep disorder that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 Sleep apnea/hypopnea syndrome
- 2-2 Other sleep disorders that may interfere with the performance of airman duties

#### 3. Examination Procedures and Precautions

- 3-1 The applicant should be interviewed and questioned about whether or not snoring or respiratory arrest during sleep has been pointed out by those around, and whether he/she has excessive sleepiness during the daytime. If sleep disorder is suspected from the interview, tests such as the Epworth sleepiness scale (ESS) should be performed and the condition should be judged in a comprehensive manner based on the results. If, as a result, sleep apnea syndrome is suspected, the condition should be carefully examined by performing overnight polysomnography (PSG) and, if necessary, by maintenance of wakefulness test (MWT).
- 3-2 An applicant with a sleep disorder should be closely examined for the presence of underlying diseases (diseases covered by the fields of otorhinolaryngology, pulmonology, dentistry, etc.).
- 3-3 A PSG test should be performed on the following parameters.
  - Respiration monitoring (airflow through nose and mouth, ventilatory movement of chest and abdomen)
  - Oxygen saturation (SpO<sub>2</sub>)
  - Sleep, wakefulness, sleep level (electroencephalogram, eye movement, mental electromyogram)
  - ECG
- 3-4 MWT should be performed using the 20-minute method four times a day with intervals of 2 hours or more to determine the duration of continued wakefulness.

#### 4. Evaluation Precautions

- 4-1 If an applicant comes under the criteria described in subparagraph 2-1 above, and if the apnea hypopnea index (AHI) from the PSG test is 15 or more, he/she is disqualified.
- 4-2 For a PSG test result of  $5 \leq \text{AHI} < 15$ , the applicant is qualified if he/she is judged to have no excessive sleepiness, etc. during daytime that may interfere with the performance of airman duties, based on a detailed interview including questioning about ESS.
- 4-3 With regard to the use of sleep inducing drugs such as zolpidem tartrate or zopiclone for a sleep disorder, if it is confirmed by a designated examiner or an industrial physician who is well-informed about aviation medicine that the applicant has no addiction or dependence to the drug and that he/she does not experience sleepiness or reduced concentration 48 hours after a trial use of the drug, he/she may use the drug. However, the applicant must not perform airman duties within 48 hours after taking the drug. Use of drugs (including melatonin) other than the above two drugs is a cause for disqualification.
- 4-4 Alcohol ingestion to combat sleep disorder should be avoided. If the applicant has such a habit, he/she should be carefully interviewed about possible alcohol dependence.

#### 5. Notes

- 5-1 If the applicant has any of the disqualifying conditions listed in paragraph 2 above, provided the condition has been improved by treatment and is considered not to interfere with the performance of airman duties, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the details of the interview and the treatments received, as well as the results of a PSG test and MWT performed before and after treatment. If a mouthpiece or an n-CPAP is used, the compliance of the applicant should be described. For the procedures of PSG and MWT, refer to “3. Examination Procedures and Precautions.”
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by the designated examiner by order of the Minister of Land,

Infrastructure and Transport.

## **2. RESPIRATORY SYSTEM**

### **2-1 Respiratory Diseases**

#### 1. Medical Standards

The applicant must have no respiratory disease or pleural or mediastinal disease that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 Bronchial asthma
- 2-2 Chronic obstructive pulmonary disease
- 2-3 Chronic restrictive pulmonary disease
- 2-4 Sarcoidosis
- 2-5 Current, past or suspected tumor
- 2-6 Active pulmonary tuberculosis

#### 3. Examination Procedures and Precautions

- 3-1 Chest X-rays should be taken at the initial aviation medical examination and thereafter be taken and fully examined when judged necessary based on an interview or diagnosis.
- 3-2 A respiratory function test should be performed if indicated by an interview or diagnosis. The respiratory function test may be performed with a simplified spirometer.
- 3-3 Regarding an applicant with a history of bronchial asthma, due attention should be paid at the time of interview to the presence or absence of recent attacks.

#### 4. Evaluation Precautions

- 4-1 The applicant is disqualified if the results of respiratory function test fall under (1) or (2) below:
  - (1) Percent vital capacity = 80%
  - (2) FEV<sub>1.0%</sub> = 70%
- 4-2 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."
- 4-3 For infectious diseases, refer to "1. GENERAL, 1-4 Infectious Diseases."

#### 5. Notes

- 5-1 An applicant with well-controlled bronchial asthma may apply for the judgment

of the Minister of Land, Infrastructure and Transport by submitting medical reports including the details of treatments and attack frequency, peak flow test results, etc.

- 5-2 When the applicant is diagnosed with sarcoidosis but has no subjective symptoms and does not require treatment, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical reports including serum calcium concentration, respiratory function test, imagings (<sup>67</sup>Ga scintigraphy, etc.) evaluation of cardiac sarcoidosis, and ophthalmological diagnosis.
- 5-3 If the applicant comes under the criteria described in subparagraph 5-1 or 5-2 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **2-2 Pneumothorax**

### 1. Medical Standards

The applicant must have no pneumothorax or a past history of pneumothorax.

### 2. Disqualifying Conditions

Pneumothorax or a past history of pneumothorax

### 3. Examination Procedures and Precautions

### 4. Evaluation Precautions

In the event there is a history of spontaneous pneumothorax, if the applicant has already undergone open chest surgery more than 2 months before or an endoscopic operation more than 1 month before, meets the criteria for the respiratory function test, and the condition is judged to pose no risk of interfering with the performance of airman duties, he/she will be qualified. Refer to “2. RESPIRATORY SYSTEM, 2-1 Respiratory Diseases” for the criteria for respiratory function test.

### 5. Notes

- 5-1 If an applicant has a history of pneumothorax but has not undergone surgery, he/she may apply for the judgment of the Minister of Land, Infrastructure and

Transport by submitting medical records including current status, imagings such as a chest X-ray and CT (at intervals of 5 mm within 2 cm from the apex of the lung).

- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **2-3 Chest Surgery**

### **1. Medical Standards**

The applicant must have no sequelae of chest surgery that may interfere with the performance of airman duties.

### **2. Disqualifying Conditions**

- 2-1 Within 2 months after open chest surgery  
2-2 Within 1 month after endoscopic surgery  
2-3 Post-surgical impaired cardiopulmonary function or cardiopulmonary function that may be aggravated by flying

### **3. Examination Procedures and Precautions**

For an applicant with a history of chest surgery, a careful interview to identify the underlying diseases should be performed, and if necessary, the operative report and the pathology diagnosis should be referred to.

### **4. Evaluation Precautions**

Cardiopulmonary function after the surgery should be evaluated by ECG and respiratory function test.

### **5. Notes**

### **3. CARDIOVASCULAR SYSTEM AND VASCULAR SYSTEM**

#### **3-1 Abnormal Blood Pressure**

##### 1. Medical Standards

The systolic pressure must be lower than 160 mmHg and the diastolic pressure must be lower than 95 mmHg. Furthermore, the applicant must not have orthostatic hypotension accompanied by subjective symptoms.

##### 2. Disqualifying Conditions

###### 2-1 Hypertension

###### 2-2 Symptomatic orthostatic hypotension

##### 3. Examination Procedures and Precautions

3-1 If the blood pressure values fall outside the standards, measurements can be made repeatedly as necessary. However, the judgment should be made only after careful consideration.

3-2 It should be confirmed by an interview whether antihypertensive drugs are used. If such is the case, their side effects should be fully examined.

3-3 In the orthostatic hypotension test, which should be conducted when orthostatic hypotension with subjective symptoms is suspected, the blood pressure in a standing position should be measured 2 minutes after standing up from a prolonged recumbent position.

##### 4. Evaluation Precautions

4-1 When the blood pressure measured on the test day deviates from the standard range, the measurement should be performed again within one week to confirm that the value is within the standard range. In this case, the applicant is qualified if he/she is confirmed to have no abnormality based on the comprehensive evaluation of physical findings.

4-2 In a case where "white coat hypertension" (blood pressure consistently measures high at the doctor's office, yet is normal at other times) may exist, blood pressure should be measured by 24-hour ambulatory monitoring. If the average blood pressure is below 135/80 mmHg, and both morning hypertension and night hypertension are ruled out, the applicant is qualified.

4-3 If an applicant's blood pressure is controlled within the standards by taking

antihypertensive drugs listed below and no side effect occurs one month after continuous dosage, he/she is qualified.

- (1) Diuretics
- (2) Calcium antagonists
- (3) Beta-blocker
- (4) ACE inhibitors
- (5) A receptor blocker

- 4-4 When the drug dose is reduced, the applicant should be monitored for the presence or absence of symptoms and for blood pressure for at least one month to confirm that the blood pressure is maintained at a stable and appropriate level.
- 4-5 Due caution should be exercised to detect possible reverse white coat hypertension (blood pressure measures normal at doctor's office, while it becomes markedly elevated elsewhere).
- 4-6 If the applicant has hypertension that requires treatment, it is desirable that he/she performs airman duties only after having achieved adequate blood pressure control after receiving detailed instructions for the treatment.

## 5. Notes

- 5-1 If the applicant is doing well by taking antihypertensives other than those listed in subparagraph 4-3 above, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting a record of clinical progress including detailed treatments, results of blood test, rest ECG, echocardiogram, ophthalmoscopy, etc.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **3-2 Myocardial Damage**

### 1. Medical Standards

The applicant does not have myocardial damage or the signs thereof.

### 2. Disqualifying Conditions

- 2-1 Confirmed or suspected cardiomyopathy

## 2-2 Current or past myocarditis

### 3. Examination Procedures and Precautions

Rest ECG should be performed at the initial aviation medical examination, and at the aviation medical examination which comes first after reaching the age of 30, and thereafter at intervals of two years until reaching the age of 40, and at intervals of one year after reaching the age of 40. In the event it is judged necessary from the interview, etc., the applicant should be fully examined by performing ECG.

### 4. Evaluation Precautions

- 4-1 Since myocardial damage is a disorder that will endanger flight safety, the interpretation of ECG should be confirmed by a diagnosis of a cardiologist as necessary.
- 4-2 With regard to healed myocarditis as demonstrated by blood test, etc., the applicant is qualified if no impairment of cardiac function is detected by echocardiography, etc.

### 5. Notes

- 5-1 If an applicant has any of the disqualifying conditions described in paragraph 2 above but is doing well, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including ECG, echocardiography (Doppler), radioisotope examination, etc.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by the designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **3-3 Coronary artery disease**

### 1. Medical Standards

The applicant does not have coronary artery disease or the signs thereof.

### 2. Disqualifying Conditions

- 2-1 Myocardial infarction, angina pectoris or past histories thereof

2-2 Current or past asymptomatic myocardial ischemia

2-3 History of treatment for coronary insufficiency

(1) Percutaneous coronary artery intervention (PCI)

(2) Coronary artery bypass grafting (CABG)

(3) Others

### 3. Examination Procedures and Precautions

3-1 Rest ECG is performed according to "3. CARDIOVASCULAR SYSTEM AND VASCULAR SYSTEM, 3-2 Myocardial Damage, 3. Examination Procedures and Precautions."

