DDC No. 8-2006-PEL Revision 1

Airline Transport Pilot Licence Knowledge Test Guide

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January 20th, 2009

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Decision Director CASAS

Subject: Airline Transport Pilot Knowledge Test Guide

PREFACE

This Decision Director CASAS No. 8-2006-PEL Revision 1, dated January 20th, 2009, Airline Transport Pilot Knowledge Test Guide, provides information for applicants preparing to take the airline transport pilot knowledge tests. Appendices provide lists for each aircraft category of the airline transport pilot licencing with subject matter outlines, reference materials, and sample questions with learning statements. This guide can be purchased from the Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname or downloaded from the CASAS web site at http://www.casas.sr.

Comments and/or questions regarding this guide should be sent to the following address: Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname.

/s/ January 20th, 2009

V. Hanenberg
Director CASAS

AIRLINE TRANSPORT PILOT KNOWLEDGE TEST GUIDE

PURPOSE

The purpose of this Decision Director CASAS (DDC) is to provide guidance for applicants preparing to take the airline transport pilot knowledge tests. Appendices provide subject matter outlines, reference material, and sample questions with learning statements.

Civil Aviation Regulations Suriname (CARS) can be obtained from the Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname. CARS Part 2 Personnel Licensing regulations cover the requirements for personnel licensing.

This DDC can be purchased from the Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname or downloaded from the CASAS website at <http://www.casas.sr>.

Comments and/or questions regarding this DDC should be sent to Civil Aviation Safety Authority Suriname, P.O. Box 12587, Airfield Zorg & Hoop. Paramaribo, Suriname.

INTRODUCTION

What is required to become a skilled and effective airline transport pilot? Although some individuals possess more knowledge and skills than others, no one is a natural-born pilot. Competent pilots become so through study, training, and experience.

This knowledge test guide should answer most questions about taking the airline transport pilot knowledge tests by covering the following areas: knowledge test eligibility requirements; knowledge areas on the tests; descriptions of the tests; process for taking a knowledge test; validity of Airman Knowledge Test Reports; use of test aids and materials; cheating or other unauthorised conduct; retesting procedures; and obtaining training and testing publications and general information.

This guide will help applicants in preparing to take one or all of the following tests:

- Airline Transport Pilot—Aeroplane ATP
- Airline Transport Pilot—Aeroplane Validation AVL
- Airline Transport Pilot—Aeroplane Conversion ACL
- Airline Transport Pilot—Helicopter ATH
- Airline Transport Pilot—Helicopter Validation AVH
- Airline Transport Pilot—Helicopter Conversion ACH

This guide is not offered as an easy way to obtain the necessary information for passing the knowledge tests. Rather, the intent of this guide is to define and narrow the field of study to the required knowledge areas included in the tests.

CASAS airman knowledge tests are a very effective instrument for aviation safety and regulatory compliance. However, these tests can only sample the vast amount of knowledge every pilot needs to operate safely in an increasingly complex airspace system.

KNOWLEDGE TEST ELIGIBILITY REQUIREMENTS

Individuals pursuing an airline transport pilot licence should review: Civil Aviation Regulations Suriname (CARS) Part 2, section 2.2.1, General Licensing Requirements; section 2.2.3, Validity; and section 2.2.4, Requirements for issue or validation. The applicant for an airline transport pilot licence knowledge test must be at least 21 years old and have a CASAS Class 1 medical certificate.

KNOWLEDGE AREAS ON THE TESTS

Airline transport pilot tests are comprehensive because they must test the applicant's knowledge in many subject areas.

Applicants pursuing an Airline Transport Pilot licence should review CARS Part 2, section 2.3.3.4 (c), Knowledge areas, for the knowledge areas on the tests.

DESCRIPTIONS OF THE TESTS

All test questions are the objective, multiple-choice type. Each question can be correctly answered by the selection of a single response. Each test question is independent of other questions; therefore, a correct response to one does not depend upon, or influence, the correct response to another. **The minimum passing score is 75 percent.**

The following tests each contain **80 questions**, and applicants are allowed a **maximum of 3.0 hours** to complete each test.

- Airline Transport Pilot—Aeroplane
- Airline Transport Pilot—Helicopter

The following tests each contain **50 questions**, and applicants are allowed a **maximum of 2.0 hours** to complete each test.

