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1. Objective

- 1.1. The examinations section of the Personnel Licensing Office (PEL Office) is responsible for administering aviation knowledge tests by preparing papers, selecting the time and place and giving clear instructions to the applicant. In special cases when the PEL Office does not have the resources to develop licensing tests, the PEL Office may choose to obtain tests or test development services from an outside provider.
- 1.2. The PEL Office may designate a Test Center¹ should it not have accommodations for knowledge testing, or the capability to serve in a timely manner, the volume of personnel applying for aviation knowledge tests. A Test Centre is typically a non-governmental facility under the direct oversight of a PEL Office. Test centers provide applicants with a CAA-approved testing environment for the administration of aviation knowledge examinations. Each Test Center and PEL Office that administers aviation knowledge tests shall have facilities for applicants that are comfortable and quiet, and provide a testing environment free from distraction.

2. General

- 2.1. The PEL Office maintains total responsibility for developing, maintaining, and administering effective knowledge tests. The PEL Office may choose to develop knowledge test items “in-house” that are unique to its CAA (i.e., develop its own air law questions). Another option is the PEL Office may choose to obtain some of these services from an outside provider (i.e., nongovernmental testing facility or obtaining knowledge tests from an outside resource). Obtaining resources or services from on outside provider does not in anyway relieve the PEL Office of its responsibility for maintaining an effective license knowledge testing system. Development, validation, administration, and maintenance of effective knowledge tests are very complex licensing functions and if these services are obtained from an outside provider, careful oversight of the products or services obtained is of up most importance. The PEL Office must ensure these products or services are acceptable and represent industry best practices. The PEL Office may choose to use the checklist in Appendix 1 of this Chapter as a guide for ensuring knowledge test are designed, developed, validated,

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administered, and maintained effectively whether tests are developed within the PEL Office or from an outside service provider. Appendix 2 of this Chapter provides a job aid for developing effective test items whether tests are developed by a service provider or as a guide for development of test items performed within the PEL Office. These checklists will help to ensure the PEL Office license knowledge tests are effective and meet industry best practices.

2.2. PEL- OFFICE AND TEST CENTRE FACILITIES

2.2.1. The test rooms in PEL Office provide and maintain on a continuous basis:

2.2.1.1. Conformance with local building, sanitation, and health codes.

2.2.1.2. Restroom facilities located in the same building where the knowledge testing is conducted.

2.2.1.3. Proper control of temperature and ventilation.

2.2.1.4. Adequate lighting. Situations that create glare on computer monitor screens should be avoided.

2.2.1.5. Adequate physical space. Separate cubicles with suitable partitions between test terminals (or test areas) are recommended. In absence of partitions, 152cm (5-foot) spacing is required between test terminals (or test areas).

2.2.1.6. Adequate table workspace. Partitioned workspaces must be at least 91cm (3-feet) wide, and for computer testing, the monitor and keyboard offset to allow adequate room to utilize supplementary test materials.

2.2.1.7. Freedom from noise, distractions, and visual aids. Situations that create noise in or around the testing area should be avoided. Test rooms must be free of any aviation-related posters that may assist an applicant in answering test questions. Test rooms must be free from any other activity during testing sessions.

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2.2.1.8. For computer testing, at least two operational computer terminals during normal business hours.

2.2.1.9. Ease of applicant surveillance during testing sessions.

- Surveillance may be accomplished with the test proctor physically stationed in the testing room, or
- Through a glass window of adequate size for monitoring testing room activities, or
- Through video monitoring systems that cover the entire testing area.

2.2.1.10. A secured area for storing test material and computer hardware containing test data.

2.2.1.11. Adequate arrangements for safety and emergencies.

2.3. TEST PROCTORS

2.3.1. Suitable test proctors or surveyors shall be available who understand the nature of the examinations and the requirements for their conduct. The test proctor is a properly trained and qualified individual appointed by the PEL Office to administer aviation knowledge tests. The test proctor administering the aviation knowledge test must positively identify each applicant, ensure proper test authorization is presented, and ensure proper completion of the PEL Office log.

