



Autumn 2017

News and advice for the training professional knowledge, best practice and standardisation

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Controlled airspace infringements

In the instructor and examiner community, we all strive to achieve the highest of standards whilst we train our students to fly. Instructing and examining places unique demands upon the individual, not only are they expected to instruct or assess, but also recognise mistakes and mitigate the effects of those mistakes that perhaps aren't caught in time. In addition to this, the instructor/examiner also has to maintain high levels of situational awareness and must have an accurate mental model of other traffic and airspace in relation to the aircraft. Also, he or she will also need to monitor aircraft systems, RT and at the same time be mindful of the mental and physical state of the student.

It is very easy for our situational awareness to be compromised and we should all be aware that this is a common threat to us every time we get airborne. Between 2011 and 2015, there have been 380 infringements of controlled airspace by aircraft that were engaged in training or instruction – an average of 76 per year!

- Available data would seem to suggest that about 20% of the annual infringements are committed by solo student pilots - about 15 per annum.
- This indicates that 61 infringements a year happen whilst a qualified instructor or examiner was acting as the PIC. To put it another way, five instructors or examiners per month are infringing controlled airspace.

Some of the data and MORs indicate that a number of the infringements during training are vertical penetrations of controlled airspace. Further research has found that very often these infringements occur when the instructor is training for upper air exercises such as; recovery from unusual attitudes, stalling and other basic handling exercises. This is a major threat when workload in the cockpit is high for both parties.

This workload may at times compromise the mental capacity of the commander and the aircraft may be allowed to stray either upwards or laterally into CAS and within seconds an infringement has happened.

Embarrassing at best and potentially critical for those affected by loss of separation!

So, what can we as professional pilots do to try and reduce the number of infringements?

- We all teach the HASELL checks, but are we being mindful enough of the airspace boundaries in our local flying area?
- Could we fly a little further afield and find less restrictive volumes of airspace within which to instruct?
- Could we spend a little more time on the ground briefing with the student, actively studying the airspace, and thus conveying the seriousness of honouring the boundaries?

Much of the feedback that we have received from the flying community (ATOs, Pilots, Examiners, Airfields etc) as a result of airspace infringement seminars, Local Airspace Infringement Working Groups, and infringement workshops would suggest that the standards of PPL Navigation may be poor and that the navigation theoretical examinations have become inadequate for the demands of the modern pilot.

This issue has been accepted and addressed by the CAA and new theoretical knowledge exams are currently being drafted that address the implications of penetrating airspace without the necessary clearance, the use of transponders and GPS navigation systems. Theoretical knowledge is the foundation and works hand in hand with practical training but ultimately, the proficiency of a pilot and his or her ability to fly safely and legally within the UK's complex airspace relies on us, the instructors and examiners.

In the world of professional training, we should all remember that what is demonstrated and taught first, will be what the student remembers and then emulates. Good practices start from day one and the importance of showing the significance of Controlled Airspace and understanding the impact of infringements cannot be underestimated.

Stalling... an update to clear up any confusion!

Recognition and recovery from stalls:

A series of stalls will be required and the examiner will brief the sequence of these both in pre-flight and in the air.

- Normally the first stall will be in the clean configuration, entered from straight and level flight, with the throttle(s) closed. The applicant is to recover when the aircraft has reached the stalled condition (see note 1).
- The second stall will be from an approach configuration, with approach flap setting gear down and low power. The stall should be initiated from a turn (level or descending with about 20° AOB) and the applicant should recover at the first indication of a stall (see note 2).
- The third stall will be in the landing configuration with full flap, gear down and low power. The stall should be initiated from straight flight in a slight descent as if established on final approach to land (i.e. not climbing) the applicant should recover at the first indication of a stall (see note 2).
- All recoveries shall be made with the minimum loss of height and returning to a clean climb configuration at V_y maintaining directional control or possibly to level flight if instructed to do so by the examiner.

Note 1: The stalled condition can exist at any attitude and airspeed, and may be recognised by continuous stall warning activation (if fitted and serviceable); and one of the following:

1. buffeting, which could be heavy at times;
2. lack of pitch authority and/or roll control;
3. inability to arrest the descent rate.

