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PERSONNEL LICENSING

GENERAL

EXAMINATION-RELATED CHANGES IN 2016

☛ Indicates changes.

☛ This AIC replace AIC 013-2015 dated 15 OCT 2015.

1. PURPOSE:

☛ The purpose of this AIC is to provide information to the aviation industry regarding two additional theoretical knowledge examinations and an amendment to Document SA-CATS 61.01.10 that will be implemented in July 2016.

☛ This document is meant to act as a consolidated source of information and supplement the various other mechanisms that have been used to broadcast the changes. It also aims to provide an update on details that have previously been discussed at various forums and are considered important for Aviation Training Organisations (ATO's) and examinees to be acquainted with.

2. CHANGES:

The matters that are referred to above are:

- a. A dedicated Instrument rating (IR) theoretical knowledge examination, entitled Operational Procedures;
- b. A dedicated General Radiotelephony Operator's Certificate theoretical knowledge examination;
- c. A revision of the Technical Standard governing theoretical knowledge examinations.

☛ **The three amendments referred to above are scheduled for implementation on 2016-07-01.** Details are discussed under the respective headings below. General notes are provided at the end of this circular. It is specifically re-emphasized that the implementation date above coincides with the implementation of the revised Regulation 61.11 and document SA-CATS 61.11 (Refer to paragraph 4).

3. INTRODUCTORY COMMENTS:

☛ The changes discussed in this circular have been made in accordance with the legal process prescribed by the Regulations, either separately or as part of larger legislative amendments. As such they were approved by the Civil Aviation Regulations Committee (CARCom). Industry response after publication for comment was considered and incorporated where feasible. Certain administrative details are being finalized at the time of amendment of this circular.

☛ It is expected that the changes will have a positive impact on training and testing standards in the Republic. The Authority has attempted to be as transparent as practical in the process and has received encouraging feedback. The two theoretical knowledge examinations that will be introduced contain elements that involve a certain amount of pioneering work for the CAA. The experience gained will be fed back into the assessment processes for the purposes of increased evaluation accuracy.

4. IR THEORETICAL KNOWLEDGE EXAMINATION (OPERATIONAL PROCEDURES):

- a. The introduction of the new stand-alone IR examination is in consequence of large-scale changes to Regulation Part 61, Subpart 11 (Instrument Rating). These changes were initiated by the industry and development started in 2012.
- b. This examination will comprise of a single examination that may be attempted either online at the offices of the Authority in Midrand or written at the Out-station venues. In the latter case, the identical answering sheet as for the current CPL and ATPL examinations will be used.
- c. ☛ The examination will effectively comprise an additional subject. IR-only questions will be extracted from the current CPL question database and inserted into the IR exam. The database will be populated with additional new questions in selected topics.
- d. The assessment will cover seven topics as indicated in Document SA-CATS 61 and have a pass mark of 75%. The detailed syllabus may be found in Appendix 2.0 C to Document SA-CATS 61.
- e. This examination is regarded as critical and the CAA has the responsibility to ensure that candidates are evaluated thoroughly and fairly. Consequently, a significant amount of effort has been spent in its research, design and benchmarking. In addition to the CAA inspectorate, external Subject Matter Experts (SME's) will be utilized during the testing process.
- f. ☛ An examination with approximately 100 questions and duration of 2 hours and 30 Minutes may be expected. These specifications were obtained by exact, rigorous calculations and take into account numerous factors such as theoretical time allocation per question type, the requirement for thorough and accurate testing as well as factors such as examinee fatigue. These assessment details will be confirmed or amended prior to implementation, taking into account feedback obtained during the testing process.
- g. The purpose of the examination will be to test candidates' understanding of operational IFR aspects and All-weather operations. It will therefore deliberately contain practical questions. This means that not only will candidates' factual recall be tested, but also their ability to apply this knowledge. This is in accordance with proper assessment practice.
- h. The Authority wishes to caution candidates to obtain a thorough insight into operational IFR and All-weather Operations matters prior to attempting this examination.
- i. Approximately 25% of the examination will cover the "Air Law and All-weather Operations" topic, with the remainder split roughly equally between the other 6 topics. While one mark will generally be awarded for a standard knowledge question, more marks will be allocated to a question involving calculations or the interpretation of data or visual attachments. The maximum possible score for any question will be 3.
- j. The IR theoretical knowledge examination (as is the case with the Radiotelephony examinations) is excluded from the subject series that must be completed within a continuous period of 18 months. All other relevant restrictions on rewrites still apply.
- k. ☛ The suggested study material is similar to that for the present CPL/ IR examinations, with minor exceptions. AIC 009/2014 may be referred to for a more complete description, but the IR-applicable material is as follows:
 - Jeppesen EASA or JAA ATPL manuals (as applicable to the IR topics);
 - ICAO Annex 14 (the volume appropriate to the aircraft category should be selected);
 - ICAO doc 8168 Volume 1;
 - Meteorology for the South African Private Pilot (S. Medcalf);
 - South African Civil Aviation Regulations and Technical Standards including the latest amendments;
 - South African Aeronautical Information Publication (AIP);
 - AIC 43.1 dated 2002-08-15 (For Meteorology);
 - Additional suggested material for basic aerodynamic aspects is as follows, where applicable:
 - Air Pilot's manual Volume 4
 - FAA Rotorcraft Flying Handbook FAA-H-8083-21 or later version (Some versions might be marked "For Gyroplane Use Only");
 - Principles of Helicopter flight - Wagtendonk;
 - Helicopter pilot's supplement – Keith Piggott.
- l. ☛ The CAA has selected further suggested IR study material. These documents contain additional useful information on topics that will be assessed in the IR examination. Electronic copies of the documents are available free of charge from the Authority website (via the appropriate link on the "Personnel Licensing" web page, as referred to in paragraph 10 below) or from the relevant regulatory authorities, where

