



TTCAA Advisory CIRCULAR

Subject: DESIGNATED FLIGHT TEST EXAMINER KNOWLEDGE TEST GUIDE

TTCAA Advisory Circular TAC-PEL059

Date: 06/10/02

PURPOSE

1. (1) The purpose of this TTCAA Advisory Circular (TAC) is to provide guidance for applicants preparing to take the Designated Flight Test Examiner knowledge tests. Appendices provide lists for each aircraft category of examiner of subject matter outlines, reference materials, and sample questions with subject matter knowledge codes.

(2) Trinidad and Tobago Civil Aviation Regulations (TTCARs can be obtained from the Trinidad and Tobago Government Printery, Victoria Avenue, Port of Spain, Trinidad. TTCAR No.1 covers the requirements for personnel licencing.

(3) This TAC can be purchased from the Tobago Civil Aviation Authority, P.O. Box 2163, National Mail Centre, Golden Grove Road, Piarco, Republic of Trinidad and Tobago or downloaded from the TTCAA website at <<http://www.caa.gov.tt>>.

(4) Comments and/or questions regarding this TAC should be sent to Trinidad and Tobago Civil Aviation Authority, P.O. Box 2163, National Mail Centre, Golden Grove Road, Piarco, Republic of Trinidad and Tobago.

INTRODUCTION

2. (1) What is required to become a skilled and effective designated flight test examiner? Although some individuals possess more knowledge and skills than others, no one is a natural-born competent pilot/examiner. Competent pilot/examiners become so through study, training, and experience.

(2) This knowledge test guide will answer most questions about taking the Designated Flight test examiner knowledge test 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 Test Reports; use of test aids and materials; cheating or other unauthorized conduct; retesting procedures; and obtaining training and testing publications and general information.

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

(a) Designated Flight test examiner—Aeroplane

(b) Designated Flight test examiner—Helicopter (in development)

(4) 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.

(5) The Trinidad and Tobago Civil Aviation Authority (TTCAA) 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 ever increasingly complex airspace system.

KNOWLEDGE TEST ELIGIBILITY REQUIREMENTS

3. Individuals pursuing a designation as a flight test examiner should review: TTCAR No.1: Part II and Part III and TTCAR No.1:89-92. The applicant for a Designated Flight test examiner knowledge test must be at least 19 years old and have a TTCAA Class 1 medical certificate.

KNOWLEDGE AREAS ON THE TESTS

4. (1) Flight Test Examiner tests are comprehensive because they must test the applicant's knowledge in many subject areas.

(2) Applicant's pursuing a TTCAA designation as a flight test examiner should review TTCAR No.1 Part II, for the knowledge areas on the tests.

DESCRIPTIONS OF THE TESTS

5. (1) 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 80 percent.

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

(a) Designated Flight test examiner—Aeroplane

(b) Designated Flight test examiner—Helicopter (in development)

(3) 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.

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

(a) Answer each question in accordance with the latest regulations and guidance publications.

(b) Read each question carefully before looking at the possible answers. Test applicants should clearly understand the problem before attempting to solve it.

- (c) After formulating an answer, determine which choice corresponds with that answer. The answer chosen should completely resolve the problem.
- (d) From the answers given, it may appear that 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.
- (e) 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.
- (f) 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

6. (1) The first step in the process of taking a knowledge test is to contact the TTCAA office. They can provide applicants with information relating to knowledge test prerequisites, required authorizations and endorsements, and where applicants can appear to take computerized knowledge tests and the appropriate fees involved. In addition applicants might want to visit the TTCAA website at <<http://www.caa.gov.tt>>.

(2) The second step in the process of taking a knowledge test is for the applicant to receive an endorsement from an authorized instructor or Aviation Training Organization that the applicant has completed the required training and is ready to take the knowledge test.

(3) Acceptable forms of endorsement are:

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

(4) The third step in the process of taking a knowledge test is for the applicant to receive written authorization from TTCAA to take the knowledge test.