Note 2: First indication of a stall means the initial aural, tactile or visual sign of an impending stall, which can be either naturally or synthetically induced.

NB: When examiners are conducting the pre-flight briefing they should ask the candidate to show the examiner a stall in the 'stalled condition' and recover when the candidate recognises this condition using the standard stall recovery with minimum height loss. If the candidate recovers earlier than expected, then the examiner should ask the candidate to repeat the exercise and recover on the command of the examiner.

Guidance on the number of stalls to be covered on the SE(A) ST/PC

There is some confusion between examiners on how many stalls need to be carried out the SE(A) ST/PC. The main cause for this confusion comes from the change of wording in the UK CAA FEH 2014 and the current version of the FEH 2016. However, the FEH is being reviewed and updated to comply with Part-FCL. In Part-FCL – Appendices, AMC and GM, Appendix 9, B the specific requirements for the aeroplane category and content of the training/skill test/proficiency check gives a clear explanation on what the letter "M" stands for when using the standard ST/PC Content check list for items that need to be completed. Therefore:

(e) Where the letter 'M' appears in the skill test or proficiency check column this will indicate the mandatory exercise **or a choice where more than one exercise appears.**

So to clarify any confusion, only one of the four stalls is mandatory from the test schedule but more than one stall can be requested to be carried out at the examiner's discretion. This will be added to the new version of the FEH.

Booking skill tests for a commercial pilot licence or instrument rating

For any skill test for a UK-issued Part-FCL CPL or to add an IR (including a CB IR) to a UK-issued licence **the applicant must book the test via the CAA Flight Test Booking Service**, using the following email address: flighttestbookings@caa.co.uk. The CAA will then designate an examiner for the test. This is in line with **IN-2016/004** which can be found on the CAA website.

Use of GPS during VFR navigation training

There have been several concerns raised by examiners and instructors alike about the use of GPS during VFR Navigation training flights and in particular, the Qualifying XCC. Due to the problem with infringements, it is essential that instructors teach their students how to use the GPS and understand the limitations.

The use of GPS when fitted is almost impossible to monitor while students are flying solo sorties so, they must be made aware that if they do make use of the kit to enhance their situational awareness, then these systems should be used only as a backup to Basic DR Navigation.

Therefore, it is essential that students are taught basic DR navigation techniques and that it is used as the primary source of navigation. Instructors must ensure that before any student attempts any solo navigation sortie while training, they must have competent DR navigational skills and consider the threats and errors associated with the flight concerned.

The final barrier in the chain of events is the licensing skills test, the test candidate has to demonstrate their ability to successfully navigate the route given by the examiner making use of a recognised DR navigation technique.

Dual Flight with an instructor

This flight may be the only time a pilot flies with an instructor for two years. Not only is it an opportunity to refresh and check those handling and emergency skills that are infrequently practised, but an opportunity for the instructor to provide focus on areas for improvement. Below are a few areas that have been highlighted for consideration in no particular order.

- **Controlled Airspace:** The continued re-occurrence of airspace infringements has become a great concern within the CAA and NATS. We are fully aware that a great majority of pilots infringe unintentionally. However, instructors when practically possible should expose pilots to the standard procedures when flying in the proximity of CAS. If there is no CAS in your immediate vicinity, have you considered going on an away day with another pilot? Ensure those pilots are fully aware of the 'Listening Squawk' option when the opportunities occur. Ensure pilots are familiar with and understand the use of Transponder Mode C (ALT). All the above is available for one reason, to reduce the number of infringements and make our skies a safer place to fly for all.
- **Circuit rejoins:** If possible, overhead joins, other joins and circuits should be practiced using the information in UK CAA Skyway Code, pp90-102 as guidance. The importance of maintaining situational awareness when operating in the circuit **MUST** be encouraged at all times!
- **The 'Go-Around' procedure:** This is probably one manoeuvre which is least practised on a day to day basis for various reasons. The aircraft is at low speed but more concerning normally very close to the ground. Therefore, it is essential that the procedures in the AFM or POH for your particular aircraft are followed. This can be practised out in the local area and when safe to do so when operating in the circuit. It is essential that students are encouraged to make decisions as to when they should 'go-around'.
- **RTF standards:** Once gaining an RTF licence, it is likely that the pilot's confidence will improved but equally, use of the correct phraseology is likely to fall by the way side. Take this opportunity to give advice and improve the standard of RT.