- Airline Transport Pilot—Aeroplane Validation / Conversion
- Airline Transport Pilot—Helicopter Validation / Conversion

Communication between individuals through the use of words is a complicated process. In addition to being an exercise in the application and use of aeronautical knowledge, a knowledge test is also an exercise in communication since it involves the use of the written language. Since the tests involve written rather than spoken words, communication between the test writer and the person being tested may become a difficult matter if care is not exercised by both parties. Consequently, considerable effort is expended to write each question in a clear, precise manner. Test applicants should be sure to carefully read the instructions given with each test, as well as the statements in each test item.

When taking a test, keep the following points in mind:

- Answer each question in accordance with the latest regulations and guidance publications.
- Read each question carefully before looking at the possible answers. Test applicants should clearly understand the problem before attempting to solve it.

- After formulating an answer, determine which choice corresponds with that answer. The answer chosen should completely resolve the problem.
- From the answers given, it may appear there is more than one possible answer; however, there is only one answer that is correct and complete. The other answers are either incomplete, erroneous, or represent common misconceptions.
- If a certain question is difficult, it is best to mark it for review and proceed to the next question. After answering the less difficult questions, return to those marked for review and answer them. The review marking procedure will be explained to test applicants prior to starting the test. Although the computer should alert test applicants to unanswered questions, test applicants should make sure every question has an answer recorded. This procedure will enable test applicants to use the available time to maximum advantage.
- When solving a calculation problem, the answer closest to the applicant's solution should be selected. The problem has been checked with various types of calculators; therefore, if the problem has been solved correctly, the applicant's answer will be closer to the correct answer than any of the other choices.

PROCESS FOR TAKING A KNOWLEDGE TEST

The first step in the process of taking a knowledge test is to contact the CASAS office. They can provide applicants with information relating to knowledge test prerequisites, required authorisations and endorsements, testing locations, and the appropriate fees. In addition, applicants should visit the CASAS website at <http://www.casas.sr>.

The second step in the process of taking a knowledge test is for the applicant to complete the required training and receive an endorsement from an authorised instructor or aviation training organisation.

Acceptable forms of endorsement are:

- A certificate of graduation or a statement of accomplishment certifying the satisfactory completion of the ground school portion of a course for the licence or rating sought. The certificate or statement may be issued by an approved aviation training organisation.
- A written statement or logbook endorsement from an authorised ground or flight instructor certifying the applicant has completed an applicable ground training or home study course and is prepared to take the knowledge test.
- A failed, passed, or expired Airman Knowledge Test Report provided the airman still has the original Airman Knowledge Test Report in his/her possession.
- An "expired test/credit" letter issued by the CASAS (in lieu of a duplicate Airman Knowledge Test Report).

The third step in the process of taking a knowledge test is for the applicant to receive written authorisation from CASAS.

The fourth step in taking a knowledge test is to proceed to the CASAS test center. An applicant for a knowledge test must provide proper identification. Testing center personnel will not begin the test until the test applicant's identification is verified.

Upon completion of the knowledge test, the applicant will receive an Airman Knowledge Test Report showing the test score. The Airman Knowledge Test Report is certified with an embossed seal to authenticate the validity of the document.

The Airman Knowledge Test Report lists the learning statement codes for questions answered incorrectly. The total number of codes shown on the Airman Knowledge Test Report is not necessarily an indication of the total number of questions answered incorrectly.

The Appendices of this Knowledge Test Guide contain a list of reference materials for applicants to study during their training for an airline transport pilot licence. The questions on the knowledge test will come from these reference materials. Decision Director CASAS, No 2-2006-PEL Revision 1, Learning Statement Reference Guide for Airman Knowledge Testing, contains learning statements and their corresponding codes for airman knowledge testing. Applicants should match the learning statement code on the Airman Knowledge Test Report to these codes to review their areas of deficiency.

A list of reference materials has been prepared by CASAS to establish specific references for all knowledge standards and is to be used when preparing for an airman knowledge test. The list of reference materials is contained in the Appendices to this Knowledge Test Guide.

An applicant's instructor is required to provide instruction on each of the knowledge areas listed on the Airman Knowledge Test Report and to complete an endorsement of this instruction. The Airman Knowledge Test Report must be presented to the test examiner prior to taking the skill test. During the oral portion of the skill test, the test examiner is required to evaluate the noted areas of deficiency.

Applicants requiring a duplicate Airman Knowledge Test Report due to loss or destruction of the original should send a signed request to Civil Aviation Safety Authority Suriname, Personnel Licencing Division, P.O. Box 12587, Paramaribo, Suriname.