(5) The fourth step in taking a knowledge test is to proceed to the TTCAA computer knowledge test centre. An applicant for a knowledge test must provide proper identification. Testing centre personnel will not begin the test until the test applicant's identification is verified.

(6) Upon completion of the knowledge test, each applicant will receive their own Airman Test Report, showing their test score with an embossed seal to authenticate the validity of the document.

(7) The Airman Test Report lists the subject matter areas for questions answered incorrectly. The total number of subject matter knowledge areas shown on the Airman Test Report is not necessarily an indication of the total number of questions answered incorrectly.

(8) The Appendices of this Knowledge Test Guide contains a list of reference materials for applicants to study during their training for the Private Pilot licence. The questions on the knowledge test will come from these reference materials. TAC-PEL050, Subject Matter Codes for Airman Knowledge Testing, contains subject matter knowledge codes for airman knowledge testing. Applicants should match the subject matter knowledge codes on their Airman Test Report to these codes to review their areas of deficiency.

(9) A list of reference materials has been prepared by TTCAA 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 Appendix to this Knowledge Test Guide.

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

(11) Applicants requiring a duplicate Airman Test Report due to loss or destruction of the original, should send a signed request accompanied by cash in the amount of 90 Trinidad and Tobago Dollars (TT) to the Trinidad and Tobago Civil Aviation Authority, P.O. Box 2163, National Mail Centre, Golden Grove Road, Piarco, Republic of Trinidad and Tobago

VALIDITY OF AIRMAN TEST REPORTS

7. Airman Test Reports for the Private Pilot licence are valid for 24 calendar months. The applicant should plan to complete the skill test during the 24 calendar month validity period. If the Airman Test Report expires before completion of the skill test, the applicant must retake the knowledge test.

USE OF TEST AIDS AND MATERIALS

8. (1) 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:

- (a) 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.

- (b) Manufacturers permanently inscribed instructions on the front and back of such aids, e.g., formulas, conversions, regulations, signals, weather data, holding pattern diagrams, frequencies, weight and balance formulas, and air traffic control procedures are permissible.
- (c) TTCAA personnel may provide a calculator to applicants and/or deny use of their personal calculator based on the following limitations:
 - (i) Prior to, and upon completion of the test, while in the presence of the proctor, 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.
 - (ii) The use of electronic calculators incorporating permanent or continuous type memory circuits without erasure capability is prohibited. The proctor may refuse the use of the applicant's calculator when unable to determine the calculator's erasure capability.
 - (iii) Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.
 - (iv) 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.
 - (v) Applicants are not permitted to use any booklet or manual containing instructions related to use of test aids.
- (d) Dictionaries are not permitted in the testing area.
- (e) The TTCAA test proctor makes the final determination relating to test materials and personal possessions the applicant may take into the testing area.

CHEATING OR OTHER UNAUTHORIZED CONDUCT

9. Computerized knowledge testing must be carried out in accordance with the strictest security procedures to avoid test compromise. The TTCAA Test Proctor will terminate a test at any time that he/she suspects that a cheating incident has occurred. A TTCAA investigation will then be conducted. If the investigation determines that cheating or unauthorized conduct has occurred, then any airman licence, certificate, or rating that 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 TTCAR No. 1.

RETESTING PROCEDURES

10. (1) Applicants who receive a grade lower than 80 percent and who wish to retest must present the following to TTCAA testing centre personnel when appearing for the purpose of retesting:

- (a) A failed Airman Test Report.
- (b) A written endorsement from an authorized instructor certifying that additional instruction has been given, and the instructor finds the applicant competent to pass the test.
- (c) A written authorization from TTCAA to retake the test.

(2) Applicants possessing an Airman Test Report with a score of 80 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. The TTCAA 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 Test Report to the test proctor. The last test taken will reflect the official final score.

OBTAINING TRAINING AND TESTING PUBLICATIONS AND GENERAL INFORMATION

11. Most of the current TTCAA airman training and testing publications can be obtained in electronic format from TTCAA at the TTCAA website at <<http://www.caa.gov.tt>>.