3-2 If any of the disqualifying conditions listed above is suggested by the rest ECG or clinical findings, detailed examinations should be performed by means of exercise ECG and radioisotope examination as necessary, while paying due attention to safety.

3-3 When the exercise ECG is performed, the heart rate should reach 85% or more of the age-adjusted maximum heart rate.

Age-adjusted maximum heart rate:  $(220 - \text{age})$  beats/min.

### 4. Evaluation Precautions

4-1 Since coronary artery disease is a disorder that endangers flight safety, the interpretation of ECG should be confirmed by a cardiologist as necessary.

4-2 Interpretation of the exercise ECG should be confirmed by a cardiologist.

4-3 When any of the disqualifying conditions listed in paragraph 2 above is suspected from clinical findings or rest ECG, exercise ECG should be performed to check for ischemia. If myocardial ischemia cannot be ruled out by the exercise ECG, perform radioisotope examination. The applicant is qualified unless ischemic findings are observed on exercise ECG or radioisotope examination. However, suspected vasospastic angina pectoris should be disqualified.

### 5. Notes

5-1 If exercise ECG or radioisotope examination of the applicant indicate any suspicion of myocardial ischemia, the medical records including rest ECG, echocardiography, exercise ECG, radioisotope examination and, if necessary, coronary angiography should be submitted together with an application for the judgment of the Minister of Land, Infrastructure and Transport.

5-2 If an applicant with a history of coronary intervention such as PCI or CABG for

coronary artery disease has remained asymptomatic for 1 year after the surgery without any cardiac event, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting a medical report including the detailed treatments, as well as results of rest ECG , echocardiography, exercise ECG, radioisotope examination, and coronary angiography findings, etc.

- 5-3 If the applicant comes under the criteria described in subparagraph 5-1 or 5-2 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **3-4 Congenital Heart Diseases**

#### 1. Medical Standards

The applicant must have no significant congenital heart disease that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 All types of congenital cardiovascular abnormalities in the cyanosis group or late cyanosis group
- 2-2 History of treatment for congenital cardiovascular abnormalities

#### 3. Examination Procedures and Precautions

Attention should be paid to cardiac murmur in the diagnosis.  
Echocardiography should be performed if necessary.

#### 4. Evaluation Precautions

Acyanotic cardiac disease should be confirmed by a cardiologist.

#### 5. Notes

- 5-1 If the applicant has a history of treatment for congenital cardiovascular abnormality or currently has an abnormality that requires no treatment, and where the condition poses no risk of interfering with the performance of airman duties, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of such examinations as

rest ECG, echocardiography, chest X-ray, subjective symptoms, and clinical history including the current status and details of treatments.

- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **3-5 Acquired Valvular Diseases**

#### 1. Medical Standards

The applicant must have no current or past acquired valvular disease that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 Aortic stenosis
- 2-2 Aortic regurgitation
- 2-3 Mitral stenosis
- 2-4 Mitral regurgitation or mitral valve prolapse syndrome
- 2-5 Tricuspid regurgitation
- 2-6 Current or past treatment for valvular disease

#### 3. Examination Procedures and Precautions

Echocardiography should be performed if deemed necessary from an interview, physical findings, rest ECG, etc.

#### 4. Evaluation Precautions

- 4-1 For any of the disqualifying conditions described in paragraph 2 above, if the condition is mild as judged by echocardiography (Doppler) and poses no risk of interfering with the performance of airman duties, the applicant is qualified.
- 4-2 With regard to mitral valve prolapse, the applicant is qualified unless he/she has subjective symptoms or abnormality in electrocardiography (T wave, arrhythmia).

#### 5. Notes

- 5-1 If the applicant has any of the disqualifying conditions listed in 2 above but is

doing well, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting a medical report including clinical history, rest ECG and echocardiography (Doppler).

- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **3-6 Pericardial Diseases**

#### 1. Medical Standards

The applicant must have no significant pericardial disease that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

Current or past pericarditis

#### 3. Examination Procedures and Precautions

Attention should be paid to pericardial friction rub in the diagnosis. Causal diseases (infection, rheumatic diseases, collagen diseases, etc.) should also be carefully investigated.

#### 4. Evaluation Precautions

If, after confirmation of healing of endocarditis by blood test etc., no sequelae were observed by echocardiography or other means, the applicant is qualified.

#### 5. Notes

### **3-7 Heart Failure**

#### 1. Medical Standards

The applicant must have neither heart failure nor a history of same.

#### 2. Disqualifying Conditions

### 3. Examination Procedures and Precautions

If there is any suspicion that an applicant has or has had heart failure, a careful diagnosis of the causal disease should be made.

### 4. Evaluation Precautions

### 5. Notes

## **3-8 Abnormal Rhythm**

### 1. Medical Standards

The applicant must have no abnormality of stimulus generation or excitation conduction that may interfere with the performance of airman duties.

### 2. Disqualifying Conditions

2-1 Sick sinus syndrome

2-2 Non-sustained or sustained supraventricular tachycardia or atrial flutter, or history of either of these conditions

2-3 Ventricular tachycardia or frequent multiformed ventricular premature complexes

2-4 Repeated series of ventricular premature complexes or ventricular premature complexes manifesting R on T

2-5 Second-degree atrioventricular block (Mobitz type )

2-6 Complete atrioventricular block

2-7 Complete left bundle branch block

2-8 Complete right bundle branch block

2-9 WPW syndrome with paroxysmal tachycardia or its history

2-10 Congenital QT prolongation syndrome

2-11 Brugada syndrome

2-12 Any other electrocardiographic abnormality suggestive of significant heart disease

2-13 Implantation of a pacemaker or a defibrillator

2-14 Invasive treatment (e.g., catheter ablation) performed for arrhythmia

### 3. Examination Procedures and Precautions

3-1 Applicant's condition, such as a history of loss of consciousness should be

investigated carefully in an interview.

- 3-2 If arrhythmia is detected on ECG, it should be confirmed by an examination such as Holter ECG.
- 3-3 An applicant with bradycardia should be carefully examined for the presence of sick sinus syndrome.

#### 4. Evaluation Precautions

With respect to complete right bundle branch block, if the applicant has neither clinical symptoms nor causative disease detectable by echocardiography, Holter ECG, and radioisotope examination in the initial aviation medical examination, he/she is qualified.

At each of the subsequent renewal examinations, rest ECG should be performed to confirm the absence of changes over time (PQ interval prolongation, widening of QRS complex, axis deviation). Due caution should be exercised regarding possible presence of Brugada syndrome.

#### 5. Notes

- 5-1 If, following catheter ablation, the applicant remains in a stable condition after follow-up and examination such as Holter ECG, etc. for 6 months or longer, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the details of treatments, as well as the results of rest ECG, Holter ECG, echocardiography, etc.
- 5-2 An applicant with any of the disqualifying conditions listed in 2 above who does not meet the criteria described in subparagraph 5-1 above may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting a medical records (e.g., blood pressure change over time) including the details of treatments, as well as the results of examinations such as rest ECG, exercise ECG, Holter ECG and, if necessary, echocardiography and radioisotope examination.
- 5-3 If the applicant comes under the criteria described in subparagraph 5-1 or 5-2 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **3-9 Vascular Diseases**

## 1. Medical Standards

The applicant must not have arterial, venous or lymphatic disease that may interfere with the performance of airman duties.

## 2. Disqualifying Conditions

### 2-1 Arterial diseases

- (1) Peripheral arterial occlusion
- (2) Aneurysm or history of its treatment
- (3) Raynaud's syndrome

### 2-2 Venous diseases

Deep vein thrombosis

## 3. Examination Procedures and Precautions

- 3-1 If aneurysm is suspected, a careful diagnosis should be made by such means as imagings.
- 3-2 For an applicant with intermittent claudication, attention should be paid to peripheral arterial occlusion.
- 3-3 If arteriosclerotic disease of peripheral arteries is detected, attention should also be paid to diseases of coronary arteries and carotid arteries.

## 4. Evaluation Precautions

In the case of the diseases mentioned in subparagraphs 2-1 (1) and (3) above, if the applicant does not require treatment and has no pre-existing disease and provided the condition is judged not to interfere with the performance of airman duties, he/she is qualified.

## 5. Notes

- 5-1 If an applicant who received surgical treatment for an aneurysm (e.g., graft replacement) is doing well after a sufficiently long follow-up period, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the details of the surgery and other treatments and the results of blood tests such as tests of coagulation system.
- 5-2 If an applicant who received or is currently receiving treatment for vascular disorders is doing well, he/she may apply for the judgment of the Minister of

Land, Infrastructure and Transport by submitting medical records including the details of treatments and the results of blood tests such as tests of coagulation system.

- 5-3 If the applicant comes under the criteria described in subparagraph 5-1 or 5-2 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

#### **4. DIGESTIVE SYSTEM (excluding oral and dental systems)**

##### 4-1 Gastrointestinal Diseases

###### 1. Medical Standards

The applicant must have no disease or dysfunction in the digestive system or peritoneum that may interfere with the performance of airman duties

###### 2. Disqualifying Conditions

2-1 Confirmed or suspected peritoneal disease

2-2 Acute hepatitis

2-3 Chronic hepatitis with symptoms or requiring treatment

2-4 Liver cirrhosis

2-5 Acute pancreatitis or pseudo pancreatic cysts after acute pancreatitis

2-6 Chronic pancreatitis with symptoms or requiring treatment

2-7 Benign disease of digestive tract (esophageal or gastric varix, non-scarred gastric or duodenal ulcer, inflammatory bowel disease except during remission phase, etc.)

2-8 Current, past or suspected tumor

###### 3. Examination Procedures and Precautions

3-1 If any of the diseases described in subparagraph 2 above is suspected, detailed examination should be performed by blood test, imaging test, etc.

3-2 In case of chronic hepatitis or liver cirrhosis, attention should be paid to varix and bleeding tendency by taking into account the risk of sudden incapacitation.

###### 4. Evaluation Precautions

4-1 If the applicant has gastric and/or duodenal ulcers but they are demonstrated by endoscopic examination to have healed (S-stage), he/she is qualified. When an H2 blocker is prophylactically administered, he/she is qualified if no side effect of the drug is observed after healing of the ulcer (S-stage) is confirmed by endoscopic examination.

An applicant who uses antacids (excluding proton pump inhibitors and H2 blockers) or protective factor enhancing drugs is qualified when the disease conditions do not interfere with the performance of airman duties and there is no side effect. Use of an anticholinergic drug is a cause for disqualification.

4-2 If the applicant has a history of Crohn's disease or ulcerative colitis but is

unmedicated and is clinically in remission, and the disease is confirmed not to interfere with the performance of airman duties, he/she is qualified.