VALIDITY OF AIRMAN KNOWLEDGE TEST REPORTS

Airman Knowledge Test Reports for an airline transport pilot licence are valid for 24 calendar months. The applicant should plan to complete the skill test during the 24 calendar month validity period or 7 year period provided that the applicant is, and has been continuously employed as a flight crew member by a certificate holder under CARS Part 9 at the time of the airline transport pilot skill test. If the Airman Knowledge Test Report expires before completion of the skill test, the applicant must retake the knowledge test.

USE OF TEST AIDS AND MATERIALS

Knowledge test applicants may use aids, reference materials, and test materials within the guidelines listed below. All models of aviation-oriented calculators may be used, including small electronic calculators that perform only arithmetic functions (add, subtract, multiply, and divide). Simple programmable memories, which allow addition to, subtraction from, or retrieval of one number from the memory, are permissible. Also, simple functions, such as square root and percent keys are permissible. The following guidelines apply:

1. Applicants may use any reference materials provided with the test. In addition, applicants may use scales, straightedges, protractors, plotters, navigation computers, log sheets, holding pattern entry aids, and electronic or mechanical calculators that are directly related to the test.
2. Manufacturers permanently inscribed instructions on the front and back of such aids, e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, mass and balance formulas, and air traffic control procedures are permissible.

3. CASAS personnel may provide a calculator to applicants and/or deny use of the applicant's personal calculator based on the following limitations:

    (a) Prior to, and upon completion of the test, while in the presence of the test examiner, applicants must actuate the ON/OFF switch and perform any other function that ensures erasure of any data stored in memory circuits, including removal of batteries.
    (b) The use of electronic calculators incorporating permanent or continuous type memory circuits without erasure capability is prohibited. The test examiner may refuse the use of the applicant's calculator when unable to determine the calculator's erasure capability.
    (c) Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.
    (d) The use of magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which pre-written programs or information related to the test can be stored and retrieved is prohibited.
    (e) Applicants are not permitted to use any booklet or manual containing instructions related to use of test aids.

4. Dictionaries are not permitted in the testing area.
5. The CASAS test examiner makes the final determination relating to test materials and personal possessions the applicant may take into the testing area.

CHEATING OR OTHER UNAUTHORISED CONDUCT

Knowledge testing must be carried out in accordance with the strictest security procedures to avoid test compromise. The CASAS test examiner will terminate a test at any time that he/she suspects that a cheating incident has occurred. A CASAS investigation will be conducted. If the investigation determines that cheating or unauthorised conduct has occurred, any airman licence, certificate, or rating the applicant holds may be revoked, and the applicant will be prohibited for 1 year from applying for or taking any test for a licence, certificate or rating under CARS Part 2.

RETESTING PROCEDURES

Applicants who receive a grade lower than 75 percent and who wish to retest must present the following to CASAS testing center personnel when appearing for the purpose of retesting:

- A failed Airman Knowledge Test Report.
- A written endorsement from an authorised instructor certifying that additional instruction has been given, and the instructor finds the applicant competent to pass the test.
- A written authorisation from CASAS to retake the test.

Applicants possessing an Airman Knowledge Test Report with a score of 75 percent or higher who decide to retake the test in anticipation of a better score, may retake the test after 30 days from the date their last test was taken. CASAS will not allow applicants to retake a passed test before the 30-day period has lapsed. Prior to retesting, applicants will be required to surrender their current Airman Knowledge Test Report to the test examiner. The last test taken will reflect the official final score.

OBTAINING TRAINING AND TESTING PUBLICATIONS AND GENERAL INFORMATION

Most of the current CASAS airman training and testing publications can be obtained in electronic format from CASAS at the CASAS website at <http://www.casas.sr>.

AIRMAN KNOWLEDGE TEST ITEMS

Sample questions and their corresponding learning statements and codes are contained in the appendices to this test guide. They are representative of questions for airman knowledge tests. These will help airmen become familiar with similar questions found on the airman knowledge tests. The knowledge test is not designed to intimidate any prospective airman; it is designed to measure the level of competency required to receive a CASAS licence, authorisation or rating. The list of reference materials contained in the appendices to this test guide is provided to ensure that instructors and students are able to determine the importance of the subject matter to be taught and learned.

COMPUTER TESTING SUPPLEMENTS

The computer testing supplements contain the graphics, legends, and maps that are needed to successfully respond to certain knowledge test items. These supplements will be provided by CASAS test center personnel during the airman knowledge test.

KNOWLEDGE TEST GUIDES

The knowledge test guides describe the knowledge testing policy and procedures for each licence area.