For the correct RTF phraseology, refer to the latest version of **CAP 413** (Ed. 22, dated May 2016).

NB: It is essential that ALL Flight Examiners ensure the correct 'Go-Around' procedure and correct RT is used during the test, check or assessment of competence.

Assessment of the ME engine failure after take-off (EFATO)

An engine failure after take-off is probably the most critical emergency that can be faced by an ME pilot, and a successful outcome depends not only on correct use of the controls but also correct analysis of the situation and correct actioning of the checklist. During a simulated EFATO, an examiner can physically see if controls have been operated correctly and can monitor the flightpath and speed; however, some checklist actions can only be judged by what the applicant says out loud.

Whereas events such as the application of rudder away from the live engine or causing a speed decay that leads to loss of directional control are indisputable, 'mis-speaking' or omission of verbal checks can leave the examiner uncertain of whether the correct physical actions would have been taken in the event of a real emergency. This problem is particularly apparent during the initial identification of the failed engine: if the incorrect engine is called but the correct touch drills are carried out, the examiner cannot know if the applicant changed his identification on seeing the closed throttle or just said the wrong word. As a general rule, physical errors can and should lead to an assessment of 'unsatisfactory' for the EFATO.

Because of the uncertainty involved in verbal actions, if the applicant's only error during the EFATO is the verbal mis-identification of the failed engine or the verbal omission of a checklist item, such as confirmation that the landing gear and flap have been retracted, then the examiner should consider re-assessing the EFATO at a later stage of the flight: it would not be necessary to retest the EFATO directly after a take off or go-around and so this could be achieved later in the departure or during the airwork phase. If the same verbal errors were present on the retest then the examiner should reasonably infer that incorrect actions would have been taken as a consequence during a real EFATO and should assess the test exercise as unsatisfactory.

Instructor assessment of competences

We have received feedback that when FIE's are conducting instructor AoCs, in particular CRI and IRI, that the 45 minute lecture (presentation) is being omitted. Standards Document 10, paragraph 9 (page 16 of 58) may be misleading certain individuals. However, if you go to the Part-FCL - Subpart J, AMC3 FCL.935 (b) (1), it states *'The applicant is required to give a lecture under test conditions to other 'students(s)', one of whom will be the examiner. The test lecture is to be selected from items of section 1. The amount of time for the preparation of the test lecture is agreed upon beforehand with the examiner. Appropriate literature may be used by the applicant. The test lecture should not exceed 45 minutes.'*

Unannounced CAA flight examiner visits

With a third fixed wing flight examiner joining the CAA recently, there will be more opportunities for the flight examiners to do some sampling flights at the different flying organisations around the UK with instructors and examiners. These could be unannounced or planned visits. Our intentions are to make ourselves more available and visible to the industry for guidance, questions and any other issues that need discussion, hopefully to improve standards all round. With us just popping in for a cup of coffee and a chat when in the area could be a positive way forward to build relationships between the different organisations and the staff examiners (CAA).

Skyway Code

The Skyway Code has been designed to provide students and qualified private pilots with easy, quick access to key information. As well as covering regulations, it includes examples of radio phraseology, tables for working out crosswind components and ground marshalling signals. Therefore, instructors should be encouraging its use whilst conducting pilot training. Flight Instructor Examiners (FIE) should be encouraging its use during any Instructor assessment of competencies.

Go to www.caa.co.uk/skywaycode to access the latest version.

The SkyWay Code is now also available to purchase in hard copy from aviation supplier AFE
Online: <http://www.afeonline.com/shop/cap-1535-the-skyway-code>

Questions or issues?

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