- 4-3 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."
- 4-4 With regard to an applicant with asymptomatic hepatic cirrhosis, he/she is qualified if the condition does not require treatment, is without varix and is classified as Child-Pugh score A.
- 4-5 If the applicant is a donor for living liver transplantation, he/she is qualified provided at least one month has passed after the surgery and the hepatic function has normalized without sequelae that may interfere with the performance of airman duties.

## 5. Notes

- 5-1 If the applicant is in a stable condition while being treated for chronic pancreatitis, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of blood tests and imagings, as well as clinical records.
- 5-2 An applicant with esophageal or gastric varices who is in a stable condition and has an extremely low risk of bleeding may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting clinical records of the primary disease and endoscopic findings .
- 5-3 An applicant who is in a stable condition while being treated for Crohn's disease or ulcerative colitis may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting clinical records including the details of treatments as well as an evaluation of the activity of the primary disease including symptoms and endoscopic findings.
- 5-4 An applicant who is in a stable condition while being treated for chronic hepatitis or liver cirrhosis may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting clinical records including the details of treatments, imagings, liver function, as well as the results of blood tests such as a coagulation system test and blood cell count.
- 5-5 If the applicant comes under the criteria described in subparagraphs 5-1 to 5-4 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

[Class 2]

5-6 If an applicant who received liver transplantation is doing well over a sufficiently long follow-up period after the surgery, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting clinical records including a description of the primary disease and the postoperative treatments, as well as a operative report and the results of current blood tests and imagings.

#### **4-2 Other Digestive Organ Diseases Requiring Surgery**

##### 1. Medical Standards

The applicant must have neither digestive organ diseases requiring surgery nor sequela e of surgery that may interfere with the performance of airman duties.

##### 2. Disqualifying Conditions

###### 2-1 Cholelithiasis

2-2 Abdominal internal- or external-hernia that may lead to the incarceration or strangulation of the part involved.

2-3 Conditions accompanied by hemorrhage producing anemia, pain requiring analgesic treatment or inflammation due to anal disease

2-4 Any of the following postoperative conditions:

(1) Insufficient period of postoperative observation

(a) Within 1 month of appendectomy or cholecystectomy (including laparoscopic extirpation)

(b) Within 1 month of surgery of abdomen, lumbus, pelvis or external hernia

(c) Within 3 months of excision of digestive tract (or within 1 month of laparoscopic excision of digestive tract)

(2) Colostomy, cutaneous ureterostomy, or ileal conduit diversion (urostomy)

(3) Sequela e of surgery that may interfere with the performance of airman duties (e.g., postoperative ileus, dumping syndrome)

##### 3. Examination Procedures and Precautions

The recovery progress after surgery should be confirmed by such examinations as blood tests and imagings, as necessary.

##### 4. Evaluation Precautions

- 4-1 With regard to cholelithiasis, if the applicant is asymptomatic requiring no treatment or is doing well after more than 1 month after surgery without sequelae, he/she is qualified.
- 4-2 After laparotomy, the recovery of abdominal wall motility should be confirmed and a careful evaluation should be made on such points as recovery of functions, sequelae thereof, and restrictions on exercise or diet.
- 4-3 In case of hernia that can be manually reducible or prevented from incarceration by means of a device (e.g., truss), the applicant is qualified if the site of the hernia is identified and it is confirmed that changes of posture do not cause incarceration or strangulation.
- 4-4 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."

#### 5. Notes

- 5-1 An applicant who is in a good condition while receiving treatment for cholelithiasis may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the details of treatments, as well as the results of imagings and blood tests.
- 5-2 An applicant who has undergone colostomy or urostomy may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting a report of the type, site and the condition of the pouch used.
- 5-3 If the applicant comes under the criteria described in subparagraph 5-1 or 5-2 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by the designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **5. BLOOD AND HEMATOPOIETIC ORGAN**

### **1. Medical Standards**

- (1) The applicant must have no anemia that may interfere with the performance of airman duties.
- (2) The applicant must have no disease of the blood or hematopoietic organ that may interfere with the performance of airman duties.
- (3) The applicant must have no disease with bleeding tendency that may interfere with the performance of airman duties.

### **2. Disqualifying Conditions**

- 2-1 Anemia that may interfere with the performance of airman duties
- 2-2 Acute leukemia
- 2-3 Myeloproliferative disease
- 2-4 Lymphoproliferative disease
- 2-5 Myeloma and related diseases
- 2-6 Hemostatic or clotting abnormality

### **3. Examination Procedures and Precautions**

If any of the disease described in subparagraph 2 above is suspected, the condition should be investigated through the administration of a blood test.

### **4. Evaluation Precautions**

- 4-1 If the applicant has anemia, the causal disease should be fully investigated.
- 4-2 Anemia that is asymptomatic at ground level may nevertheless interfere with the performance of airman duties when the person with anemia is exposed to hypobaric and hypoxic conditions. Taking this fact into account, the applicant should be evaluated carefully using a hemoglobin (Hb) level of 11 g/dl or hematocrit (Ht) level of 33% in males, and Hb of 9 g/dl and Ht of 27% in females as the lowest limits.
- 4-3 Since an elevated Ht level increases the viscosity of blood, thereby decreasing cerebral blood flow, the cause of the elevation should be investigated.
- 4-4 If the applicant has only a low platelet count without any primary disease, he/she is qualified provided there is no abnormality in the coagulation system.
- 4-5 If the applicant is a donor for bone marrow transplantation and has no anemia, thrombocytopenia or coagulation abnormality over a sufficiently long

observation period after the operation, he/she is qualified provided there are no sequelae that may interfere with the performance of airman duties.

#### 5. Notes

- 5-1 If the applicant has any of the disqualifying conditions listed in paragraph 2 above, but is in remission after receiving, or while receiving, treatment for the condition, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the details of treatments and the current conditions, as well as the results of relevant blood tests, bone marrow findings and imagings.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **6. KIDNEY AND UROGENITAL SYSTEM**

### **6-1 Kidney Diseases**

#### 1. Medical Standards

The applicant must have neither renal disease nor sequelae thereof that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 Acute nephritis or nephrotic syndrome
- 2-2 Kidney stone
- 2-3 Polycystic kidney disease
- 2-4 Current, past or suspected tumor
- 2-5 Less than 1 month since surgery
- 2-6 Hemodialysis, peritoneal dialysis or other blood purification for maintenance treatment
- 2-7 Past history of kidney transplantation
- 2-8 Renal function disorders

#### 3. Examination Procedures and Precautions

- 3-1 Confirmation should be made by employing urinary sediment, blood biochemical test, and imagings, as necessary.
- 3-2 Confirmation should be sought concerning renal function, as necessary.
- 3-3 Renal function disorder refers to a condition in which serum creatinine level exceeds 2.0 mg/dl.

#### 4. Evaluation Precautions

- 4-1 With regard to kidney stones, if the applicant has no pre-existing disease and has had all of his/her kidney stones removed completely either with or without treatment, or if he/she has no underlying disease, has no history of colic pain or macrohematuria and is unlikely to have pain attacks, he/she is qualified.
- 4-2 If the applicant has polycystic kidney disease, other organs should also be examined carefully. He/she is qualified if there are no subjective symptoms (abdominal pain, low back pain, macrohematuria, etc.), infection, renal dysfunction or significant complications involving other organs (e.g., cerebral aneurysm).

- 4-3 With regard to unilateral kidney (congenial or acquired), the applicant is qualified provided there is no infection, hypertension or renal dysfunction.
- 4-4 For current, past or suspected tumor, refer to “1. GENERAL, 1-3 Tumors.”

## 5. Notes

- 5-1 If the applicant is receiving, or has a history of receiving, treatment for nephritic syndrome that is currently stable, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including a description of the primary disease and the details of treatments, test results, etc.
- 5-2 An applicant with kidney stone may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting urinalysis results (including sediments), imagings, medical records including a report on the presence/absence of pre-existing disease, etc.
- 5-3 With regard to polycystic kidney disease, the applicant may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting results of a cranial imaging (evaluation of cerebral aneurysm, etc.), echocardiography, abdominal imaging (evaluation of hepatic cysts, pancreatic cysts, and diverticulum of large intestine), and various renal function tests.
- 5-4 If the applicant comes under the criteria described in subparagraphs 5-1 to 5-3 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

[Class 2]

- 5-5 An applicant who has a history of kidney transplantation, and has no restriction in the activities of daily living, no adverse drug reactions, no rejection reaction or infection, and whose renal function is stabilized (serum creatinine concentration =2.0 mg/dl), may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the record of surgery and other treatments , test findings, etc.

## **6-2 Urinary Diseases**

### 1. Medical Standards

The applicant must have neither urinary diseases nor sequelae thereof that may interfere with the performance of airman duties.

## 2. Disqualifying Conditions

2-1 Ureter stenosis or compression

2-2 Urolithiasis

2-3 Current, past or suspected tumor

2-4 Less than 1 month since surgery involving the urinary system (including transurethral electroresection (TUR))

## 3. Examination Procedures and Precautions

3-1 Examination should be performed with imagings, etc., as necessary.

Also, confirmation should be made by the diagnosis of a urologist.

3-2 A careful interview should be conducted with respect to urolithiasis.

## 4. Evaluation Precautions

4-1 With regard to urolithiasis, if the applicant has no underlying disease and is confirmed by an imaging test to have no stones remaining, either with or without treatment, he/she is qualified.

4-2 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."

## 5. Notes

5-1 An applicant with urolithiasis may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting urinalysis results (including sediments), imagings, medical records including the presence or absence of underlying disease and details of treatments, etc.

5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## 6-3 Genital Diseases

### 1. Medical Standards

The applicant must have neither genital disease nor sequelae thereof that may

interfere with the performance of airman duties.

## 2. Disqualifying Conditions

- 2-1 Inflammation requiring treatment
- 2-2 Current, past or suspected tumor
- 2-3 Prostatic hypertrophy requiring treatment
- 2-4 Less than 1 month since surgery involving the genital organs (including transurethral electroresection (TUR))
- 2-5 Menstrual disorders with mental symptoms or a significant pain, or endometriosis

## 3. Examination Procedures and Precautions

- 3-1 Examination should be made by imagings, etc., as necessary, and confirmation should be made by a gynecologist or a urologist.
- 3-2 Confirmation should be made by an interview as to whether or not the applicant has menstrual disorders.

## 4. Evaluation Precautions

- 4-1 Since ovarian mass may cause torsion, confirmation should be made by a gynecologist.
- 4-2 With regard to myoma uterus, the applicant will be qualified if there is no hemorrhage that may cause anemia, etc..
- 4-3 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."
- 4-4 In a case where the applicant takes an oral contraceptive agent (low dose pill) due to endometriosis, etc., she is qualified if she is confirmed by periodical checks to have no abnormality of thrombotic tendency, hepatopathy, abnormal blood pressure, etc. over a follow-up period of at least one month after starting the administration.