OTHER KNOWLEDGE TESTING INFORMATION

Other knowledge testing information provides specific test information, such as test name, test code (three-digit test identifiers), number of questions, and the time (hours) allotted for each knowledge test. The test identifiers will assist airmen in selecting the proper test for the licence or rating being sought.

REFERENCE MATERIALS / LEARNING STATEMENT CODES

The appendices of this guide contain the listings of reference materials and sample test questions with related learning statements used for airman knowledge testing. The listings of reference materials and sample questions have been prepared by CASAS to establish specific references for all knowledge standards. The listings contain reference materials to be used when preparing for all airman knowledge tests. The learning statements contained in Decision Director CASAS, No. 2-2006-PEL Revision 1, should be referred to when reviewing areas of deficiency on airman knowledge test reports.

APPENDIX 1

LIST OF AIRLINE TRANSPORT PILOT REFERENCE MATERIALS FOR ALL CERTIFICATIONS

The publications listed below contain study material applicants need to be familiar with when preparing for airline transport pilot knowledge tests. Most of these publications can be purchased from CASAS or be downloaded from the CASAS web site at http://www.casas.sr. ICAO publications can be purchased from ICAO at: http://www.icao.int. The latest revision of the listed references should be requested.

- The Suriname Civil Aviation Safety and Security Act of March 12, 2002
- Civil Aviation Regulations Suriname (CARS), in particular:
    - CARS Part 1—General Policies, Procedures, and Policies
    - CARS Part 2—Personnel Licensing
    - CARS Part 5—Airworthiness
    - CARS Part 7—Instruments and Equipment
    - CARS Part 8—Operations
    - CARS Part 9—Air Operator Certification and Administration
    - CARS Part 11—Aerial Work
- Implementing Standards Part 2
- Implementing Standards Part 9
- ICAO Annexes: 3, 10 Volume II, 11 and 14 (pertinent parts)
- ICAO Document 4444: General provisions, Aero Control service, Approach control service, Aerodrome control service, and Flight information and alerting service
- Aeronautical Information Manual (AIM)
- Aeronautical Information Publication (AIP) for Suriname
- Aircraft Electricity and Electronics - Glencoe Division, Macmillian/McGraw-Hill Publication Company
- Airport/Facility Directory
- Automatic Flight Control
- Enroute High Altitude Chart

APPENDIX 1 (CONTINUED)

LIST OF AIRLINE TRANSPORT PILOT REFERENCE MATERIALS FOR ALL CERTIFICATIONS

- Enroute Low Altitude Chart
- Flight Theory for Pilots—IAP Inc. Publications
- Instrument Approach Procedure Chart
- Sectional Aeronautical Chart
- Transport Category Aircraft Systems—Jeppesen Sanderson
- U.S. Terminal Procedures (DP) (adopted in cooperation with FAA)
- FAA Accident Prevention Program Bulletins (adopted in cooperation with FAA)
- FAA AC 00-6—Aviation Weather (adopted in cooperation with FAA)
- FAA AC 00-24—Thunderstorms (adopted in cooperation with FAA)
- FAA AC 00-30—Atmospheric Turbulence Avoidance (adopted in cooperation with FAA)
- FAA AC 00-45—Aviation Weather Services (adopted in cooperation with FAA)
- FAA AC 00-54—Pilot Wind Shear Guide (adopted in cooperation with FAA)
- FAA AC 20-43—Aircraft Fuel Control (adopted in cooperation with FAA)
- FAA AC 20-103—Aircraft Engine Crankshaft Failure (adopted in cooperation with FAA)
- FAA AC 20-117—Hazards Following Ground Deicing (adopted in cooperation with FAA)
- FAA AC 60-22—Aeronautical Decision Making (adopted in cooperation with FAA)
- FAA AC 61-107—Operations of Aircraft at Altitudes Above 25,000 Feet (adopted in cooperation with FAA)
- FAA AC 90-48—Pilot's Role in Collision Avoidance (adopted in cooperation with FAA)
- FAA AC 91-6—Water, Slush, and Snow on the Runway (adopted in cooperation with FAA)
- FAA AC 91-13—Cold Weather Operation of Aircraft (adopted in cooperation with FAA)
- FAA AC 91-43—Unreliable Airspeed Indication (adopted in cooperation with FAA)
- FAA AC 103-4—Hazard with Dry Ice Aboard Aircraft (adopted in cooperation with FAA)

APPENDIX 1 (CONTINUED)