applicable. Hard copies may be purchased commercially.

The suggested documents are indicated below with relevant subject matter indicated after the hyphen. The South African IR syllabus topics are indicated in brackets. Refer to note *

- FAA-H-8083-15B (or later version): Instrument Flying Handbook
 - Chapter 6, Section I Airplane Attitude Instrument Flying Using Analog Instrumentation
 - Chapter 6, Section II Airplane Attitude Instrument Flying Using an Electronic Flight Display
 - Chapter 7, Section I Airplane Basic Flight Maneuvers Using Analog Instrumentation
 - Chapter 7, Section II Airplane Basic Flight Maneuvers Using an Electronic Flight Display
 - Chapter 8 Helicopter Attitude Instrument Flying(Topic: INSTRUMENTS / C.7.11, C.7.12, C.7.13, C.7.14)
- South African Civil Aviation Authority Flight Instructors Training Procedures
(An edited version dated 2009-06-29 is titled "Flight Instructor's Manual of Training Procedures")
 - Applicable practical aspects from Exercise 18(Topic: INSTRUMENTS / C.7.11, C.7.12, C.7.13, C.7.14)
- FAA-H-8083-16 Instrument Procedures Handbook
 - Chapter 2 En Route Operations(Topic: FLIGHT PERFORMANCE AND PLANNING / C.4.14)
- FAA-H-8083-25A (or later version): Pilot's Handbook of Aeronautical Knowledge
 - Chapter 8 Flight Manuals and Other Documents: Airplane Flight Manuals (AFM)(Topic: FLIGHT PERFORMANCE AND PLANNING / C.4.13)
 - Chapter 9 (Weight and Balance): Complete chapter (except foreign legislative aspects)(Topic: FLIGHT PERFORMANCE AND PLANNING / C.4.17)
- "Wake Turbulence." GAP safety publication of the Civil Aviation Authority of New Zealand
(Topic: SPECIAL OPERATIONAL PROCEDURES AND HAZARDS / C.5.5)
- U.S. Department of Transportation FAA AC No: 61-134 Date 4/1/03
GENERAL AVIATION CONTROLLED FLIGHT INTO TERRAIN AWARENESS
 - Complete document except Appendix 1. CFIT CHECKLIST(Topic CFIT / C.5.7)
- DGAC Surveillance Authority - Stabilised Approaches Good practice guide
 - Complete document as compatible with syllabus(Topic STABILIZED APPROACH / C.5.8)
- Airbus Flight Operations Briefing Notes - Approach Techniques Flying Stabilized Approaches
 - Complete document as compatible with syllabus(Topic STABILIZED APPROACH / C.5.8)
- AIC 40.12
(Topic AIR LAW AND ALL WEATHER OPERATIONS / C.3.3.b)
- AIC 42.2
(Topic FLIGHT PERFORMANCE AND PLANNING / C.4.13.d)

* Candidates are not required to study subject matter items that purely relate to foreign regulatory aspects.