AIRMAN KNOWLEDGE TEST ITEMS

12. Sample questions are contained in the appendix to this test guide and are representative of questions for airman knowledge tests and their corresponding subject matter knowledge codes. These will help airmen become familiar with similar questions 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 TTCAA licence. The list of reference materials contained in the appendix 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

13. 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 TTCAA test centre personnel during the airman knowledge test.

KNOWLEDGE TEST GUIDES

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

OTHER COMPUTER TESTING INFORMATION

15. Other computer 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/rating being sought.

SKILL TEST STANDARDS

16. The skill test standards outline the knowledge and skill requirements for each airman licence and rating. The references listed in each task of the skill test standards indicate the specific publications used to develop the skill standards. The ability to issue immediate changes prior to publishing revised printed copies ensures the skill test standards are always accurate and usable.

SUBJECT MATTER REFERENCE/KNOWLEDGE CODES

17. The appendices of this guide contain the listings of reference materials and sample test questions with related subject matter knowledge codes used for airman knowledge testing. The listings of reference materials and subject matter knowledge codes have been prepared by the TTCAA to establish specific references for all knowledge standards. The listings contain reference materials to be used when preparing for all airman knowledge tests. The subject matter knowledge codes contained in TAC-PEL050, should be referred to when reviewing areas of deficiency on airman knowledge test reports.

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Director General of Civil Aviation

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APPENDIX A

DESIGNATED FLIGHT TEST EXAMINER – AEROPLANE (FTEA)

SUBJECT MATTER OUTLINE

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

1. Air law:
 - (a) rules and regulations relevant to the holder of (as applicable);
 - (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;
 - (n) for helicopter, and if applicable, powered-lift transmission (power-trains);

3. Flight performance and planning:
 - (a) effects of loading and weight distribution on aircraft handling, flight characteristics and performance;
 - (b) weight 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; appropriate air traffic services procedures;
 - (f) altimeter setting procedures;
 - (g) In the case of helicopter or powered-lift, effects of external loading on handling;

4. Human performance:
 - (a) human performance relevant to the appropriate aircraft category;
 - (b) principles of threat and error management;

APPENDIX A

DESIGNATED FLIGHT TEST EXAMINER – AEROPLANE (FTEA)

SUBJECT MATTER OUTLINE

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) in the case of aeroplane and powered-lift, 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;

7. Operation 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) in the case of helicopter, and if applicable, 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;

APPENDIX A

DESIGNATED FLIGHT TEST EXAMINER – AEROPLANE (FTEA)

SUBJECT MATTER OUTLINE

- 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.

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APPENDIX B

DESIGNATED FLIGHT TEST EXAMINER – AEROPLANE (FTEA)

SAMPLE TEST QUESTIONS AND ANSWERS

1. Cross-country time, for the purpose of meeting the cross-country time requirements for

A— a PPL licence, CPL licence, or an instrument rating, includes a landing at an aerodrome which must be a straight-line distance of more than 50 statute miles from the original point of departure.

B— a CPL licence, includes a landing at an aerodrome which must be a straight-line distance of 100 statute miles from the original point of departure.

C— a PPL licence, CPL licence, or an instrument rating, includes a landing at an aerodrome which must be a straight-line distance of more than 50 nautical miles from the original point of departure.

Answer C--Subject Matter Code: B29

2. What can a pilot expect when landing at an aerodrome located in the mountains?

A— Higher true airspeed and longer landing distance.

B— Higher indicated airspeed and shorter landing distance.

C— Faster groundspeed and increased aircraft performance.

Answer A--Subject Matter Code: D31

3. Under what condition is indicated altitude the same as true altitude?

A— If the altimeter has no mechanical error.

B— When at sea level under standard conditions.

C— When at 18,000 feet MSL with the altimeter set at 29.92.

Answer B--Subject Matter Code: E06

4. When approaching an aerodrome with an operational control tower, at what point must two-way communications be established?

A— when reaching a point 4 statute miles from the airport reference point and at an altitude of 1,500 feet.