2.4. KNOWLEDGE TEST GUIDES

2.4.1. The purpose of the knowledge test guide is to describe the CAA knowledge testing policy and procedures for each license area. The PEL Office developed a knowledge test guide which will answer an applicants question about taking the knowledge test by covering the following areas:
 Knowledge test eligibility requirements; knowledge areas; descriptions of the test;

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2.4.2. 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. The airman knowledge tests are very effective instruments for aviation safety and regulatory compliance. However, this test can only sample the vast amount of knowledge every applicant for a license or rating needs to operate safely in an ever increasing complex aviation system. This guide is not offered as an easy way to obtain the necessary information for passing the knowledge tests. Rather, the intent of the guide is to define and narrow the field of study to the required knowledge areas included in the tests.

Appendix 1

Licensing Knowledge Test Management Checklist

	Checklist Item	References, when applicable	Yes	No	Actions as necessary
1.	Test Design				
1.1	Ensure there is a test blueprint developed to guide the development of each licencing knowledge test				
1.2	Ensure each test blueprint covers all the required knowledge subject areas for each licencing knowledge test				
1.3	If the test is designed by a service provider, ensure the blueprint is developed according to the contract				
2.	Test Development				
2.1	Ensure each test item of each test covers a required knowledge subject area as outlined on the test blueprint				
2.2	Ensure each test covers all required knowledge subject areas				
2.3	Ensure new test items meet the criteria outlined in the <i>Test Item Development Checklist</i>				
2.4	Ensure the test directions are clear and concise				
2.5	Ensure the test is easy to read and score				
2.6	Ensure each test item can be scored objectively and that the correct answer is not subjective				
2.7	Ensure each test item is keyed to the knowledge subject area covered by the test item				
2.8	If tests are developed by an outside source, ensure the test meets <i>Test Item Development Checklist</i> and the contract				
3.	Test Validation				
3.1	Ensure each "validation test item" is clearly identified				
3.2	Ensure a test item analysis is conducted for each test that includes a Point Biserial correlation and a difficulty index				
3.3	Ensure that the test item is reviewed for possible revision if the test item has a "negative" Point Biserial Co-relation according to the test item analysis				

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	Checklist Item	References, when applicable	Yes	No	Actions as necessary
3.4	Ensure that the test item is reviewed for possible revision if the test item has a "0" Point Biserial Co-relation according to the test item analysis				
3.5	Ensure that if any test item has any distracters that are never selected, according to the test item analysis, the cause is not due to the distracter not being plausible and should be revised				
3.6	Ensure that if any test item has any distracters that are always selected, according to the test item analysis, the cause is not due to the test item being mis-keyed or that the distracter is actually correct				
3.7	Ensure that if the correct response is always chosen for any test item that the test item is not too easy and should be revised				
3.8	Ensure that if the correct response is never chosen for any test item that the test item is not too difficult or actually incorrect				
3.9	Ensure that each "validation" test item has meet the statistical requirements before being included in the test item bank				
3.10	Ensure that newly validated test items have the same Difficulty Index as the other test items that cover the same knowledge subject area before the new item is included in the test item bank				
3.11	If test analysis data is provided by an outside source, ensure data meets requirements outlined in the contract				

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	Checklist Item	References, when applicable	Yes	No	Actions as necessary
4.0	Test Administration				
4.1	Ensure the testing facility meets minimal requirements outlined by the CAA				
4.2	Ensure there are standardized procedures for distributing test materials and that the procedures are followed				
4.3	Ensure there are standardized procedures for monitoring test takers during the administration of tests and that the procedures are followed				
4.4	Ensure there are standardized procedures for scoring tests and that the procedures are followed				
4.5	Ensure there are test administration policies in place and that these policies are adhered to (i.e. incidents involving test taker illness or cheating)				
4.6	Ensure there is training regarding test administration for test monitors				
4.7	Ensure there is a mechanism in place to inform the public of testing schedules, testing procedures and testing standards				
4.8	Ensure tests are administrated in accordance with the contract if tests are administered by a service provider				
5.0	Test Maintenance				
5.1	Ensure there is a test item bank for all required tests				
5.2	Ensure the test item bank for each test covers all the required knowledge subject areas for the test				
5.3	Ensure only test items that have been validated are in the test item bank				
5.4	Ensure that the test continues to demonstrate validity				
5.5	Ensure each test is maintained in accordance with the contract if test maintenance is performed by a service provider				