5. GENERAL RADIOTELEPHONY OPERATOR'S CERTIFICATE THEORETICAL EXAMINATION:

- a. The CAA is also introducing a stand-alone General Radiotelephony examination which will effectively be an additional, single-paper examination. The pass mark will be 75%.
- b. The testing of aeronautical radio equipment operators is required by the International Telecommunications Union (ITU). The theoretical testing towards the Radiotelephony Operator's General Certificate has to date been integrated with the CPL / IR examination. This arrangement has proved to be unsatisfactory for various reasons, mainly the unsatisfactory testing of radiotelephony theory. The CAA has received numerous complaints over a period of time about the poor standard of pilots' radiotelephony proficiency and has the responsibility to address this deficiency.
- c. This examination will comprise of 60 questions and have a duration of 1 hour and 30 minutes. The detailed syllabus may be found in Appendix 1.5 A to Document SA-CATS 61.
- d. This examination will contain some theoretically-aimed questions, but its chief emphasis will be on knowledge that is fundamental to practical radiotelephony and operations in various types of airspace.
- e. At implementation, only aspects that are common to both the IR and CPL will be tested. IFR-only subject matter will consequently not be evaluated in this examination. The first major adjustment of the General Radiotelephony Operator's examination is provisionally planned for 2017. Industry will be advised in due time of such changes.
- f. A portion of the examination will require the answering of questions relating to visual Morse code identification. Typical elements evaluated will be the identification of radio beacon ident Morse code and the use of tables to translate letters into Morse code. Candidates will be provided with Morse code tables and are not required to commit the code to memory.

- g. *The General Radiotelephony Operator's Certificate theoretical knowledge examination (as is the case with the Restricted Radiotelephony examination) is excluded from the subject series that must be completed within a continuous period of 18 months. However, the relevant restrictions on re-writes still apply to this subject.*
- h. ☛ *The CAA has attempted to provide a clear and unambiguous syllabus. In certain of the topic areas, headings have been taken directly from the reference AIC's to simplify studying. Four foreign study books have been included in the list of suggested material. These reference books have been selected owing to the quality of their content.*
- i. *Candidates should note that the acronym "PIREP" is used in the syllabus as a generic term for in-flight meteorological reports by pilots. This acronym is commonly used in American literature. The specialized term "Special Air Report" or less formal variations such as "Pilot report", "Air report" or "Air observation" may also be encountered in some documents.*
- ☛ *For the time being, candidates will not be assessed on the technical details of these report types, but rather on a general awareness of them and the information that should typically be transmitted for such purposes. Unique foreign PIREP requirements will not be assessed (Aspect GR5 refers).*
- j. *The sub-topic "The application of Search and rescue (SAR) elements" relating to the filing of flight plans will not be assessed for the time being, except for the sub-topic "Describe the 3 SAR phases" (Aspect number GR7 refers).*
- k. ☛ *The suggested study material is as follows:*
- *South African Civil Aviation Regulations and Technical Standards including the latest amendments;*
 - *South African Aeronautical Information Publication (AIP);*
 - *AIC 40.2;*
 - *AIC 41.3;*
 - *AIC 41.5;*
 - *AIC 41.6;*
 - *AIC 41.8;*
 - *AIC 42.1;*
 - *AIC 44.1*
 - *EASA / JAA ATPL Training manual: Radio navigation (for radio theory);*
 - *Air Pilot's Manual Volume 7 Radiotelephony;*
 - *FAA-H-8083-25A (or later version): Pilot's Handbook of Aeronautical Knowledge - PIREP's*
 - *"Wake turbulence." GAP safety publication of the Civil Aviation Authority of New Zealand.*

6. ☛ NOTES REGARDING THE NEW EXAMINATIONS:

- a. *Candidates should be thoroughly familiar with the content of the introductory section in both of the appendices mentioned above, as important instructions are described there. This section may be found under the syllabus heading "IMPORTANT NOTES TO THIS SYLLABUS."*
- b. *The listed, suggested study material covers the subject matter required to be understood for the examinations. Candidates may expect questions that aim to test their understanding and application of knowledge and should ensure that their preparation is commensurate with such a level of learning.*
- c. *Candidates are required to refer to the relevant section of each syllabus of theoretical knowledge when using reference material to prepare for an examination.*
- d. *Certain of the suggested study references describe foreign regulatory aspects and practices. These foreign aspects will not be assessed, although candidates may find some of the information useful to help increase their technical insight.*
- e. *Candidates are advised that the period of 18 months within which all applicable subjects shall be passed (where applicable) will be enforced strictly. No extension will be given. The practice of granting candidates additional time ex gratia to compensate for the annual CAA closure period during December and early January will be terminated.*
- f. *Candidates should be especially diligent when planning their examination preparation (study) schedule. The general practice of only studying for and passing a single examination subject at a time is considered unwise by the CAA. This practice is neither consistent with general schooling nor tertiary education methodology. This method allows a first credit to be obtained sooner, but carries the risk that candidates will lose all subject credits when the 18 month period expires as a result of their poor exam schedule planning. This tendency cannot be condoned by the Authority and the CAA strongly*

recommends that candidates study in advance for several subjects and attempt these in short succession.

- g. Candidates are urged not to aim purely for the minimum acceptable standard of knowledge, but to read widely from a selection of quality literature in their pursuit of excellence.
- h. The Authority is sensitive to the burden that additional examination papers places on exam candidates, but wishes to assure the training industry that the implementation of the above-mentioned examinations was considered very carefully. It is imperative to long-term flight safety to assess these critical elements in dedicated examinations. The possibility of decreasing the overall number of theoretical knowledge examinations for the CPL and ATPL will be investigated at an appropriate time in the future.

7. NEW QUESTION TYPES:

- a. The CAA will utilize 3 previously unused question types in accordance with Document SA-CATS 61.01.10. These question types are:
 - Yes / No;
 - True / False;
 - Multiple-response.
- b. Examinees and trainers should be aware of the nature of a multiple-response type question. This question type allows for more than one correct option in a question to be selected. This is ideal for certain questions that inherently require several components to achieve complete response, such as when testing what the advantages of certain types of aero-engines are.
The requirement to potentially select more than one correct answer will be stated in the stimulus of the question.
- c. Certain Multiple-response questions will award a mark per correct option (cumulative scoring), while others will require all correct options to be selected for the allocated marks to be achieved (dichotomous scoring). The different scoring methods may be recognized as follows:
 - Questions that are scored cumulatively will be preceded by a phrase such as:
"Select the correct option or options"
 - Questions that are scored dichotomously will be preceded by a phrase such as:
"Select all of the applicable options to obtain the allocated marks"

8. CHANGES TO DOCUMENT SA-CATS 61.01.10 (THEORETICAL KNOWLEDGE EXAMINATIONS):

- a. Technical Standard 61.01.10 was revised in total. The general intention of the revision was to remove ambiguity, synchronise legislation with practical requirements and incorporate modern developments into the operational aspect of examinations. Enforcement-related aspects have been updated, taking into account the reality of examination fraud.
- b. The most significant change to the examination regulations, however, entails the re-introduction of restrictions to the attempts allowed per subject for the theoretical knowledge examinations. These limits will be discussed in more detail in the following paragraphs.
- c. In 2008, the CAA removed the previous limits on the number of examination attempts. This was done to allow exam candidates more flexibility in the writing of exams and remove the previous, unpopular, restrictions. It has unfortunately become apparent that the removal of the restrictions has been associated with an increased risk of exam database exposure and decay in the standard of knowledge. Theoretical examinations are a crucial element of the regulatory testing system and the Authority has the responsibility to ensure satisfactory testing.
- d. The revision of Document SA-CATS 61.01.10 was preceded by more than a year's research. The current examination protocol used by the CAA was compared extensively with those used in comparable, eminent aviation regulators worldwide and found to be excessively lenient. The general global practice has been found to correlate closely with the CAA's conceptual ideal and was used as the basis for a new system.
- e. The present 72-hour limit for re-writing a subject will be increased to 7 calendar days across the board. This will help to remove the severe administrative burden placed on Examination staff by frequent attempts and also allow new entrants earlier opportunities for examination sessions. For the time being, this will be the only rewrite limitation applicable to the regulatory non-professional pilot examinations e.g. the PPL (excluding the IR).
- f. Additional restrictions will be applicable to the professional, IR and General Radiotelephony Operator's examinations. The essence of the advanced restriction system is that examinees will be penalized for

repeated or serious failures in a subject by the imposition of a compulsory waiting period of 2 months before being allowed to rewrite that particular subject. Candidates may still attempt other subjects which they do not hold credits for and which are not subject to a waiting period.