LIST OF AIRLINE TRANSPORT PILOT REFERENCE MATERIALS FOR ALL CERTIFICATIONS

- FAA AC 120-58 – Pilot Guide Large Aircraft Deicing (adopted in cooperation with FAA)
- FAA-H-8083-1 – Aircraft Weight and Balance (adopted in cooperation with FAA)
- FAA-H-8083-3 – Airplane Flying Handbook (adopted in cooperation with FAA)
- FAA-H-8083-15 – Instrument Flying Handbook (adopted in cooperation with the FAA)
- FAA-H-8083-21 – Rotorcraft Flying Handbook (adopted in cooperation with FAA)
- FAA-H-8083-25 – Pilot's Handbook of Aeronautical Knowledge (adopted in cooperation with FAA)

APPENDIX 2

AIRLINE TRANSPORT PILOT – AEROPLANE (ATP)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Airline Transport Pilot – Aeroplane knowledge test.

1. Air Law:
    a. Rules and regulations relevant to the holder of an ATPL;
    b. Rules of the air;
    c. Appropriate air traffic services practices and procedures.

2. Aircraft General Knowledge:
    a. General characteristics and limitations of electrical, hydraulic, pressurization and other aircraft systems;
    b. Flight control systems, including autopilot and stability augmentation;
    c. Principles of operation, handling procedures and operating limitations of aircraft powerplants;
    d. Effects of atmospheric conditions on engine performance;
    e. Relevant operational information from the flight manual or other appropriate document;
    f. Operating procedures and limitations of appropriate aircraft;
    g. Effects of atmospheric conditions on aircraft performance in accordance to the relevant operational information from the flight manual;
    h. Use and serviceability checks of equipment and systems of the relevant category of aircraft;
    i. Flight instruments;
    j. Compasses, turning and acceleration errors;
    k. Gyroscopic instruments, operational limits and precession effects;
    l. Practices and procedures in the event of malfunctions of various flight instruments and electronic display units;
    m. Maintenance procedures for airframes, systems and powerplants of appropriate aircraft.

3. Flight Performance, Planning and Loading:
    a. Effects of loading and mass distribution on aircraft handling, flight characteristics and performance;
    b. Mass and balance calculations;
    c. Use and practical application of take-off, landing and other performance data, including procedures for cruise control;
    d. Pre-flight and en-route operational flight planning;
    e. Preparation and filing of air traffic services flight plans;
    f. Appropriate air traffic services procedures;
    g. Altimeter setting procedures.

APPENDIX 2 (CONTINUED)

AIRLINE TRANSPORT PILOT – AEROPLANE (ATP)

SUBJECT MATTER OUTLINE

4. Human Performance:
    a. Human performance relevant to the appropriate aircraft category;
    b. Principles of threat and error management.

5. Meteorology:
    a. Interpretation and application of aeronautical meteorological reports, charts and forecasts;
    b. Codes and abbreviations;
    c. Use of, and procedures for obtaining, meteorological information, pre-flight and in-flight;
    d. Altimetry;
    e. Aeronautical meteorology;
    f. Climatology of relevant areas in respect of the elements having an effect upon aviation;
    g. The movement of pressure systems;
    h. The structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
    i. Causes, recognition and effects of icing;
    j. Frontal zone penetration procedures;
    k. Hazardous weather avoidance;
    l. Practical high altitude meteorology, including interpretation and use of weather reports, charts and forecasts;
    m. Jet streams.

6. Navigation:
    a. Air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems;
    b. Specific navigation requirements for long-range flights;
    c. Use, limitation and serviceability of avionics and instruments necessary for the control and navigation of aircraft;
    d. Use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight;
    e. Identification of radio navigation aids;
    f. Principles and characteristics of self-contained and external-referenced navigation systems; operation of airborne equipment.

APPENDIX 2 (CONTINUED)

AIRLINE TRANSPORT PILOT – AEROPLANE (ATP)

SUBJECT MATTER OUTLINE

7. Operational Procedures:
    a. Application of threat and error management to operational performance;
    b. Interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
    c. Precautionary and emergency procedures;
    d. Safety practices;
    e. Operational procedures for carriage of freight and dangerous goods;
    f. Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
    g. Safety procedures, associated with flight under VFR.

8. Principles of Flight:
    a. Principles of flight relating to the appropriate aircraft category.

9. Radiotelephony:
    a. Communication procedures and phraseology;
    b. Action to be taken in case of communication failure.