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Appendix 2

Test Item Development Checklist

- 1 Does the item appear to have face validity? Yes No
- 2 Is the stem of the item clearly worded? Yes No
- 3 Does the stem have NO unrelated information in it? Yes No
- 4 Does the stem contain only material relevant to the solution or answer to the question unless the selection of what is relevant is part of the problem? Yes No
- 5 Does the stem NOT have any clues to give away the correct answer? Yes No
- 6 Does the stem contain information that pertains to information that is relevant to all the responses to avoid repetition? Yes No
- 7 Does the stem fit grammatically with the responses (i.e. a/an)? Yes No
- 8 Is there only one correct answer? Yes No
- 9 Are the responses approximately the same length? Yes No
- 10 Are the distracters realistic and plausible? Yes No
- 11 Are the responses clearly stated? Yes No
- 12 Is the stem important, clear and free of leading questions? Yes No

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2.5. Test Proctor Responsibilities

The test proctor shall not administer a test to an applicant who does not have satisfactory documentation of test authorization, as is required by ANR.PEL. Compliance with eligibility requirements is the responsibility of the applicant. Test Proctors shall:

2.5.1. Provide each applicant with:

2.5.1.1. A set of instructions for taking the test either by computer or in paper format depending on the capability of the PEL Office.

2.5.1.2. The required supplementary materials free of extraneous marks.

2.5.1.3. An accountable number of sheets of scratch paper.

2.5.2. Inspect the aid(s) the applicant plans to use during the test to ensure that they meet the guidelines stated in paragraph 3.

2.5.3. Ensure that the proper test is available.

2.5.4. Answer applicant questions regarding the proper use of equipment.

2.5.5. Monitor all activities in the testing room and be alert for any misconduct.

2.5.6. Collect printed examinations, handouts and scratch paper at the close of the test.

2.5.7. Issue the applicant an Aviation Knowledge Test Report, and

2.5.8. Advise the applicant prior to the beginning of the test that if a break is necessary, test time continues uninterrupted and the proctor will monitor the applicant's whereabouts during this break.

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2.6. Time Allowed For Tests.

2.6.1. Although the time allowed for the completion of each knowledge test may be made available to the public through printed media or in electronic format on the CAA's website, it shall always be given to the applicant during initial registration. This time is based on previous experience and educational statistics. It is considered more than adequate for applicants with proper preparation and instruction, and it is not recommended that a test be started so near the closing hour of the PEL Office that the applicant is denied the full allotted time.

2.6.2. The test proctor should use terms such as "start now" and "finish now", "no more writing please", and must require that these instructions be obeyed.

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3. Use of Aids, Reference Materials, And Test Materials.

3.1. The applicant may use aids, reference materials, and test materials within the guidelines listed below, if actual test questions or answers are not revealed. 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:

3.1.1. Applicants for aviation knowledge tests 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.

3.1.2. Manufacturer's 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 service procedures are permissible.

3.1.3. PEL Offices and Test Centers may deny applicants' use of their personal calculators based on the following limitations:

3.1.3.1. Prior to, and upon completion of the test, while in the presence of the test proctor, the applicant must actuate the ON/OFF switch and perform any other function that ensures erasure of any data stored in memory circuits.

3.1.3.2. 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.

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3.1.3.3. Printouts of data must be surrendered at the completion of the test if the calculator incorporates this design feature.