## 5. Notes

### **6-4 Pregnancy**

#### 1. Medical Standards

[Class 1]

The applicant is not pregnant.

[Class 2]

The applicant's pregnancy is at a stage or in a condition that does not interfere with the performance of airman duties.

## 2. Disqualifying Conditions

[Class 1]

Pregnancy

[Class 2]

- 2-1 Abnormal pregnancy (ectopic pregnancy, placenta previa, etc.)
- 2-2 Early stage of the pregnancy (up to the 15th week) and the last stage of pregnancy (on and after the 28th week)
- 2-3 Combined diseases (hyperemesis gravidarum, toxemia, etc.) that may interfere with airman duties, or symptoms of miscarriage or premature delivery

## 3. Examination Procedures and Precautions

- 3-1 An indication of whether the applicant is pregnant or not should be determined in an interview.

[Class 2]

- 3-2 During pregnancy, maternal and fetal conditions should be confirmed by a gynecologist (medical examination, echography, etc.).

## 4. Evaluation Precautions

- 4-1 Qualification of a pregnant applicant should be evaluated with due caution from the viewpoint of the health of the mother and the fetus as well as flight safety. Also, sufficient explanation should be given concerning the effect of airman duties on the mother and fetus.
- 4-2 If the applicant has recently given birth or experienced a miscarriage, her state of recovery should be determined by a gynecologist so as to confirm that her condition will not interfere with airman duties.

[Class 2]

- 4-3 For an applicant with a history of miscarriage, evaluation should be made with due caution.
- 4-4 Since the applicant may be psychologically unstable during the period of pregnancy and may have movement restrictions such as difficulty in fastening of safety belts due to expansion of the uterus, evaluation should be made with due caution.

## 5. Notes

## **7. MUSCULOSKELETAL SYSTEM**

### **7-1 Musculoskeletal Anomalies, Deformities, Defects or Dysfunction**

#### 1. Medical Standards

The applicant must have no musculoskeletal anomalies, deformities, defects or any dysfunction that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 Notable bone or joint anomaly, deformity, defect or dysfunction that may interfere with the performance of airman duties
- 2-2 Significant bone, muscle, tendon, nerve or joint disease or trauma or sequelae thereof that may interfere with the performance of airman duties
- 2-3 Total or partial defect in the extremities that may interfere with the performance of airman duties
- 2-4 Habitual dislocation

#### 3. Examination Procedures and Precautions

For muscle disorders, family history and past history of diseases of muscular, nervous and endocrinological systems should be investigated by means of an interview. Tests of the relevant areas should be performed to check for the presence of systemic diseases, as necessary.

#### 4. Evaluation Precautions

#### 5. Notes

- 5-1 If the applicant has any deformity, anomaly, defect or dysfunction of the musculoskeletal system such that is difficult to evaluate whether or not the condition interferes with the performance of airman duties, he/she should apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records as well as an evaluation of possible future changes in findings, the current range of motion, and motor function of muscles, etc.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided there is no possibility of changes in physical findings (e.g., defective recovery) and of interference with the performance of airman duties, he/she may

thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **7-2 Spine Diseases**

### **1. Medical Standards**

The applicant must have no disease or deformity in his/her spine that may interfere with the performance of airman duties.

### **2. Disqualifying Conditions**

Spinal fracture, dislocation, disc dissesaes, marked back pain and lumbago and other spinal disorders that may interfere with the performance of airman duties.

### **3. Examination Procedures and Precautions**

### **4. Evaluation Precautions**

### **5. Notes**

- 5-1 If the applicant has any disease or deformity of the spine such that it is difficult to evaluate whether or not the condition interferes with the performance of airman duties, he/she should apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records as well as an evaluation of possibility of future changes in findings, and current motor function.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided there is no possibility of changes in physical findings and of interference with the performance of airman duties, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **8. MENTAL CONDITION AND NERVOUS SYSTEM**

### **General Precautions for Diagnosis**

1. The diagnosis of psychiatric or nervous disorders, which mainly concerns the important mental requirements of all medical standards, should be made by collecting as much objective information as possible about the past history, hereditary history disease, personal history and behavior of the applicant. Such objective data are indispensable in such a case, which requires particularly careful consideration.
2. When examining the past history of the applicant, special attention should be paid to condition at birth, postnatal growth, febrile disease, traffic accident, head trauma, episodes of convulsion or syncope, and insomnia.
3. When examining the history of hereditary disease, attention should be paid to the existence of such behaviors or disorders in near consanguinity as suicide, problem behavior, mental disease, neurosis, epilepsy, migraine and nervous disorder.
4. When interviewing the applicant, his/her expression, behavior and speech should be carefully observed.
5. With regard to personality, diagnoses should be made on tendencies toward excessive sensitivity, obsession, showing off, dysthymia, explosive character, weakness of will and asthenic character, and also special attention should be paid to objective data concerning adaptation to the family, school and society.
6. The interview with the applicant should be supplemented by a range of mental tests as necessary.
7. If the applicant has, or is suspected to have, organic or functional brain disorder, such examinations as detailed neurological examination, electroencephalography(EEG) and imagings, or various kinds of psychological tests should be performed as necessary.
8. The numbers indicated in parentheses after the names of diseases of disqualifying conditions are those used in the International Classification of Diseases, 10th Edition

(ICD 10), and the diagnostic criteria for these disease comply with the guidance of ICD 10. The list of diagnostic categories is attached to this manual as Appendix 2.

9. EEG should be obtained in the initial aviation medical examination, in the first aviation medical examination performed after receiving an impact to the head due to an aircraft accident or any other accident, or whenever judged necessary for the purpose of diagnosis. (The EEG used should comply with JIS (i.e. Japanese Industrial Standard) specifications.) It is desirable that the EEG obtained in the first examination be retained for possible later reference.

In the EEG, resting records using unipolar and bipolar leads as well as hyperventilation load, photic stimulation and sleep EEG should be obtained. Detailed procedures are attached to this manual as Appendix 1-1.

## **8-1 Mental Disorders, Neuroses**

### 1. Medical Standards

The applicant must have neither significant mental disorder nor a history of such.

### 2. Disqualifying Conditions

- 2-1 Organic, including symptomatic, mental disorders (F0) or history thereof
- 2-2 Schizophrenia, schizotypal and delusional disorders (F2) or history thereof
- 2-3 Mood (affective) disorders (F3) or history thereof
- 2-4 Neurotic, stress-related and somatoform disorders (F4) or history thereof
- 2-5 Behavioral syndromes associated with physiological disturbances and physical factors (F5), or history thereof

### 3. Examination Procedures and Precautions

See "General Precautions for Diagnosis."

### 4. Evaluation Precautions

If the applicant has, or is suspected to have, a history of any conditions listed in subparagraphs 2-1 through 2-5 above, he/she should be carefully examined with respect to the status of present recovery and the possibility of recurrence.

### 5. Notes

- 5-1 An applicant with any of the diseases listed in subparagraphs 2-3, 2-4 and 2-5

above, if judged to have recovered with respect to physical and psychological conditions, may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical reports including current status, details of treatments and the results of psychological test, etc.

- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, and provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress to an extent that may interfere with the performance of airman duties, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **8-2 Personality Disorders and Behavioral Disorders**

### **1. Medical Standards**

The applicant must have neither personality disorders nor behavioral disorders, or a history thereof.

### **2. Disqualifying Conditions**

- 2-1 Disorders of adult personality and behavior (F6) or history thereof  
2-2 Behavioral and emotional disorders with onset usually occurring in childhood and adolescence (F9), or history thereof

### **3. Examination Procedures and Precautions**

- 3-1 See "General Precautions for Diagnosis."  
3-2 An applicant with a history of behavioral problems such as attempted suicide, autolesion, abscondence, vagabondism, misconduct or criminal offence should be carefully examined with respect to their motives and circumstances.

### **4. Evaluation Precautions**

If an applicant has exhibited any of the behavioral problems mentioned in subparagraph 3-2 above and is considered to have a risk of exhibiting similar behavioral problems in the future, he/she should be disqualified.

### **5. Notes**

## **8-3 Drug Dependence and Alcoholism**

#### 1. Medical Standards

The applicant must have neither drug dependence nor alcohol dependence, or a history thereof.

#### 2. Disqualifying Conditions

Mental and behavioral disorders due to psychoactive substance use (F1), or history thereof

#### 3. Examination Procedures and Precautions

#### 4. Evaluation Precautions

"Drugs" refers to narcotics, tranquilizers, hypnotics, hallucinogenic agents, volatile solvents, and other psychotropic agents.

#### 5. Notes

- 5-1 If the applicant with a history of alcohol dependence is doing well after recovery from the dependence, he/she may apply, after receiving a sufficient follow-up monitoring, for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the details of treatments .
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress to an extent that may interfere with the performance of airman duties, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **8-4 Epilepsy**

#### 1. Medical Standards

The applicant must have neither epilepsy nor a history of epilepsy.

#### 2. Disqualifying Conditions

- 2-1 Epilepsy (generalized seizure or partial seizure) or a history of epilepsy
- 2-2 Electroencephalogram containing spikes, spike and slow wave complex, marked localized slow wave, or significant abnormality of basic rhythm

### 3. Examination Procedures and Precautions

- 3-1 Any history of epilepsy, and whether or not the brain wave abnormalities listed in subparagraph 2-2 above were noted in the past, should be confirmed in an interview.
- 3-2 Examinations such as EEG, imagings and neurological inspection should be performed as necessary, and the condition of the applicant should be confirmed by the diagnosis of a neuropsychiatrist or a neurologist.

### 4. Evaluation Precautions

With regard to spikes mentioned in subparagraph 2-2 above, positive spikes of 14 Hz or 6 Hz will not disqualify the applicant.

### 5. Notes

## **8-5 Disturbance of Consciousness, etc.**

### 1. Medical Standards

The applicant must have no disturbance of consciousness or convulsive seizures, or history thereof.

### 2. Disqualifying Conditions

- 2-1 Disturbance of consciousness or its history
- 2-2 Convulsive seizures or history thereof

### 3. Examination Procedures and Precautions

- 3-1 Any history of disturbance of consciousness and convulsive seizures should be confirmed in an interview.
- 3-2 Examinations such as EEG, imagings, neurological examinations, examination of the autonomic nervous system, and examination of the cardiovascular system should be performed as necessary, and the condition of the applicant should be confirmed by a psychiatrist, a neurologist or a cardiologist.

### 4. Evaluation Precautions

- 4-1 An applicant with a history of transient convulsive seizures, loss of consciousness etc. in his/her childhood should be carefully diagnosed.

- 4-2 For an applicant with a history of febrile convulsion in childhood under 5 years, a detailed examination on subsequent convulsive seizures is required. If the applicant has never had a seizure since the one experienced before the age of 5 years and shows no abnormality in EEG, he/she is qualified.
- 4-3 In the case of an applicant with posttraumatic disturbance of consciousness, he/she is qualified if the duration of the disturbance is less than 5 minutes and there are no higher brain function abnormality and no sequelae that may interfere with the performance of airman duties after a follow-up period of 3 months.