APPENDIX 2 (CONTINUED)

AIRLINE TRANSPORT PILOT – AEROPLANE (ATP)

SAMPLE TEST QUESTIONS, ANSWERS AND LEARNING STATEMENTS

1. An ATC instruction
A—is the same as an ATC clearance.
B—must be read back in full to the controller and confirmed before becoming effective.
C—is a directive issued by ATC for the purpose of requiring a pilot to take a specific action.
Answer C—Learning Statement: Recall regulations - Air Traffic Control authorisation / clearances

2. When are inboard ailerons normally used?
A—High-speed flight only.
B—Low-speed flight only.
C—Low-speed and high-speed flight.
Answer C—Learning Statement: Recall primary flight controls - types / purpose / functionality

3. Risk management, as part of the aeronautical decision making (ADM) process, relies on which features to reduce the risks associated with each flight?
A—The mental process of analyzing all information in a particular situation and making a timely decision on what action to take.
B—Situational awareness, problem recognition, and good judgment.
C—Application of stress management and risk element procedures.
Answer B—Learning Statement: Define Aeronautical Decision Making (ADM)

4. Which of the following will decrease the holding time during anti-icing using a two-step process?
A—Apply heated Type 2 fluid.
B—Increase the viscosity of Type 1 fluid.
C—Decrease the water content.
Answer A—Learning Statement: Recall aircraft anti-icing / deicing – methods / fluids

5. Within what Mach range do transonic flight regimes usually occur?
A—1.20 to 2.50 Mach.
B—.50 to .75 Mach.
C—.75 to 1.20 Mach.
Answer C—Learning Statement: Define MACH speed regimes

APPENDIX 3

AIRLINE TRANSPORT PILOT – AEROPLANE VALIDATION (AVL)
AIRLINE TRANSPORT PILOT – AEROPLANE CONVERSION (ACL)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Airline Transport Pilot – Aeroplane Validation and Conversion knowledge tests.

1. Air Law:
    a. Rules and regulations relevant to the holder of an ATPL;
    b. Rules of the air;
    c. Appropriate air traffic services practices and procedures.

2. Meteorology:
    a. Interpretation and application of aeronautical meteorological reports, charts and forecasts;
    b. Codes and abbreviations;
    c. Use of, and procedures for obtaining, meteorological information, pre-flight and in-flight;
    d. Altimetry;
    e. Aeronautical meteorology;
    f. Climatology of relevant areas in respect of the elements having an effect upon aviation;
    g. The movement of pressure systems;
    h. The structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
    i. Causes, recognition and effects of icing;
    j. Frontal zone penetration procedures;
    k. Hazardous weather avoidance;
    l. Practical high altitude meteorology, including interpretation and use of weather reports, charts and forecasts;
    m. Jet streams.

3. Operational Procedures:
    a. Application of threat and error management to operational performance;
    b. Interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
    c. Precautionary and emergency procedures;
    d. Safety practices;
    e. Operational procedures for carriage of freight and dangerous goods;
    f. Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
    g. Safety procedures, associated with flight under VFR.

4. Radiotelephony:
    a. Communication procedures and phraseology;
    b. Action to be taken in case of communication failure.

APPENDIX 3 (CONTINUED)

AIRLINE TRANSPORT PILOT – AEROPLANE VALIDATION (AVL)
AIRLINE TRANSPORT PILOT – AEROPLANE CONVERSION (ACL)

SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

1. For flights above which cabin altitude is oxygen required for all passengers during the entire flight at those altitudes?
A—14,000 feet.
B—16,000 feet.
C—15,000 feet.
Answer C—Learning Statement: Recall regulations - oxygen requirements

2. The TWEB Route Forecasts and Synopses are issued by the Weather Forecast Offices (WFOs) four times per day. The TWEB forecast is valid for an
A—8-hour period.
B—5-hour period.
C—12-hour period.
Answer C—Learning Statement: Recall weather information - TWEB broadcasts

3. A Land and Hold Short Operations (LAHSO) clearance, that the pilot accepts
A—does not preclude a rejected landing.
B—precludes a rejected landing.
C—must be adhered to.
Answer A—Learning Statement: Recall aerodrome operations – LAHSO

4. When a distress or urgency condition is encountered, the pilot of an aircraft with a transponder who desires to alert a ground radar facility, should squawk code
A—7700.
B—7600.
C—7500.
Answer A—Learning Statement: Recall emergency conditions / procedures

APPENDIX 4

AIRLINE TRANSPORT PILOT – HELICOPTER (ATH)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Airline Transport Pilot – Helicopter knowledge test.