B— prior to 5 nautical miles from the aerodrome when operating from the surface up to and including 1,500 feet.

C— at a point between 10 and 5 nautical miles from the aerodrome, or as indicated in the Suriname AIP.

Answer B--Subject Matter Code: F10

5. If poor aircraft controllability is experienced during an emergency go-around with full flaps, the cause is most probably due to

A— excessive airspeed with full flaps extended.

B— the high-power, low-air-speed situation with the aeroplane trimmed for a full-flap configuration.

C— a reduction in the angle of attack with full flaps to the point where the aircraft control is greatly impaired.

Answer B--Subject Matter Code: G45

APPENDIX B

DESIGNATED FLIGHT TEST EXAMINER – AEROPLANE (FTEA)

SAMPLE TEST QUESTIONS AND ANSWERS

6. A station is forecasting wind and temperature aloft at FL 390 to be 300° at 200 knots; temperature - 54 °C. How would this data be encoded in the FD?

- A— 300054.
- B— 809954.
- C— 309954.

Answer B--Subject Matter Code: M26

7. After 141 miles are flown from the departure point, the aircraft's position is located 11 miles off course. If 71 miles remain to be flown, what approximate total correction should be made to converge on the destination?

- A— 8°.
- B— 11°.
- C— 14°.

Answer C--Subject Matter Code: N02

8. The `taxiway ending` marker

- A— identifies area where aircraft are prohibited.
- B— indicates taxiway does not continue.
- C— provides general taxiing direction to named taxiway.

Answer B--Subject Matter Code: P106

9. If severe turbulence is encountered, the aircraft's airspeed should be reduced to

- A— maneuvering speed.
- B— normal structural cruising speed.
- C— the minimum steady flight speed in the landing configuration.

Answer A--Subject Matter Code: R152

10. If the landing gear on an aeroplane moves forward during retraction, the total moment will

- A— increase.
- B— decrease.
- C— remain the same.

Answer B--Subject Matter Code: W18

APPENDIX C

DESIGNATED FLIGHT TEST EXAMINER – AEROPLANE (PEA)

LIST OF REFERENCE MATERIALS

The publications listed below contain study material applicants need to be familiar with when preparing for private pilot knowledge tests. Most of these publications can be purchased from TTCAA or be downloaded from the TTCAA web site at <http://www.caa.gov.tt>. ICAO publications can be purchased from ICAO at: <http://www.icao.int>. The latest revision of the listed references should be requested.

- (1) The Trinidad and Tobago Civil Aviation Act No 11, 2001
- (2) Trinidad and Tobago Civil Aviation Regulations (TTCARs), in particular:
 - (a) TTCAR No.1—General Application and Personnel Licensing
 - (b) TTCAR No.2—Operations
 - (c) TTCAR No.5—Airworthiness
 - (d) TTCAR No.7—Instruments and Equipment
 - (e) TTCAR No.11—Aerial Work
- (3) ICAO Annexes: 3, 10 Volume II, 11 and 14 (pertinent parts)
- (4) ICAO Document 4444: General provisions, Aero Control service, Approach control service, Aerodrome control service, and Flight information and alerting service.
- (5) Aeronautical Information Publication (AIP) for Eastern Caribbean
- (6) Sectional Aeronautical Chart
- (7) Airport/Facility Directory
- (8) FAA-H-8083-25—Pilot’s Handbook of Aeronautical Knowledge (adopted in cooperation with FAA)
- (9) FAA-H-8083-3—Airplane Flying Handbook (adopted in cooperation with FAA)
- (10) FAA-H-8083-1—Aircraft Weight and Balance (adopted in cooperation with FAA)
- (11) FAA- H-8083-23—Seaplane (adopted in cooperation with FAA)
- (12) FAA- H-8083-9 – Aviation Instructor’s Handbook (adopted in cooperation with FAA)

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APPENDIX D
DESIGNATED FLIGHT TEST EXAMINER – HELICOPTER
(UNDER DEVELOPMENT)

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