#### 5. Notes

- 5-1 If an applicant has a history of any of the conditions listed in paragraph 2 above but is doing well, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including a description of the primary disease and the current status, as well as the results of EEG and, if necessary, imagings.
- 5-2 If an applicant with a history of treatment with an oral anticonvulsant drug after trauma or surgery is doing well over a follow-up period of two years after the discontinuation of the medication, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including a detailed record of the trauma or surgery and the details of the treatments, as well as the results of EEG, imagings, etc.
- 5-3 If the applicant comes under the criteria described in subparagraph 5-1 or 5-2 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **8-6 Head Injuries**

#### 1. Medical Standards

The applicant must have no history of a head injury or sequelae thereof that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 History of cerebral contusion as detected by imaging (including intracranial

hemorrhage) or skull fracture.

- 2-2 Manifestation of traumatic epilepsy, cranial nerve dysfunction, motor disturbance, intelligence impairment, defects of memory or personality disorder as sequelae
- 2-3 History of disturbed consciousness accompanying trauma

### 3. Examination Procedures and Precautions

- 3-1 The medical records of any such injury and the subsequent treatment should be carefully examined.
- 3-2 The status of sequelae should be confirmed by a neurosurgeon, a neurologist, or a psychiatrist as necessary.
- 3-3 For disturbance of consciousness after cranial trauma, refer to "8. MENTAL CONDITION AND NERVOUS SYSTEM, 8-5 Disturbance of Consciousness, etc."

### 4. Evaluation Precautions

An applicant with a history of skull fracture is qualified if there are neither cerebral contusions nor sequelae that may interfere with the performance of airman duties.

### 5. Notes

- 5-1 If an applicant with any of the conditions listed in paragraph 2 above is doing well, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including neurological findings as well as imagings, EEG, etc.
- 5-2 An applicant who comes under the criteria described in subparagraph 5-1 above and is doing well after a sufficiently long follow-up period, with conditions not expected to progress, may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.
- 5-3 For the handling of an applicant with a history of treatment with an oral anticonvulsive drug after head injury, refer to "8. MENTAL CONDITION AND NERVOUS SYSTEM, 8-5 Disturbance of Consciousness, etc."

## **8-7 Disorders of Central Nervous System**

### 1. Medical Standards

The applicant must have neither a significant disorder of the central nervous system

nor a history thereof.

## 2. Disqualifying Conditions

- 2-1 Inflammatory diseases such as encephalitis and meningitis, or history thereof
- 2-2 Cerebrospinal vascular diseases such as cerebral infarction, cerebral hemorrhage, subarachnoid hemorrhage and cerebral aneurysm, or history thereof
- 2-3 Metabolic and toxic diseases or history thereof
- 2-4 Current, past, or suspected tumor
- 2-5 Degenerative diseases or history thereof
- 2-6 Demyelinating diseases or history thereof
- 2-7 History of surgery on the central nervous system
- 2-8 Migraine or chronic headache that may interfere with the performance of airman duties
- 2-9 Prion disease

## 3. Examination Procedures and Precautions

If any condition mentioned in paragraph 2 above is suspected, the applicant should be carefully examined. Detailed examination should be performed using imaging tests, etc., if necessary.

## 4. Evaluation Precautions

- 4-1 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."
- 4-2 An applicant with a history of meningitis is qualified if confirmed throughout the follow-up period not to have symptoms of brain parenchyma such as disturbance of consciousness and paralysis, abnormality in EEG, or sequelae of neurological symptoms.
- 4-3 For pituitary tumor, also refer to "1. GENERAL, 1-5 Endocrine and Metabolic Diseases."

## 5. Notes

- 5-1 If an applicant with a history of inflammatory disease such as encephalitis and meningitis is doing well, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting an imaging of the head, an EEG and its findings, and medical records including the current neurological findings, etc.

- 5-2 If an applicant with a history of cerebral infarction or transient cerebral ischemic attack is doing well without any sequelae that may interfere with the performance of airman duties, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting an imaging such as cranial MRI, an EEG and its findings, medical records including current neurological findings and treatments, evaluation of the cardiovascular system, and an evaluation of risk factors (smoking habit, hyperlipidemia, obesity, hypertension, diabetes mellitus, etc.) , etc.
- The same applies to an applicant with asymptomatic cerebral infarction and asymptomatic cerebral arteriosclerosis. For the diagnosis of asymptomatic cerebral infarction, refer to “The Diagnostic Criteria for Asymptomatic Cerebrovascular Disorders (Appendix 1-3).
- 5-3 If an applicant with a history of intracranial bleeding such as cerebral hemorrhage and subarachnoid hemorrhage is doing well without any sequelae that may interfere with the performance of airman duties, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting an imaging, an EEG and its findings, medical records including the cause of the disease, current neurological findings and treatments, an evaluation of risk factors, etc.
- 5-4 If the applicant is doing well after surgery on the central nervous system, without any sequelae that may interfere with the performance of airman duties, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including a description of the primary disease, current neurological findings and treatments, a record of the surgery, results of an imaging before and after surgery, and an EEG and its findings. The same applies to an applicant who has received endovascular treatment or gamma knife treatment.
- 5-5 If the applicant has an aneurysm that is extremely unlikely to rupture and therefore does not require treatment, and has no abnormality in neurological findings, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the cranial imaging (evaluation of the diameter and the site of the aneurysm), an EEG and its findings, detailed medical records including current neurological findings and changes in blood pressure over time, along with the opinion of the neurosurgeon on the treatment .
- 5-6 If an applicant is doing well while receiving treatment for headache, he/she may

apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the EEG and its findings, an imaging, and medical records including treatments, etc.

- 5-7 If the applicant comes under the criteria described in subparagraphs 5-1 to 5-6 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **8-8 Disorders of Peripheral and Autonomic Nervous Systems**

### 1. Medical Standards

The applicant must have no disorder of the peripheral or autonomic nervous system that may interfere with the performance of airman duties.

### 2. Disqualifying Conditions

- 2-1 Disorders of the peripheral nervous system that may interfere with the performance of airman duties
- 2-2 Disorders of the autonomic nervous system that may interfere with the performance of airman duties
- 2-3 Paroxysmal or recurrent neuromuscular diseases that may interfere with the performance of airman duties

### 3. Examination Procedures and Precautions

### 4. Evaluation Precautions

With regard to the condition mentioned in paragraph 2 above, if its symptoms are benign and are considered not to interfere with the performance of airman duties, the applicant is qualified.

### 5. Notes

## **9. OPHTHALMOLOGY**

### **9-1 Extraocular Region or Ocular Adnexa**

#### **1. Medical Standards**

The applicant must have no disease or dysfunction in the extraocular region or ocular adnexa that may interfere with the performance of airman duties.

#### **2. Disqualifying Conditions**

- 2-1 Diseases or dysfunctions in the eyelid, conjunctiva, lacrimal apparatus, orbit or cornea that may interfere with the performance of airman duties
- 2-2 Current, past or suspected tumor
- 2-3 History of refractive surgery
- 2-4 Correction with orthokeratology (correction of refraction using contact lenses)

#### **3. Examination Procedures and Precautions**

- 3-1 The applicant should be thoroughly interviewed, including being questioned about any subjective symptoms, past history, etc.
- 3-2 Slit-lamp microscopy should be performed for the initial aviation medical examination. Subsequent examinations are also to be performed using a slit-lamp microscope, as necessary.

#### **4. Evaluation Precautions**

- 4-1 As for a conical cornea, if sufficient visual performance can be achieved by spectacles, the applicant is qualified.
- 4-2 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."

#### **5. Notes**

- 5-1 In the case of an applicant with a history of refractive surgery who has been in a stable condition for more than six months after the surgery and meets the criteria for visual functions, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting a record of clinical progress including a record of the surgery and the results of the following tests:
  - (1) Diurnal variation of visual acuity (results of 3 or more measurements within the same day)
  - (2) Contrast sensitivity

- (3) Glare test
- (4) Analysis of corneal shape
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **9-2 Glaucoma**

### **1. Medical Standards**

The applicant must not have glaucoma.

### **2. Disqualifying Conditions**

- 2-1 Closed-angle glaucoma
- 2-2 Open-angle glaucoma
- 2-3 Normotensive glaucoma

### **3. Examination Procedures and Precautions**

- 3-1 A measurement of intraocular tension should be performed at the initial aviation medical examination, and at the first aviation medical examination after reaching the age of 40, and thereafter at intervals of one year from the previous examination. Intraocular tension should also be measured whenever deemed necessary, such as when the elevation of intraocular tension is observed or glaucoma is suspected.
- 3-2 An applanation tonometer or a noncontact tonometer should be used for the measurement of intraocular tension.
- 3-3 An applicant with an intraocular tension of 22 mmHg or above should be examined carefully for qualification.

### **4. Evaluation Precautions**

- 4-1 If glaucoma is suspected from subjective symptoms, intraocular tension, or findings on the optic papilla or visual field, the condition should be confirmed by an ophthalmologist. If the applicant has ocular hypertension but not glaucoma, he/she is qualified.
- 4-2 If the applicant has a past history of uveitis, crystalline lens disease or ocular

trauma, due attention should be paid as these may be associated with an elevation of intraocular tension.

- 4-3 If there is a suspected risk of closed-angle glaucomatous attack, the condition should be examined carefully.

#### 5. Notes

- 5-1 If an applicant is receiving or has undergone treatment for glaucoma, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the details of treatments (including intraocular tension and visual field test).
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **9-3 Optic Media, Fundus and Visual Pathway**

#### 1. Medical Standards

The applicant must have no disturbance of the optic media, fundus or visual pathway that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 Lens diseases (including cataract)
- 2-2 Uveitis (including iritis and cyclitis)
- 2-3 Diseases of retina and choroid
- 2-4 Diabetic retinopathy
- 2-5 Optic nerve diseases

#### 3. Examination Procedures and Precautions

- 3-1 The applicant should be interviewed and questioned about subjective symptoms at the examination.
- 3-2 A slit-lamp microscope should be employed for the examination of the optic media in the first aviation medical examination. Subsequent examinations are also to be performed using a slit-lamp microscope, as necessary.
- 3-3 Examination of the fundus should be performed with direct or indirect

ophthalmoscopy.

#### 4. Evaluation Precautions

- 4-1 An applicant with cataract(s) will be qualified if his/her visual function meets the criteria.
- 4-2 An applicant who has received laser therapy or any other treatment for posterior capsule opacification is qualified if his/her visual functions meet the criteria.
- 4-3 If an applicant has a past history of uveitis, attention should be paid to its recurrence, and an abnormality-free state of intraocular tension should be confirmed. If the condition does not require treatment and visual performance meets the criteria, the applicant is qualified.
- 4-4 In the examination of the fundus, retinal findings (bleeding, vitiligo, etc.) and optic papilla should be examined with due caution.
- 4-5 With regard to retinal detachment, if the findings have stabilized after treatment and visual performance meets the criteria, the applicant is qualified.
- 4-6 Regarding diabetic retinopathy, if the condition is simple background retinopathy and visual performance meets the criteria, the applicant is qualified.