- g. The waiting period is referred to as a "compulsory retraining period" in the Regulations and is intended to encourage candidates to obtain remedial training in respect of subject matter which they have difficulty in understanding.
- h. The revised Regulation states, in summary, that a candidate who has failed an applicable examination subject conducted by the Authority may not rewrite the applicable examination subject:
 - in the case of a first or second failure, within a period of 7 calendar days;
 - in the case of a third or subsequent failure, within a period of 2 calendar months;
 - in any case where a score of less than 50% was achieved, within a period of 2 calendar months.
- i. The restrictions therefore mean that candidates will be restricted from accessing a failed subject after 3 failures or after achieving less than 50% for that subject. This is intended to limit the opportunity for examinees to merely continue writing the required examinations until they pass, yet never actually understanding the subject matter. Despite the new waiting period, this system is still believed to be very reasonable and remains more lenient than that used by many other regulators.
- j. If a score of less than 50% is achieved for a subject at the same time as a third or subsequent failure, the compulsory retraining period will still be only two months.
- k. An example of the effect of these limitations in a scenario is provided graphically in figure 1 at the end of this circular.
- l. The following aspects are important to keep in mind for exam-planning purposes:
 - ☛ The compulsory retraining period referred to above, shall not apply to any candidate who holds credit for four (4) or more examination subjects on 2016-06-30. This exception shall remain applicable as long as the credits held on that date remain valid. Any candidate that qualifies for this exception shall nevertheless be subject to the waiting period of 7 calendar days for each failure of an examination subject.
 - ☛ A candidate who holds credit for the Air Law & Operational Procedures subject on 2016-06-30 shall not be required to pass the new single-paper Instrument Rating examination subject (Operational Procedures), if such a person requires an Instrument rating. This exception will expire with the lapse of the credit validity.

9. ☛ MATERIAL FOR THE EXAMINATIONS:

- a. Candidates should bring the following stationery and equipment for use during an Instrument rating or General Radiotelephony examination session:
 - Non-programmable, non-alphanumeric (preferably scientific type) calculator;
 - Allowed electronic navigation computer or E6B-type flight computer ("whiz wheel");
 - Allowed writing and erasing utensils for answering of Out-station papers or for use on rough work paper (including a clear 30 cm ruler).
- b. An exam manual will be provided, containing general supplementary information as required during these examinations. This manual will include a blank CA 172-04 AFTN Flight Plan form, Morse code identifiers and selected IFR procedural tables. Operationally critical information will not be provided in the manual. Examples of such aspects that should be committed to memory are the Significant Weather chart and weather station symbols, important practical AWOPS aspects (e.g. single-engine take-off minima and holding speeds), procedural system minima, speed limitations contained in Regulation Part 91 and semi-circular rule tables.

10. ☛ EXAMINATION INFORMATION:

- a. The aviation industry should be aware that the Examination section of the CAA has been incorporated with the Personnel Licensing (PEL) department as a result of a large-scale organizational restructuring process.
- b. This change is also reflected on the official website. Examination information may consequently be obtained by following the "General examination information" link on the PEL homepage.

11. FEEDBACK:

- a. *The CAA welcomes constructive input in respect of assessment design and examination database matters. Examinees may use the following dedicated email address to provide useful information to the Personnel Licensing (PEL) Examination department:
examfeedback@caa.co.za*
- b. *This address is intended to give examinees an opportunity to forward legitimate observations and technical comments to the correct department in an efficient manner. Email comment should be clear and concise, but contain as much as technical detail as possible. This avenue is not intended for general complaints and queries, or for unreasonable requests and trivial disputes.*
- c. *It is requested that, until the end of September 2016, this mechanism is used only for feedback regarding the two new examinations.*
- d. *Unfortunately, the CAA is unable to respond individually to all communication. If proper contact details are provided, the sender may be contacted for further information where necessary.*

12. CONCLUDING NOTES:

- a. *SME's from various disciplines have been and will continue to be involved in the verification of the quality, level of difficulty and relevance of the content of the examinations referred to in this circular. The same applies to the testing process. The CAA is satisfied that the level of evaluation that will be achieved by the new examinations will help ensure that the regulatory assessment of candidates will be appropriate to the privileges granted by the respective certification.*
- b. *This circular will be revised as necessary to reflect significant updates or changes to information.*



DIRECTOR OF CIVIL AVIATION

Figure 1

An example of how the new restrictions on examination attempts could affect a candidate