3.1.3.4. 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.

3.1.3.5. The applicant is not permitted to use any booklet or manual containing instructions related to use of test aids.

3.1.4. Dictionaries are not allowed in the testing area.

3.1.5. The test proctor makes the final determination relating to test materials and personal possessions an applicant may take into the testing area.

3.1.6. The CAA's policy on materials that may be used by applicants when taking Knowledge tests is made available to the public through the publication of Knowledge Test Standards

4. Selection of Test

4.1. The appropriate test shall be administered to the applicant and may be performed in written or computer format. The administration of an inappropriate test does not constitute a valid evaluation of the applicant's aviation knowledge and will not be accepted. The proper test for the specific certificate or rating must be administered before the applicant's file can be processed.

5. Paper- Based Knowledge Examinations

5.1. To facilitate grading of multiple choice type papers, the applicant supplied with a blank answer sheet printed with question numbers and selection blocks labeled A, B, C and D representing answer alternatives. The candidate is given the appropriate knowledge test paper, with answer sheet attached, any necessary supplementary material, an accountable number of scratch-paper sheets and instructed to mark answers to

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questions only on the answer sheet provided. Clerical personnel, who are authorized to grade these papers, shall be supplied with an answer-key or a template to fit over the applicant's answer sheet, which will show only the correct answer. Minimum passing grades are a function of the CAA; see ANR.PEL.30. The CAAI will specify the minimum passing grades. Results from this type of grading must be carefully checked so as to avoid errors. Clerical personnel shall ensure that test papers are free from any markings before re-filing.

6. Computer- Based Knowledge Examinations

- 6.1. The applicant shall be provided with appropriate supplementary material and an accountable number of scratch-paper sheets. The computer terminal to which the applicant is assigned will have the correct knowledge test electronically drawn from a test question bank in the CAA's central computer. Introductory material is provided to the applicant in the form of an on-screen tutorial for familiarization with computer-based testing procedures. With computer-based testing there is no need for clerical personnel to grade the applicant's examination because that function is accomplished electronically on-screen and with no delay upon test completion.

7. Applicant Misconduct During Testing

- 7.1. If an applicant appears to be cheating, the test proctor shall immediately discontinue the test and escort the applicant from the area to avoid disturbing others who may be taking examinations. The proctor will collect the applicant's authorization, all test materials, including supplementary materials, and advise the applicant that further testing may continue only after the CAA completes an investigation. The proctor shall immediately notify his or her supervisor who will bring the incident to the attention of the head of the Office or Section for appropriate action. In all cases, the test proctor shall retain any evidence related to the cheating incident in a secured area until it is released to appropriate CAA personnel. In addition, appropriate enforcement action maybe taken against any applicant that might be involved. See ANR.PEL.32.

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8. Handling Applicant Comments on Tests

- 8.1. Applicants must have an opportunity to comment on their testing experience, the environment and the CAA test questions. Test proctors must remember not express opinions regarding test questions or answers prior to, during, or after a test session.

9. Aviation Knowledge Test Reports

- 9.1. An example of an Aviation Knowledge Test report is provided in PELF 1.3.002A. The PEL Office validate the test report with an embossed or stamped seal before presenting it to the applicant.

10. Duplicate Aviation Knowledge Test Reports

- 10.1. Two Aviation Knowledge Test Reports will be provided to the applicant. Once an applicant leaves the testing facility furnished for any reason. An applicant who requires a duplicate test report due to loss, upon completion of an aviation knowledge test, a duplicate test report must not be theft, or destruction of the original must send a signed request, including a fee, to the CAA Controller of Licensing.

11. Retesting after Failure

- 11.1. The applicant shall surrender the previous test report to the test proctor prior to retesting. The original test report is to be retained by the proctor and attached to the applicable sign-in/out log after administering the retest. The latest test taken will reflect the official score. An applicant may apply for retesting after receiving additional training and an endorsement from an authorized instructor who certifies the person is prepared and has been found competent to pass the test. See ANR.PEL.33(b).