#### 5. Notes

- 5-1 If an applicant who has undergone cataract surgery meets the criteria for visual function with an intraocular lens (artificial crystalline lens ) or contact lens, and has done well for more than 3 months of a follow-up period after the surgery, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records including the records of surgery and other treatments, and test results of binocular vision.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **10. VISION**

### **10-1 Distant Visual Acuity**

#### 1. Medical Standards

[Class 1]

The applicant must meet either condition A or B set forth below. However, condition B applies only to those airmen whose medical certificates require them to wear corrective spectacles (a set used routinely while performing airman duties) and to carry a spare set of spectacles .

- A. The distant visual acuity must be 0.7 or better in each eye separately and 1.0 or better with both eyes without correction.
- B. The distant visual acuity can be corrected to 0.7 or better in each eye separately and 1.0 or better with both eyes by wearing spectacles, each lens of which has a refraction index of less than ( $\pm$ ) 8 diopters.

[Class 2]

The applicant must meet either condition A or B set forth below. However, condition B applies only to those airmen whose medical certificates require them to wear corrective spectacles (a set used routinely while performing airman duties) and to carry a spare set of spectacles.

- A. Each eye must have distant visual acuity of 0.7 or better without correction.
- B. The distant visual acuity of each eye can be corrected to 0.7 or better by wearing spectacles, each lens of which has a refraction index of less than ( $\pm$ ) 8 diopters.

#### 2. Disqualifying Conditions

- 2-1 Conditions that do not meet the above criteria
- 2-2 Correction with orthokeratology (correction of refraction using contact lenses)
- 2-3 History of refractive surgery

#### 3. Examination Procedures and Precautions

- 3-1 The illumination level on the test chart should be 80 to 300 cd/m<sup>2</sup>.
- 3-2 The room illumination level should be 50 lux or more. It should not be higher than the illumination level on the test chart when a testing device equipped with a light source, such as a rotating single optotype, is used.
- 3-3 Distance for measurement should be 5 m.

- 3-4 The test symbols should be Landolt rings and should preferably be of the rotary, single type.
- 3-5 The criterion for visual acuity level is a correct answer rate of 60% or more in the reading of 5 test symbols or more.
- 3-6 The contact lenses are acceptable as corrective spectacles. The applicant who wears contact lenses should meet the distant visual requirements with the contact lenses. When the applicant wears contact lenses for the first time, an adaptation period of one month or more should be required.
- 3-7 The refractive index of corrective spectacles worn while performing airman duties should be calculated by equivalent spherical diopter. If the applicant wears contact lenses, the refraction index of the spare set of spectacles is acceptable.

#### 4. Evaluation Precautions

With regard to an applicant with a history of orthokeratology or refractive surgery, see "9. OPHTHALMOLOGY, 9-1 Extraocular Region or Ocular Adnexa."

#### 5. Notes

If the applicant needs to wear corrective glasses while performing airman duties, he/she must meet the criteria for both intermediate and near visual acuity while wearing the glasses. Bifocal contact lenses must not be used. Also, colored contact lenses should not be used.

### **10-2 Intermediate Visual Acuity**

#### 1. Medical Standards

[Class 1]

The applicant must be able to read 0.2 or smaller test symbols (for 30 cm near-vision test) with each eye at a distance of 80 cm with or without his/her corrective spectacles.

#### 2. Disqualifying Conditions

#### 3. Examination Procedures and Precautions

[Class 1]

- 3-1 For test conditions, follow the instructions for distant visual acuity.
- 3-2 The criterion for the visual acuity level is a correct answer rate of 60% or more in

the reading of 5 or more test symbols.

#### 4. Evaluation Precautions

#### 5. Notes

- 5-1 For an applicant who does not need to wear glasses while performing airman duties, if he/she needs to wear corrective spectacles to meet the criteria for intermediate visual acuity, the requirement to carry the corrective spectacles and a spare set of spectacles should be included in the aviation medical certificate.
- 5-2 If the applicant needs to wear corrective spectacles while performing airman duties, he/she must meet the criteria for distant visual acuity while wearing the spectacles. The corrective spectacles may be “lookover” spectacles, bifocal lenses, trifocal lenses, or multifocal lenses. Flip-up spectacles may also be used, but the applicant must meet the criteria for distant vision with the spectacles flipped up.

### **10-3 Near Visual Acuity**

#### 1. Medical Standards

The applicant can read 0.5 or smaller test symbols (for 30 cm near-vision test) with each eye at a selected distance within the range of 30 to 50 cm with or without his/her corrective spectacles.

#### 2. Disqualifying Conditions

#### 3. Examination Procedures and Precautions

- 3-1 For the test conditions, follow the instructions for distant visual acuity.
- 3-2 The criterion for a visual acuity level is a correct answer rate of 60% or more in the reading of 5 or more test symbols.

#### 4. Evaluation Precautions

#### 5. Notes

- 5-1 If an applicant who does not need to wear spectacles while performing airman duties needs to wear corrective spectacles to meet the criteria for near visual acuity, a requirement to carry the corrective spectacles and a spare set of

spectacles should be included in the aviation medical certificate.

- 5-2 If the applicant needs to wear corrective spectacles while performing airman duties, he/she must meet the criteria for distant visual acuity while wearing the spectacles. The corrective spectacles may be “lookover” spectacles, bifocal lenses, trifocal lenses, or multifocal lenses. Flip-up spectacles may also be used, but the applicant must meet the criteria for distant vision with the spectacles flipped up.

## **10-4 Binocular Vision**

### 1. Medical Standards

The applicant must have no abnormal binocular vision that may interfere with the performance of airman duties.

### 2. Disqualifying Conditions

#### 2-1 Strabismus

[Class 1]

#### 2-2 Anisometropia

#### 2-3 Abnormal convergent or divergent movement

### 3. Examination Procedures and Precautions

- 3-1 Phorometry should be performed using a prism and covering each eye in turn. The Maddox-rod cover test or other equivalent test may also be used. For an applicant in Class 2, the test should be performed in the initial aviation medical examination.

[Class 1]

- 3-2 If the difference of refraction between the two eyes shows 2 diopters or more, the condition should be handled as anisometropia.
- 3-3 As the point of convergence, either the point at which the lines of vision begin to diverge or the point at which the object begins to look double may be acceptable. As an expedient test, when approaching the tip of an applicant's nose with a penlight, the point at which the penlight begins to look double or the lines of vision begin to diverge may be assumed as the near point of convergence. If the distance from that point to the eye surface thus measured is 100 mm or less, the case is judged to be normal.

#### 4. Evaluation Precautions

- 4-1 If any of the disqualifying conditions listed in paragraph 2 above is suspected, the condition should be confirmed by the diagnosis of an ophthalmologist.
- 4-2 With respect to antimetropia, the applicant is qualified if the depth perception is normal. The normal range for a depth perception test is as follows:  
The mean of 5 measured values is 30 mm or less with 2-rod device  
The mean of 5 measured values is 20 mm or less with 3-rod device

#### 5. Notes

[Class 1]

If the applicant has a disqualifying condition shown in subparagraph 2 above, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of visual acuity, refraction, position of eye, near point of convergence, binocular function test (prism test, major amblyoscope, depth perception, etc.).

### **10-5 Visual Field**

#### 1. Medical Standards

The applicant must have no abnormality of the visual field that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

- 2-1 Constriction of 15° or larger radially from normal visual field on the largest isopter (V/4) in the visual field test
- 2-2 Scotoma detected by visual field test using I/4

#### 3. Examination Procedures and Precautions

- 3-1 The test should be performed using a kinetic quantitative perimeter (Goldmann perimeter) for each 15° or less on isopters of V/4 and I/4.
- 3-2 The normal visual field should have a range at least as great as the following values on the largest isopter.  
Upwards 60°, Out-upwards 75°, Outwards 95°, Out-downwards 80°, Downwards 70°, In-downwards 60°, Inwards 60°, In-upwards 60°
- 3-3 If a Goldmann perimeter is not available for use, a quantitative perimeter such

as an automated perimeter that allows the measurement of peripheral vision should be used. If, as a result, decreased sensitivity is suspected, the applicant should apply for the judgment of the Minister of Land, Infrastructure and Transport according to the procedure described in “5. Note.”

#### 4. Evaluation Precautions

If an abnormal visual field is suspected, the applicant should be diagnosed by an ophthalmologist.

#### 5. Notes

5-1 If the applicant has any of the disqualifying conditions listed in paragraph 2 above, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of visual field test (to be performed using at least 5 isopters), results of visual tests during the past two years, intraocular tension, fundus findings, subjective symptoms, clinical findings, etc.

5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **10-6 Eye Movement**

#### 1. Medical Standards

The applicant must have no abnormality in eye movement that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

2-1 Diplopia

2-2 Abnormal nystagmus

2-3 Other abnormalities in eye movement

#### 3. Examination Procedures and Precautions

3-1 Eye movement tests should be performed in eight directions (inwards, outwards, upwards, downwards, upwardly inwards, upwardly outwards, downwardly

inwards, downwardly outwards).

3-2 If any abnormality is revealed by the above tests, either one of the following should be performed.

(1) Diplopia test

(2) Visual field of fixation test

#### 4. Evaluation Precautions

4-1 An applicant is qualified if no diplopia is found and the visual field of fixation extends 45° or more in all directions (8 directions) as shown by the tests mentioned in subparagraph 3-2 above.

4-2 If nystagmus is suspected, follow the instructions in “11. OTO-RHINO-LARYNGOLOGY, 11-2 Equilibrium.”

#### 5. Notes

5-1 If the applicant has any of the disqualifying conditions listed in paragraph 2 above, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of the visual function test and of the diplopia test (e.g., hess chart).

5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **10-7 Color Sense**

#### 1. Medical Standards

The applicant must have no abnormality of color perception that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

Deviations from the normal range in the Ishihara pseudoisochromatic plate test

#### 3. Examination Procedures and Precautions

3-1 The color vision test should be performed using the Ishihara pseudoisochromatic plate (the color blindness test chart for use in schools should not be used), in the

initial aviation medical examination as a general rule.

- 3-2 The color vision test chart should not be faded or discolored.
- 3-3 Illumination during the color vision test should be provided by natural light or equivalent artificial light.
- 3-4 Attention should be paid to acquired color vision abnormalities.