1. Air Law:
    a. Rules and regulations relevant to the holder of an ATPL;
    b. Rules of the air;
    c. Appropriate air traffic services practices and procedures.

2. Aircraft General Knowledge:
    a. General characteristics and limitations of electrical, hydraulic, pressurization and other aircraft systems;
    b. Flight control systems, including autopilot and stability augmentation;
    c. Principles of operation, handling procedures and operating limitations of aircraft powerplants;
    d. Effects of atmospheric conditions on engine performance;
    e. Relevant operational information from the flight manual or other appropriate document;
    f. Operating procedures and limitations of appropriate aircraft;
    g. Effects of atmospheric conditions on aircraft performance in accordance with the relevant operational information from the flight manual;
    h. Use and serviceability checks of equipment and systems of the relevant category of aircraft;
    i. Flight instruments;
    j. Compasses, turning and acceleration errors;
    k. Gyroscopic instruments, operational limits and precession effects;
    l. Practices and procedures in the event of malfunctions of various flight instruments and electronic display units;
    m. Maintenance procedures for airframes, systems and powerplants of appropriate aircraft.

3. Flight Performance, Planning and Loading:
    a. Effects of loading and mass distribution on aircraft handling, flight characteristics and performance;
    b. Mass and balance calculations;
    c. Use and practical application of take-off, landing and other performance data, including procedures for cruise control;
    d. Pre-flight and en-route operational flight planning;
    e. Preparation and filing of air traffic services flight plans;
    f. Appropriate air traffic services procedures;
    g. Altimeter setting procedures;
    h. Effects of external loading on handling.

APPENDIX 4 (CONTINUED)

AIRLINE TRANSPORT PILOT – HELICOPTER (ATH)

SUBJECT MATTER OUTLINE

4. Human Performance:
    a. Human performance relevant to the appropriate aircraft category;
    b. Principles of threat and error management.

5. Meteorology:
    a. Interpretation and application of aeronautical meteorological reports, charts and forecasts;
    b. Codes and abbreviations;
    c. Use of, and procedures for obtaining, meteorological information, pre-flight and in-flight;
    d. Altimetry;
    e. Aeronautical meteorology;
    f. Climatology of relevant areas in respect of the elements having an effect upon aviation;
    g. The movement of pressure systems;
    h. The structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
    i. Causes, recognition and effects of icing;
    j. Frontal zone penetration procedures;
    k. Hazardous weather avoidance;
    l. Jet streams.

6. Navigation:
    a. Air navigation, including the use of aeronautical charts, radio navigation aids and area navigation systems;
    b. Specific navigation requirements for long-range flights;
    c. Use, limitation and serviceability of avionics and instruments necessary for the control and navigation of aircraft;
    d. Use, accuracy and reliability of navigation systems used in departure, en-route, approach and landing phases of flight;
    e. Identification of radio navigation aids;
    f. Principles and characteristics of self-contained and external-referenced navigation systems; operation of airborne equipment.

APPENDIX 4 (CONTINUED)

AIRLINE TRANSPORT PILOT – HELICOPTER (ATH)

SUBJECT MATTER OUTLINE

7. Operational Procedures:
    a. Application of threat and error management to operational performance;
    b. Interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
    c. Precautionary and emergency procedures;
    d. Safety practices;
    e. Operational procedures for carriage of freight and dangerous goods;
    f. Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
    g. Powered-lift, settling with power, ground resonance, retreating blade stall, dynamic roll-over and other operational hazards;
    h. Safety procedures, associated with flight under VFR.

8. Principles of Flight:
    a. Principles of flight relating to the appropriate aircraft category.

9. Radiotelephony:
    a. Communication procedures and phraseology;
    b. Action to be taken in case of communication failure.

APPENDIX 4 (CONTINUED)

AIRLINE TRANSPORT PILOT – HELICOPTER (ATH)

SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

1. No person may operate an aircraft carrying passengers under VFR at night unless
A—it is equipped with a flashlight.
B—each flight crewmember has a flashlight.
C—each crewmember has a flashlight and a spare bulb.
Answer B—Learning Statement: Recall regulations - equipment / instrument / certificate requirements

2. As outside air pressure decreases, thrust output will
A—remain the same since compression of inlet air will compensate for any decrease in air pressure.
B—increase due to greater efficiency of jet aircraft in this air.
C—decrease due to higher density altitude.
Answer C—Learning Statement: Recall aircraft performance – density altitude