12. Validity Period for Tests.

- 12.1. All aviation knowledge tests have an expiration date of 6-calendar months or 12-calendar months from the first knowledge test for that license or rating, whichever is less; see ANR.PEL.31(c), except that airline transport pilot knowledge

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tests dates may be extended for applicants who meet the requirements of ANR.PEL.31(d).

13. Record Keeping

13.1. The knowledge testing process will establish at least the following records:

13.1.1. Daily Log Sheets

13.1.2. Records of Test Results

13.2. These records should be maintained in a secured location for a period of 24 calendar months or until the information is transferred either manually or electronically to the applicant's individual licensing file.

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Appendix 4

Example Job Aid/Checklist

Testing	Procedures	Standard	S	U	Remarks
Civil Aviation Authority of Israel Surveillance Of A Test Centre's Knowledge-Testing Procedures					
Test Centre name and location: _____ Inspector's name: _____ _____ Inspection date: _____ Inspection reference number: _____					
Ref/No					
	Before Test				
01.	* Are the identification, address and age of every applicant verified?				
02.	* Does the test proctor request test authorisation from every applicant?				
03.	* Is the test date and time-in captured for every applicant on the Test Centre daily log?				
04.	* Is every applicant required to print and sign their full legal name, identification number or date of birth and note the type of test on the Test Centre daily log?				
05.	* Does the test proctor initial the Daily Log for each test administered?				
06.	* Is "IMPORTANT NOTICE FOR KNOWLEDGE TEST APPLICANTS" displayed on every log sheet, and are applicants required to read this notice before signing the log?				
07.	* Is the applicant provided with introductory material for familiarisation with computer-based testing procedures?				
08.	* Is the applicant provided with the correct, current and complete supplementary material free of extraneous marks?				
09.	* Is the applicant provided with an accountable number of scratch-paper sheets?				
10	* Does the test proctor inspect the aid/s the applicant plans to use during the test to ensure compliance with CAA policy on test aids and materials that may be used by applicants for knowledge tests?				
11.	* Does the test proctor ensure that the correct test is available for administration when the applicant arrives, and that the test is satisfactorily displayed at the testing station?				

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Testing Procedures		Standard	S	U	Remarks
12.	* Are test proctors familiar with time allowed for tests?				
13.	* Is the applicant advised prior to the beginning of the test that when a break is necessary test-time continues uninterrupted?				
14.	* Are testing personnel familiar with CAA policy concerning re-testing after failure?				
	After Test				
15.	* Is the time-out captured for every applicant on the Test Centre's daily log?				
16.	* Does the test proctor ensure that the applicant turns in all handout materials and scratch paper?				
17.	* Does the test proctor erase all recorded test material from the applicant's computer or calculator?				
18.	* Does the test proctor issue a validated Aviation Knowledge Test Report to applicants at the completion of testing?				
19.	* Does the test proctor know what to do if an applicant gets caught cheating?				
20.	* Does the test surveyor provide applicants with a test critique form?				
Additional Remarks:					

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Appendix 5

Example Applicant Critique

Please answer the following survey – your comments are very important.

1. Did the test proctor ask for proper authorization before administering your aviation knowledge test?

Yes No Not Applicable

2. Did the test proctor inspect your test aids and/or reference materials before allowing you to use them during the test?

Yes No Not Applicable

3. If you took a computer-based test did the test proctor give you an adequate briefing on computer testing procedures?

Yes No

4. Was the supplementary test material in good condition?

Yes No

5. Was the testing area free of distractions and non-test-related activity?

Yes No Comments:

6. Did you feel there was adequate spacing between testing stations?

Yes No

7. Was your testing experience free of computer equipment problems?

Yes No Comments:

8. Was visual or video surveillance of the testing area being conducted while you were taking your test?

Yes No

9. Please enter any comments regarding specific CAA test questions.

10. Please enter any comments regarding your testing experience. *Should additional space be required use back of sheet*