#### 4. Evaluation Precautions

#### 5. Notes

- 5-1 If the applicant has any of the abnormalities listed in paragraph 2 above, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of the panel D-15 test.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, but the condition neither poses a risk of interfering with the performance of airman duties, nor is expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **11. OTO-RHINO-LARYNGOLOGY**

### **11-1 Internal Ear, Middle Ear and External Ear**

#### 1. Medical Standards

The applicant must have no disease of the internal ear, middle ear (including the mastoid process) or external ear that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

##### 2-1 Internal Ear, Middle Ear and External Ear

- (1) Middle ear cholesteatoma
- (2) Meniere's disease
- (3) Sudden hearing loss
- (4) Perilymphatic fistula (rupture of inner ear window)
- (5) Benign paroxysmal positional vertigo
- (6) Current, past or suspected tumor
- (7) Inflammatory disease that may interfere with the performance of airman duties

##### 2-2 Other

- (1) Acoustic tumor and other tumors of cerebellopontile angle
- (2) Vestibular neuronitis

#### 3. Examination Procedures and Precautions

- 3-1 Since disease of the internal or middle ear may cause dizziness, careful confirmation should be made of the past history.
- 3-2 Confirmation should be made by an otorhinolaryngologist, if necessary.
- 3-3 For Meniere's disease, benign paroxysmal positional vertigo, and vestibular neuronitis, also refer to "11. OTO-RHINO-LARYNGOLOGY, 11-2 Equilibrium."

#### 4. Evaluation Precautions

- 4-1 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."
- 4-2 With regard to sudden hearing loss, if the applicant has no abnormality of equilibrium and meets the criteria for hearing acuity, he/she is qualified.
- 4-3 In the case of benign paroxysmal positional vertigo, if it was an isolated attack and subjective symptoms disappeared after the attack, and if neither a

nystagmus test nor an equilibrium function test detects abnormality, the applicant is qualified.

[Class 1]

4-4 Even in cases where the diseases listed in subparagraph 2-1 above have been clinically cured, the applicant should be disqualified if he/she has a history of stapes surgery.

However, if the surgical method employed was small fenestra stapedectomy, and it was performed more than six months before, and provided the applicant has no abnormality in equilibrium and meets the criteria for hearing acuity, he/she is qualified.

5. Notes

5-1 If an applicant has any of the disqualifying conditions listed in paragraph 2 above but is doing well, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting medical records as well as the results of hearing test, equilibrium function test, etc.

5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

## **11-2 Equilibrium**

1. Medical Standards

The applicant must have no disequilibrium.

2. Disqualifying Conditions

2-1 Vertigo and its history

2-2 Disequilibrium due to impairment of the internal ear or central nervous system, and history thereof

2-3 Motion sickness

2-4 Abnormal nystagmus

3. Examination Procedures and Precautions

- 3-1 A nystagmus test should be performed by visual inspection in the median and 4 different directions (right, left, upward, downward).
- 3-2 Spontaneous nystagmus and positional nystagmus tests  
These tests should be performed if nystagmus is suspected from the visual inspection in 3-1.  
[Procedure]  
Spontaneous nystagmus and gaze nystagmus tests, and positional nystagmus test with Frenzel glasses are performed.  
[Criterion for Judgment]  
When nystagmus is demonstrated, the applicant is disqualified.
- 3-3 If disequilibrium is suspected, the condition should be evaluated by performing relevant tests among those listed in Appendix 1-2.
- 3-4 The term "motion sickness" means disequilibrium or significant "air sickness" of mental cause, and the possibility of risk should be explored carefully during an interview.

#### 4. Evaluation Precautions

- 4-1 If any of the disqualifying conditions is suspected, a close examination should be performed by an otorhinolaryngologist.
- 4-2 For an applicant with a history of vertigo or of equilibrium dysfunction caused by impairment of the inner ear or the central nervous system, if the attack was an isolated event without any underlying disease, and provided the symptom has disappeared and neither the nystagmus test nor the equilibrium function test revealed abnormality, he/she is qualified.

#### 5. Notes

- 5-1 If an applicant has any of the disqualifying conditions listed in paragraph 2 above, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of a nystagmus test (using Frenzel glasses or infrared CCD camera), a deviation test (any of tests listed in Appendix 1-3), and electronystagmography (ENG).
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, and provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land,

Infrastructure and Transport.

### **11-3 Tympanic Membrane**

#### 1. Medical Standards

The applicant must have no abnormality of the tympanic membrane that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

2-1 Active lesions such as otorrhea, redness of tympanic membrane and otodynia

2-2 Fistula symptoms, namely conditions posing a risk of vertigo caused by change in atmospheric pressure.

#### 3. Examination Procedures and Precautions

3-1 The tympanic membrane should be examined by otoscopy.

3-2 For diagnosis of fistula symptoms, pressurize the external canal by closing with a finger to check for the presence of vertigo or nystagmus. The condition should be confirmed by an otorhinolaryngologist as necessary.

#### 4. Evaluation Precautions

If the tympanic membrane has a perforation or an ear tube has been inserted, the applicant is qualified if there is no decrease of hearing exceeding the standard and there is no symptom described in paragraph 2 above.

#### 5. Notes

### **11-4 Eustachian Tube**

#### 1. Medical Standards

The applicant must have no tubal dysfunction

#### 2. Disqualifying Conditions

2-1 Tubal obstruction

2-2 Patulous tube

#### 3. Examination Procedures and Precautions

If tubal dysfunction is suspected from otodynia or sensation of ear block caused by change in atmospheric pressure, autophonia, or awareness of breath sound, the condition should be confirmed by an otorhinolaryngologist.

#### 4. Evaluation Precautions

#### 5. Notes

- 5-1 If an applicant has any of the disqualifying conditions listed in paragraph 2 above, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting the results of tympanometry, etc.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with conditions not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **11-5 Nasal cavity, Paranasal Sinus and Laryngopharynx**

#### 1. Medical Standards

The applicant must have no disease of the nasal cavity, paranasal sinus or laryngopharynx that may interfere with the performance of airman duties.

#### 2. Disqualifying Conditions

##### 2-1 Nasal cavity and paranasal sinus

- (1) Allergic rhinitis accompanied by severe nasal congestion
- (2) Progressive nasal gangrene
- (3) Current, past or suspected tumor
- (4) Inflammatory diseases that may interfere with the performance of airman duties

##### 2-2 Pharynx

- (1) Palatoplegia
- (2) Pharyngeal trauma with sequelae
- (3) Laryngostenosis
- (4) Vocal cord paralysis
- (5) Current, past or suspected tumor

### 3. Examination Procedures and Precautions

If any disease is suspected from the findings in the nasal cavity or paranasal sinus, examinations such as imaging tests should be performed to confirm the diagnosis.

### 4. Evaluation Precautions

4-1 For allergic rhinitis, refer to "1. GENERAL, 1-7 Allergic Diseases."

4-2 With regard to subparagraphs 22 (1)-(4) above, the applicant is qualified if he/she has no severe speech and language disorder or articulation disorder, is able to conduct voice communication and there is no risk that any disability may interfere with the duties of an airman.

4-3 For current, past or suspected tumor, refer to "1. GENERAL, 1-3 Tumors."

4-4 Refer to "1. GENERAL, 1-6 Rheumatism Disease, Collagen Disease or Immunodeficiency Disease" and "5. BLOOD AND HEMATOPOIETIC ORGAN", as necessary.

### 5. Notes

## 11- 6 Nasal Septum

### 1. Medical Standards

The applicant must have no deformity of the septum that markedly obstructs the passage of air through the nasal cavity.

### 2. Disqualifying Conditions

Advanced deformity of the septum

### 3. Examination Procedures and Precautions

### 4. Evaluation Precautions

If rhinoscopy reveals an abnormality of nasal cavity morphology that markedly obstructs the passage of air through the nasal cavity, the applicant should be disqualified.

### 5. Notes

## 11-7 Dysphemia, Dysphonia and Mogilalia

### 1. Medical Standards

The applicant must have no dysphemia, dysphonia or mogilalia.

### 2. Disqualifying Conditions

Dysphemia, dysphonia and mogilalia

### 3. Examination Procedures and Precautions

#### 4. Evaluation Precautions

An abnormal voice caused by dysphonia or dysarthria that disturbs voice communication should be a cause for disqualification.

### 5. Notes

## **12 HEARING ACUITY**

### **1. Medical Standards**

[Class 1]

The applicant must have no hearing loss of more than 35 dB at the frequencies of 500, 1,000 and 2,000 Hz in either ear and no greater loss than 50 dB in each ear at a frequency of 3,000 Hz, measured in a room with a background noise level of less than 50 dB (A).

[Class 2]

- (1) An applicant holding a medical certificate with instrument ratings must have no hearing loss of more than 35 dB at the frequencies of 500, 1,000 and 2,000 Hz in either ear and no greater loss than 50 dB in each ear at a frequency of 3,000 Hz, measured in a room with a background noise level of less than 50 dB (A).
- (2) An applicant other than those described in (1) above must meet either of conditions A and B below.
  - A. The applicant has no hearing loss of more than 45 dB at frequencies of 500, 1,000 and 2,000 Hz in each ear, measured in a room with a background noise level of less than 50 dB(A). An applicant who fails to meet these criteria must have no hearing loss of more than 30 dB at frequencies of 500, 1,000 and 2,000 Hz in either of the ear, measured in a room with a background noise level of less than 50 dB(A).
  - B. With both ears in use, the applicant must correctly hear conversation at a normal sound level from a distance of 2 m behind, in a room with a background noise level of less than 50 dB(A).

### **2. Disqualifying Conditions**

### **3. Examination Procedures and Precautions**

- 3-1 The audiometer to be used in the measurement of hearing acuity should be calibrated according to JIS T 1201-1: 2000 or an equivalent standard.
- 3-2 The noise meter to be used in the measurement of background noise in the test room should be set to "slow."

[Class 2]

- 3-3 It is desirable that the type 57 or 67 word table compiled by the Japan Audiological Society be used as the speech sound in the hearing acuity test.

Aviation terms should not be used in the hearing acuity test.

#### 4. Evaluation Precautions

If a large change in hearing acuity is found, a re-examination should be performed and a careful evaluation should be made.

#### 5. Notes

- 5-1 If an applicant has a decline of hearing acuity exceeding the standard as set in paragraph 1 above, he/she may apply for the judgment of the Minister of Land, Infrastructure and Transport by submitting results of audiograms (results of a test during the past two years, if available, should be submitted) and, if necessary, the result of speech discrimination test.
- 5-2 If the applicant comes under the criteria described in subparagraph 5-1 above, provided he/she is doing well after a sufficiently long follow-up period, with the hearing loss not expected to progress, he/she may thereafter be granted qualification by a designated examiner by order of the Minister of Land, Infrastructure and Transport.

### **13. ORAL CAVITY AND TEETH**

#### **1. Medical Standards**

The applicant must have no disease or dysfunction in the oral cavity and teeth that may interfere with the performance of airman duties.

#### **2. Disqualifying Conditions**

Painful disease of the teeth, maxilla, submaxilla or soft tissue of the oral cavity or disease of these organs and tissues that may become painful during flight

#### **3. Examination Procedures and Precautions**

Radiography should be performed as necessary for diagnosis of the disease.