3. What corrective action can a pilot take to prevent a retreating blade stall at its onset?
A—Reduce collective pitch and increase rotor RPM.
B—Reduce collective pitch and decrease rotor RPM.
C—Increase collective pitch and increase rotor RPM.
Answer A—Learning Statement: Recall rotor system – types / components / operating principles / characteristics

4. Sudden penetration of fog can create the illusion of
A—leveling off.
B—pitching up.
C—pitching down.
Answer B—Learning Statement: Recall inflight illusions - causes / sources

5. Select the true statement pertaining to the life cycle of a thunderstorm.
A—Updrafts continue to develop throughout the dissipating stage of a thunderstorm.
B—The beginning of rain at the Earth`s surface indicates the mature stage of the thunderstorm.
C—The beginning of rain at the Earth`s surface indicates the dissipating stage of the thunderstorm.
Answer B—Learning Statement: Recall thunderstorms - types / characteristics / formation / hazards

APPENDIX 5

AIRLINE TRANSPORT PILOT – HELICOPTER VALIDATION (AVH)
AIRLINE TRANSPORT PILOT – HELICOPTER CONVERSION (ACH)

SUBJECT MATTER OUTLINE

The following outlines the major topics and underlying content areas on the Airline Transport Pilot – Helicopter Validation and Conversion knowledge tests.

1. Air Law:
    a. Rules and regulations relevant to the holder of an ATPL;
    b. Rules of the air;
    c. Appropriate air traffic services practices and procedures.

2. Meteorology:
    a. Interpretation and application of aeronautical meteorological reports, charts and forecasts;
    b. Codes and abbreviations;
    c. Use of, and procedures for obtaining, meteorological information, pre-flight and in-flight;
    d. Altimetry;
    e. Aeronautical meteorology;
    f. Climatology of relevant areas in respect of the elements having an effect upon aviation;
    g. The movement of pressure systems;
    h. The structure of fronts, and the origin and characteristics of significant weather phenomena which affect take-off, en-route and landing conditions;
    i. Causes, recognition and effects of icing;
    j. Frontal zone penetration procedures;
    k. Hazardous weather avoidance;
    l. Jet streams.

3. Operational Procedures:
    a. Application of threat and error management to operational performance;
    b. Interpretation and use of aeronautical documentation such as AIP, NOTAM, aeronautical codes and abbreviations;
    c. Precautionary and emergency procedures;
    d. Safety practices;
    e. Operational procedures for carriage of freight and dangerous goods;
    f. Requirements and practices for safety briefing to passengers, including precautions to be observed when embarking and disembarking from aircraft;
    g. Powered-lift, settling with power, ground resonance, retreating blade stall, dynamic roll-over, and other operational hazards;
    h. Safety procedures, associated with flight under VFR.

4. Radiotelephony:
    a. Communication procedures and phraseology;
    b. Action to be taken in case of communication failure.

APPENDIX 5 (CONTINUED)

AIRLINE TRANSPORT PILOT – HELICOPTER VALIDATION (AVH)
AIRLINE TRANSPORT PILOT – HELICOPTER CONVERSION (ACH)

SAMPLE QUESTIONS, ANSWERS AND LEARNING STATEMENTS

1. In addition to a two-way radio capable of communicating with ATC on appropriate frequencies, which equipment is the helicopter required to have to operate within Class B airspace?
A—DME, a VOR or TACAN receiver, and an appropriate transponder beacon.
B—An appropriate radar beacon transponder.
C—A VOR or TACAN receiver.
Answer B—Learning Statement: Recall regulations – equipment / instrument / certificate requirements

2. The TWEB Route Forecasts and Synopses are issued by the Weather Forecast Offices (WFOs) four times per day. The TWEB forecast is valid for an
A—8-hour period.
B—5-hour period.
C—12-hour period.
Answer C—Learning Statement: Recall weather information - TWEB broadcasts

3. A Land and Hold Short Operations (LAHSO) clearance, that the pilot accepts
A—does not preclude a rejected landing.
B—precludes a rejected landing.
C—must be adhered to.
Answer A—Learning Statement: Recall aerodrome operations – LAHSO

4. What would be the identification when a VORTAC is undergoing routine maintenance and is considered unreliable?
A—The identifier would be removed.
B—A test signal, 'TESTING', is sent every 30 seconds.
C—Identifier is preceded by 'M' and an intermittent 'OFF' flag would appear.
Answer A—Learning Statement: Recall instrument/navigation system checks/inspections – limits / tuning / identifying / logging