Since untreated carious teeth, radicular cyst, apical abscess, odontitis and the like might produce pain in the teeth during flight (due to change of atmospheric pressure), the applicant should be required to undergo prompt treatment.

#### **4. Evaluation Precautions**

#### **5. Notes**

## **14. COMPREHENSIVE ASSESSMENT**

### **1. Medical Standards**

The applicant must have no mentally and physically defect that may interfere with the performance of airman duties.

### **2. Disqualifying Conditions**

### **3. Examination Procedures and Precautions**

### **4. Evaluation Precautions**

### **5. Notes**

## APPENDIX 1

### 1-1 Method for EEG measurement

EEG measurement standards

EEG: 18 channel EEG (14 channel may be used.)

Electrode arrangement: 10-20 method (see the following montage)

TC: 0.3 (However, if the base line fluctuates excessively due to sweating, etc., select 0.1 and mark as such.)

HF: 120 (If EMG is high due to mental tension, etc., select 60 and mark as such)

Calibration: 5 mm/50 $\mu$ V

Recording paper feeding speed: 3 cm/sec

(1) Resting, eyes open and closed

Sleep (Up to Stage 2)

e.g., approximately 20 min by MP,BP montage shown on the following page

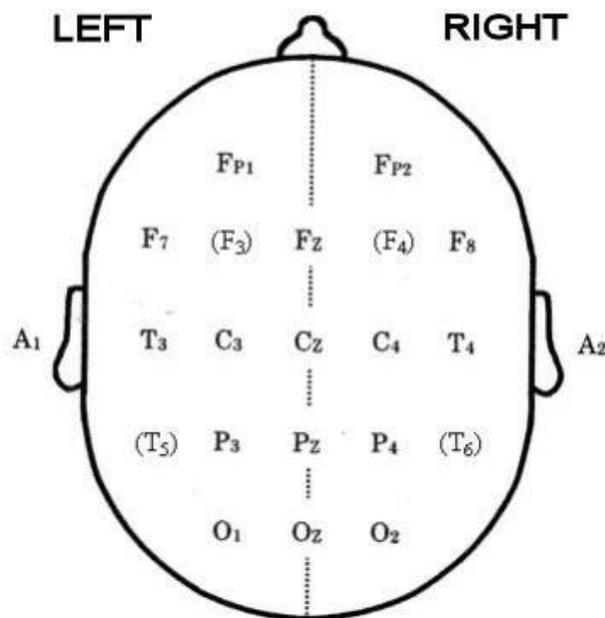
(2) Photic stimuli (3-4 min)

3, 6, 8, 10, 12, 15, 18, 20, 21, 24, 30 f/s

(3) Hyperventilation (4 min. Record at least for 3 min. after hyperventilation.)

Have the applicant perform deep ventilations 20-25 times per minute.

18 Channel EEG (brain waves from 16 channels)



When a 14-channel EEG is used (brain waves from 12 channels), the sites bracketed by parentheses are not used.

Example of montage (this may not necessarily be followed)

MP: Unipolar leads. Ipsilateral earlobe (A1 or A2) is the reference electrode.

MP (AV): The average voltage reference electrode (AV) is the base electrode.

BP: Bipolar leads

	MP	MP (AV)	BP	MP	MP (AV)	BP
1	Fp1·A1	Fp1·AV	Fp1·F7	Fp1·A1	Fp1·AV	Fp1·F7
2	Fp2·A2	Fp2·AV	Fp2·F8	Fp2·A2	Fp2·AV	Fp2·F8
3	F3·A1	F3·AV	F7·T3	F7·A1	F7·AV	F7·T3
4	F4·A2	F4·AV	F8·T4	F8·A2	F8·AV	F8·T4
5	F7·A1	F7·AV	T3·T5	T3·A1	T3·AV	T3·O1
6	F8·A2	F8·AV	T4·T6	T4·A2	T4·AV	T4·O2
7	T3·A1	T3·AV	T5·O1	C3·A1	C3·AV	O1·P3
8	T4·A2	T4·AV	T6·O2	C4·A2	C4·AV	O2·P4
9	T5·A1	T5·AV	O1·P3	P3·A1	P3·AV	P3·C3
10	T6·A2	T6·AV	O2·P4	P4·A2	P4·AV	P4·C4
11	C3·A1	C3·AV	P3·C3	O1·A1	O1·AV	C3·Fp1
12	C4·A2	C4·AV	P4·C4	O2·A2	O2·AV	C4·Fp2
13	P3·A1	P3·AV	C3·F3	EOG	EOG	EOG
14	P4·A2	P4·AV	C4·F4	ECG	ECG	ECG
15	O1·A1	O1·AV	F3·Fp1			
16	O2·A2	O2·AV	F4·Fp2			
17	EOG	EOG	EOG			
18	ECG	ECG	ECG			

## **APPENDIX**

### **1-2 Equilibrium Function Test**

#### 1 Gait Test

##### [Procedure]

Have the applicant walk straight ahead along the line with his/her eyes closed for a distance of 6 m. The deviation of the point of arrival from that on the line should be measured.

##### [Criterion for Judgment]

A deviation of 1 m or more after walking straight ahead is a cause for disqualification.

#### 2 Stepping Test

##### [Procedure]

Have the applicant stand with his/her feet placed at the center of two concentric circles of 0.5 and 1 m radius. Have him/her take 50 steps in place with his/her eyes covered and arms extended forward.

The applicant is observed for oscillation during stepping and the angles of rotation and deviation are measured at the end of the stepping test.

##### [Criteria for Judgment]

Rotation angles of 90° or more, deviations of 1 m or more and remarkable oscillations should disqualify the applicant.

#### 3 Standing Tests

##### (1) Bipedal Standing Test

##### [Procedure]

Have the applicant stand upright with his/her feet firmly together. In this condition, the applicant is observed for sustained equilibrium for 30 seconds with his/her eyes open and for 30 seconds with his/her eyes closed.

##### [Criteria for Judgment]

Little oscillation should be observed in either condition.

##### (2) Monopodal Standing Test

##### [Procedure]

Have the applicant raise his/her leg while bending at the knee-cap until it is parallel to the waist and stand on one foot. Sustained equilibrium is observed for 30 seconds

on each foot with his/her eyes open and for 30 seconds on each foot with his/her eyes closed.

[Criteria for Judgment]

Oscillation or floor touching during the eyes-open test or moderate to marked oscillation or 3 times floor touches or more during the 30 second eyes-closed test disqualifies the applicant.

### (3) Mann's Test

[Procedure]

Have the applicant stand on a straight line, one foot in front of the other with the heel touching the toe with the feet stretched and gaze straight ahead. In this condition, the applicant is examined for 30 seconds first with his/her eyes open and then with his/her eyes covered for another 30 seconds. The applicant then reverses his/her foot position and is examined by the same procedure.

[Criteria for Judgment]

Marked oscillation or falls in either condition should disqualify the applicant.

### 4 Blindfolded Vertical Writing Test

[Procedure]

Have the applicant sit on a chair in a proper position, looking straight forward. (No part of his/her body is allowed to lean against, or come into touch with the back of the chair.)

In this condition, have the applicant first write letters (preferably his/her name) with a pencil, each in a space of 3 cm<sup>2</sup> to 5 cm<sup>2</sup>, in a vertical line with his/her eyes open. Then with his/her eyes covered, have him/her write the same letters as in the preceding test.

[Criteria for Judgment]

The applicant is disqualified if a side-to-side deviation of 10° or more occurs in every attempt or if there is remarkable disequilibrium in the written letters.

## **APPENDIX**

### **1-3 Criteria for imaging diagnosis of asymptomatic cerebrovascular disorders**

“Asymptomatic cerebrovascular disorders” refers to conditions that fulfill the following:

- 1) Lack of neurological signs or symptoms (including unequal tendon reflex between right and left legs and cerebrovascular dementia) caused by the brain parenchymal lesions of vascular origin
- 2) Lack of cerebral stroke including transient cerebral ischemic attack
- 3) Presence of brain parenchymal lesions of vascular origin (e.g., infarcted foci, hemorrhagic foci) confirmed by imaging diagnosis (CT, MRI, etc.)

#### **1. Cerebral infarction**

[MRI]

- 1) As a general rule, an infarct focus is an irregular and heterogeneous lesion with a diameter exceeding 3 mm that gives a high signal on T2-weighted image and a low signal on T1-weighted image.
- 2) An infarct focus that has undergone cystic transformation may give a low signal (intensity equivalent to spinal fluid) at the central region and a high signal in the surrounding region on a proton-density weighted image or on a FLAIR image.
- 3) Enlarged perivascular space generally gives a homogeneous high signal of regular shape on a T2-weighted image. It is seen along the perforating arteries and the medullary arteries and veins, often occurring bilaterally at the lower third of the basal ganglion. The diameter rarely exceeds 3 mm. On a proton-density weighted image or on a FLAIR image, the whole region gives a low signal equivalent to that observed from spinal fluid.

[CT]

As a general rule, the above criteria also apply to CT findings (the high signal area on MRI-T2 weighted image becomes a low signal area on CT). It is often difficult to differentiate from cerebral hemorrhage during chronic phase.

#### **2. Hemorrhages**

[MRI]

- 1) Findings vary depending on disease stage. To distinguish from infarction, CT is superior in the acute phase while MRI is more informative in the chronic phase.
- 2) During several days after disease onset, the hemorrhage gives an equivalent or low signal surrounded by a high signal frame on T1-weighted image, while on a

T2-weighted image it gives a low signal in the central region and a rather high signal in the surrounding region.

- 3) During the subacute phase, the whole lesion gives a high signal on both images, but the central region may give a low signal.
- 4) During the chronic phase, the hemorrhage shows an irregular shape, with the central region giving a low signal T1-weighted image and a high signal on T2-weighted image. In addition, a low signal, ring-shaped shadow due to hemosiderin is visible in the surrounding region on T2-weighted image.

[CT]

- 1) During the acute phase, the hemorrhage is visualized as a high density area.
- 2) During the chronic phase after hematoma has been absorbed, the focus gives a low signal with an irregular shape which is often difficult to differentiate from an infarction.

### 3. Leukoaraiosis

[MRI]

- 1) The so-called “cap”- or “rim”-shaped high signal area on a T2-weighted image observed in the area surrounding the lateral ventricle is not regarded as a morbid change of vascular origin.
- 2) Among irregular-shaped, high signal areas on a T2-weighted image that extends to the deep white matter from the region surrounding the lateral ventricle, those that contain patches of markedly high signal areas or that have definitely asymmetrical distribution of pathologic lesions are possibly vascular lesions.

[CT]

As a general rule, the above criteria also apply to CT findings (the high signal area in an MRI-T2 weighted image becomes a low signal area in CT).

**APPENDIX 2: The ICD-10 Classification of Mental and Behavioural Disorder**  
(omitted)